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Psychometric Evaluation of the Calling and Vocation Questionnaire-Revised (CVQ-R) and Calling and Vocation Questionnaire-10 Item (CVQ-10)

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Psychometric Evaluation of the Calling and Vocation Questionnaire-Revised (CVQ-R)

and Calling and Vocation Questionnaire-10 Item (CVQ-10)

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Abstract

The notion of calling toward career or life roles is salient for many, and as research on calling progresses, cohesive theories are solidifying. However, measurement challenges from lack of consensus on calling definition, and specifically perceived source of calling, pose a barrier. One of the most common definitions defines calling as being prosocial in nature, involving purposeful work, and arising from an external, transcendent summons. However, research suggests this definition may not adequately capture the experience of calling for people who instead or additionally perceive their calling as arising from an internal source. Consequently, I revised one of the most commonly used measures of calling, the Calling and Vocation Questionnaire (CVQ) to serve two purposes: (a) to add an internal summons dimension to the overall scale and (b) to create a short-version of the scale that would be suitable for research. My revisions included the creation of eight items assessing internal summons for the original CVQ and 10 items for a short form (CVQ-10). Items were administered to undergraduate students ($N = 496$) over age 18. Confirmatory factor analyses were used to evaluate a series of hypothesized models. Fit for the revised CVQ (including internal summons items) was inadequate (χ^2 [429, $N = 252$] = 1026.058, $p < .001$, CFI = .810, RMSEA = .074). This was likely due in part to poorer baseline model fit for the original CVQ (with no additional items) within this sample compared to the CVQ's validation study. Inadequate model fit was also observed across subsequent models. Additionally, inadequate fit was observed for the CVQ-10 (χ^2 [34, $N = 252$) = 498.560, $p < .001$, CFI = .642, RMSEA = .209). Results suggest that further investigation is warranted regarding a potential internal summons dimension of calling. The unique context (e.g., Christian, liberal arts)

of this research setting revealed curious and complex relations between the internal and transcendent sources of calling (i.e., negative regression weights and lower item-total correlations for transcendent summons items when internal summons items were added to the model), suggesting that items assessing calling source may not cleanly capture source across different populations.

Keywords: calling, source of calling, measure development

Chapter I

Introduction and Literature Review

The notion of a *calling* is salient within many people's lives, which has led to an increased interest in researching this construct and its potential utility in career-related interventions. One study estimated that about 50% of American workers perceived that they have a calling (Duffy, Autin, et al., 2015). The number of people who believe calling is relevant in their lives may be even higher for college students; one study found that 68% of college students believed a calling was relevant in their career decision-making process (Hunter et al., 2010). Likewise, in a sample of 5,000 college students, 43% reported that they had a calling and an additional 30% reported that they were searching for their calling. This study also found that a calling was more common in students seeking advanced degrees (Duffy & Sedlacek, 2010).

Calling may be particularly salient for college students because the tasks involved in searching for and living a calling align with significant developmental tasks for traditionally aged college students (i.e., ages 18-24). Emerging adulthood is a developmental period that has emerged in many cultures, including in the United States, as the age of first marriage gradually becomes later and the amount of formal education increases. This shift in the timeline for traditional entry into adulthood forms a prolonged period that can be devoted to exploring and pursuing independent adult roles, including a role as a worker with a meaningful career (Arnett, 2000). Successful navigation of emerging adulthood includes developing a sense of purpose along with skills and abilities that help people to succeed in their chosen careers and which benefit society (Adams, 2012). During this time, emerging adults normatively establish an identity, including a more stable sense of self. They may also strive to increase their engagement in adult roles that they see as personally or societally meaningful (Adams, 2012). Given the developmental tasks relevant to emerging adulthood, researchers suggest that college seems to be the

"optimal place" for students to explore their callings, which may function as a part of their identities (Hunter et al., 2010).

Because searching for and experiencing a calling are generally perceived as relevant in college students as they engage in developmentally appropriate identity and career exploration, it is important to research this construct. However, measurement of calling in the research literature has been varied and based on different research definitions of calling. Additionally, brief measures of calling have typically been limited to capturing a unidimensional construct of calling rather than a more widely accepted multidimensional construct of calling (Dik et al., 2012). Researchers (i.e., Duffy, Autin, et al., 2015; Duffy & Sedlacek, 2007) have therefore called for more valid and reliable instruments to assess calling given that measurement challenges have been a significant obstacle for the progression of research on calling (Dik et al., 2012; Hunter et al., 2010). Early research on calling was primarily inductive and atheoretical. As research on calling has matured, however, the focus has shifted to explicating a coherent theory on calling (e.g., Duffy et al., 2018). Advancement of this research agenda necessarily includes reliable, valid, and ideally brief measures appropriate across research and practice settings that accurately assess calling according to the most current and accepted multidimensional definitions of the construct (Duffy & Dik, 2013).

Over time, the definition of calling has evolved and broadened from its original religious conceptualization in which people are "called" by an external source (i.e., God, a higher power) to include more secular conceptualizations of calling in which people are "called" from within themselves (Duffy et al., 2018). The inclusion of an internal source of calling is based on research in which some people endorse that a calling comes from an inner drive or motivation rather than from an external societal need or higher power (e.g., Bunderson & Thompson, 2009; Hunter et al., 2010). This notion of an internal source of calling has not yet been incorporated into the most widely used measures of calling

(Duffy et al., 2018), but is increasingly acknowledged as relevant to how some people experience a calling, which calls for continued evaluation of research definitions and associated measures that best capture calling as a construct based on these lived experiences (Hunter et al., 2010).

The purpose of this study was to investigate the proposed addition of a factor assessing an internal source of calling to the Calling and Vocation Questionnaire (CVQ; Dik et al., 2012), one of the most commonly used measures of calling used in research. Additionally, I investigated the factor structure of this revised measure with the intention of reducing the number of items included while retaining its multidimensional nature to facilitate use within research and applied settings.

Defining Calling

The concept of calling has a long history, with descriptions of work as a calling originating with monks describing a call toward monastic life in the early centuries C.E. (Hardy, 1990). In the 16th and 17th centuries, Protestant reformers such as Martin Luther and John Calvin broadened this idea of a calling based on their proposal that any occupation, including non-religious occupations, could have spiritual significance (Hunter et al., 2010). These early definitions form what is known as the neoclassical definition of calling. The neoclassical definition focuses on God as the "caller" and calling is understood in religious terms.

More modern definitions of calling have expanded the notion to better describe the experiences of both religious and non-religious people. Many modern definitions still retain the root of religious calling in the form of an external summons from God or a higher power (Hunter et al., 2010). However, they also acknowledge a more secularized call that focuses on an "inner drive" toward self-fulfillment, happiness, and purpose. These modern definitions describe that some people may pursue a calling because of their religious beliefs, but that having religious beliefs is not "necessary or sufficient" for having a calling (Hall & Chandler, 2005).

One of the most commonly used research definitions of calling is the three-component definition of Dik and Duffy (2009), which forms the basis for calling as assessed in their Calling and Vocation Questionnaire (Dik et al., 2012). These researchers defined calling as "a transcendent summons, experienced as originating beyond the self, to approach a particular life role in a manner oriented toward demonstrating or deriving a sense of purpose or meaningfulness and that holds other-oriented values and goals as primary sources of motivation (Dik & Duffy, 2009). This definition aligns closely with the historic, neoclassical usage of the term calling (Hardy, 1990), but also broadens to a wider population than more explicitly religious definitions (Duffy et al., 2018).

Dik and Duffy's (2009) definition divides calling into three components: a prosocial orientation, in which work helps others or society as a whole; purposeful work, describing work that is personally meaningful for the individual experiencing a calling; and transcendent summons, which stipulates that the "call" originates from outside the self. This "call" can stem from many different sources, including God, a higher power, the needs of society, or a family legacy; however, the perceived "call" must come from a source outside the individual. This part of the definition is consistent with both literal and traditional meaning of "calling" as necessitating a "caller" (Duffy & Dik, 2013).

Dik and Duffy (2009) have traditionally held that the source of one's perceived calling differentiates calling from the closely related term, *vocation*. They stated that a calling necessitates an external source, while a vocation includes the first two components of a calling (i.e., prosocial orientation, purposeful work) and is perceived as stemming from a source within the individual (Dik et al., 2012). Vocation has also been defined in a myriad of ways throughout the literature, including as an "overwhelming desire to find meaning in lives through work" (Fine, 2003) and as "being engaged in work as an inner calling" (Treadgold, 1999).

However, more recently these authors have broadened their definition of calling and blurred the distinction between calling and vocation by acknowledging the possibility of an internal source of calling. They posed the question of whether participants perceived calling from an external source, an internal source, or a combination of both and noted that this question represents one of the most significant places of contention within research definitions of calling (Duffy & Dik, 2013). Reflecting current research in the field (e.g., Duffy et al., 2012; Hall & Chandler, 2005; Hunter et al., 2010) suggesting that all three of these sources may be perceived by those with callings, they described that "a calling is typically viewed as a type of work that is highly personally meaningful, prosocial in nature, and often arises as a result of an internal or external summons" (Dik & Duffy, 2009; Duffy & Dik, 2013; Duffy, Autin, et al., 2015). This definition was also utilized in their proposed theoretical structure of calling. Their Work as Calling Theory (WCT; Duffy et al., 2018) included a definition of calling that retained the multidimensional nature of the construct, emphasizing the importance of "meaning, prosocial motivation, and an internal or external summons" (Duffy et al., 2018).

Internal Versus External Sources of Calling

Discernment and Introspection as Methods for Realizing Calling

The definition of calling proposed in the WCT also aligns more closely with alternative definitions of calling that are more explicitly secular. These secular views place a higher emphasis on the internal processes that lead an individual to perceive a calling (Adams, 2012), and the calling itself is therefore seen to come from within the individual (Dobrow, 2004). Central to this distinction between traditionally religious and secular definitions of calling is the process by which calling is realized. However, this distinction becomes blurred when considering the focus of both processes on internal reflection.

From a secular perspective, individuals seek a calling through a process of introspection, which may involve reflection, meditation, and relational activities such as speaking with friends and family (Hall & Chandler, 2005). Discernment, which involves "learning and practicing to hear very clearly our own view," (Hall & Chandler, 2005), uses prayer as a tool for reflection and communication with God or a higher power. Both processes necessarily involve an internal process of self-reflection; even if an individual from a religious perspective feels called by an external source (i.e., God), they must then reflect on and process the meaning this call holds for his or her life. This process of self-reflection was described by Hansen (1997), who stated that calling involves a "self-reflective quest for personal and professional purpose." Results from qualitative research also support the importance of self-reflection; participants in Duffy et al.'s (2012) study typically were able to identify a source of their calling and described a process of self-reflection that they perceived as necessary to understanding their calling. The presence of this type of self-reflective process within exploration of calling is also consistent with the notion of a protean orientation, which Hall and Chandler (2005) proposed as a prerequisite for calling; this orientation involves self-direction and an internal drive directed by individual values toward a purpose.

The idea that calling, whether the perceived source is internal or external, requires individuals to engage in a process of internal self-reflection is also consistent with other authors' definitions of calling. Praskova et al.'s (2014) definition of calling included the first two elements of Dik and Duffy's (2009) definition (i.e., meaningful work, prosocial orientation), but included the possibility of an internal summons, external summons, or both when they described that individuals perceive "an external and/or internal" guiding force; these authors identified calling as "a mostly self-set, salient, higher-order, career goal, which generates meaning and purpose for the individual (and the community)." Novak (1996) explicitly identified self-reflection as an integral part of calling when describing that discovering a

calling requires "significant self-reflection, conversations with others, investigation and experimentation, and effort."

Examining How Individuals Perceive Source of Calling

Calling as arising from either an internal source, external source, or both is consistent with research that has assessed how individuals perceive their sense of calling. In fact, some researchers (Dobrow & Tosti-Kharas, 2011; Duffy & Dik, 2013; Hagmaier & Abele, 2012; Hall & Chandler, 2005) have argued that conceptualizing calling as stemming from an internal source better reflects the experiences of some research participants when asked about their calling. They suggested that many individuals do not identify an external caller when asked, but rather describe how working in the career they feel called to aligns with their internal passions and interests. Steger et al. (2010) also suggested that a traditional view of calling as religious or sacred may also be less relevant to people's reported experiences with calling; they asserted that, when asked, individuals tend to focus more on the personal meaning their work holds for them and how living out this calling influences their satisfaction within work and life.

Across qualitative studies, participants described a wide range of sources of calling. Some (e.g., God, higher power) were external sources, some (e.g., interests, skills, values, passions) were internal sources, and some sources (e.g., sense of destiny) did not fit neatly into either of these categories and may best be conceptualized as both internal and external (Duffy & Dik, 2013). One study (Duffy et al., 2014) provided participants with a forced-choice response regarding whether an external summons, a sense of destiny, or a perfect fit best described their experience of calling. They found that the majority (i.e., 55%) of participants identified that calling as a "perfect fit" best described their experience, while 23% identified an external summons as most appropriate and 22% identified a sense of destiny. The

authors also noted that these sources were not mutually exclusive for many participants, who viewed two or more of these descriptions as relevant in their personal experience of calling.

Two qualitative studies that examined participants' perceived source of calling as external or internal revealed further lack of consensus among participants' experiences of this aspect of calling. Duffy, Foley, et al. (2012) found that most participants in their study endorsed an external summons for their perceived call. Hunter et al. (2010), on the other hand, found that participants did not clearly and consistently identify an external source for their calling and instead identified sources that could be viewed as either internal or a combination of external and internal.

Together, this research suggests that experiences of calling, and particularly the perceived source(s) of calling, may be diverse and not cleanly captured within the notion of a transcendent summons originating from outside the self.

Assessing Calling in Research and Practice

Research suggests that the perceived source of one's calling may not have a significant impact on practical outcomes of having a calling (e.g., work satisfaction, life satisfaction; Duffy et al., 2014). However, accurately defining and measuring the source of one's calling may have important research and practice implications around assessing and utilizing the source of calling in career-focused interventions.

Assessing Source of Calling in Research

As research on calling matures, it becomes increasingly necessary to develop and utilize definitions and measures that best capture the lived experiences of those who perceive a calling. Some researchers (i.e., Duffy & Sedlacek, 2007) have responded to research participants' lack of a clear consensus regarding source of calling by choosing to omit a clear definition of calling in order to allow participants to respond with their own conceptualizations of calling in mind. This purposeful omission

speaks to the importance of continually revising research definitions of calling and creating measures

that accurately assess calling according to the most recent and accepted research definitions. Such a

definition and its associated measure(s) can help meet calls for research like those made by Hall and

Chandler (2005) for more research examining potential differences between religious callings (e.g.,

perceived as stemming from God or a higher power with a focus on living out God's plan and benefiting

society) and secular callings. In particular, these researchers questioned the ways in which individuals

experience positive outcomes secondary to perceiving a calling based on the source of the calling.

Additionally, researchers (Dik et al., 2012) posed the question of whether and how the transcendent

summons dimension of calling behaves differently for those with sacred versus secular

conceptualizations of calling—a question that remains unanswered. These types of research questions

necessitate a way to measure both external and internal sources of callings as perceived by research

participants.

  While positive psychological and work-related outcomes have been associated with calling

regardless of the source of calling, understanding the perceived source of one's calling may have

important implications for understanding the development of calling and one's perceived ability to live

out a calling (Duffy & Dik, 2013). A deeper understanding of how calling develops, how it is perceived,

and how it is lived out helps researchers to form a theoretical structure of calling. This is an important

task as research on calling matures beyond exploratory investigations (Duffy et al., 2018) and may aid

practitioners in facilitating exploration of calling.

Utilizing Source of Calling in Career Practice

  Understanding individuals' perceived source(s) of calling may also have important implications

for psychological practice and intervention with individuals presenting for career-related concerns.

Research suggested that a search for a transcendent summons negatively predicts career decidedness and

career decision-making self-efficacy (Eldridge & Dik, 2008). This relation implied that individuals whose conceptualization of calling includes a transcendent summons may take a more passive approach to career exploration as they wait to perceive a clear *call*. Knowing that an individual sees a call as originating from a completely external source may cue practitioners to assess the approaches the individual takes as he or she explores his or her calling and may indicate a need for psychoeducation regarding the active processes that facilitate perception of calling, potentially including discernment activities, career exploration, and self-reflection (Dik et al., 2009; Duffy & Sedlacek, 2007).

Hall and Chandler (2005) also argued that practitioners should be aware of the processes by which calling is explored and how these may differ for those with a religious versus a secular notion of calling. This understanding may facilitate a more focused and research-supported exploration process of calling that acknowledges and incorporates individuals' conceptualizations of calling, including its perceived source. If an individual has a religious conceptualization of calling, speaking about calling in terms of a transcendent summons and discussing potential discernment activities consistent with the individual's religious or spiritual beliefs may be more effective than discussing calling in more general terms (Adams, 2012). Additionally, the presence of a transcendent summons can play a significant role in career decision-making and may be a focus for practitioners when endorsed by clients (Dik et al., 2009). However, speaking about calling in these terms may not accurately describe the calling experiences of those with a secular conceptualization of calling. These clients may benefit from discussing calling in a way that better fits their lived experience and participating in exploration activities perceived as appropriate to their understanding of calling. In general, practitioners should focus on implementing interventions and using language appropriate to their clients' understandings of calling; one study found that group interventions were not as successful with students identifying as

Christian when the definitions of calling offered during the intervention conflicted with their personal conceptualizations of calling (Scholljegerdes et al., 2010).

Benefits of Calling

Understanding calling in research and facilitating exploration of calling in practice is important not only because calling is perceived as salient in many individuals' lives, but because having a calling is also associated with positive psychological and work-related outcomes.

Living out one's calling was associated with job satisfaction in many studies across samples of working adults (e.g., Adams, 2012; Duffy, Bott, et al., 2012). This relation held across diverse populations of students and workers, including members of the LGBTQ+ community (Allan et al., 2015) and workers from countries outside of the United States (Duffy et al., 2018). This relation is also well-studied and has been supported by over 200 studies across different populations (Duffy & Dik, 2013). Individuals who perceive a calling tended to be high performers in the workplace (Adams, 2012), described greater identification with their profession, ascribed more importance to their occupation, and viewed their work as more meaningful (Bunderson & Thompson, 2009; Davidson & Caddell, 1994). These individuals also demonstrated higher levels of career commitment and reported higher satisfaction with their career (Duffy et al., 2011). Within college students, having a calling correlated with increased decidedness regarding career, comfort with chosen occupation, career decision self-efficacy, academic satisfaction, and intrinsic work motivation (Dik et al., 2012).

Psychologically, individuals with a calling evidenced lower stress and depression, increased life satisfaction (Adams, 2012), and an increased sense of meaning in life (Duffy & Sedlacek, 2010). Having a calling has also been linked to greater frequency of positive affect, a stronger sense of existential well-being, and increased desire for challenge and enjoyment (Steger et al., 2010). Individuals with callings

may also be more likely to spend time working toward challenging and meaningful goals and experience increased self-esteem and self-confidence resulting from these efforts (Hall & Chandler, 2005).

Hall and Chandler (2005) suggested that these positive work-related and psychological outcomes may be important in helping workers to navigate a rapidly changing world of work. They described a shift over the past few decades away from steady, long-term occupations that individuals engage in throughout their lives until retirement toward a more dynamic vocational context characterized by frequent career changes and proposed that workers must effectively navigate this changing context to be successful vocationally. They suggested that having a calling may foster successful navigation of this context by facilitating metacompetencies developed through increased focus on one's work that in turn lead to increased effort, more goals successfully achieved, and increased self-confidence. These researchers described job satisfaction, self-awareness, and adaptability as valuable characteristics workers with a sense of calling may possess and argued that organizations benefit from hiring employees with these qualities (Hall & Chandler, 2005).

The Dark Side of Calling

While perceiving a calling is associated with significant positive outcomes for individuals, it may also have a "dark side" that is important to consider.

Unfortunately, having a calling does not necessarily mean that the calling can be lived out. While about 50% of American workers perceive a calling, the correlation between having and living out a calling is only .35-.54 (Duffy, Autin, et al., 2015). Factors such as socioeconomic background, associated privilege, and available resources may prevent some individuals who perceive a calling from pursuing this calling (Hall & Chandler, 2005). Resources within the workplace, including available social support, decision-making autonomy, and perceived significance of work tasks may also impact one's ability to experience and live out a calling (Hirshi et al., 2018). In one study (Gazica & Spector,

2015), people able to live out their callings endorsed the most positive outcomes regarding job, life, and health; however, individuals who self-reported that they perceived a calling but were unable to live out this calling reported poorer outcomes on these measures than those who did not have a calling at all. Research also suggested that not being able to live out a perceived calling is associated with negative mental health outcomes such as frustration and depression (Berg et al., 2010).

Contrasting this idea, however, is research by Hall surveying unemployed people who perceived a calling (as cited in Hall & Chandler, 2005). Participants in this study indicated that they did not find their calling until their resources were completely depleted, which forced them to explore and try out careers they would not have previously considered. They expressed the belief that having resources can, in some cases, prevent people from exploring their potential calling.

Perceiving a calling may also lead to workaholism (Duffy, Douglass, et al., 2015). Workaholism is associated with reduced job satisfaction and increased turnover (Duffy et al., 2018). One meta-analysis of 89 articles found that workaholism was also associated with lower job satisfaction and work performance (Clark et al., 2016).

Burnout is a negative psychological outcome that may be more likely for individuals who perceive a calling (Cardador & Caza, 2012). Burnout is defined as "a prolonged response to chronic emotional and interpersonal work-related stressors" (Maslach et al., 2001). Duffy, Douglass, et al. (2015) suggested that working in a career perceived as highly meaningful and helpful to others may lead individuals to experience more emotionally and interpersonally stressful encounters that, over time, may lead to burnout. Burnout may be even more likely when organizational exploitation or overwork occurs; Bunderson and Thompson's (2009) study with zookeepers who felt called to their profession indicated that employers did not feel compelled to provide extra incentives in the form of pay or benefits to employees who were intrinsically motivated enough to complete tasks without these external incentives

and were more likely to assign these employees difficult or unpleasant jobs. Burnout affects both the

individual and the organization, as it is linked with decreased job satisfaction and lower productivity

(Maslach et al., 2001).

Additionally, individuals who perceive a calling may be more likely to sacrifice their personal

time, including time that may otherwise be spent in self-care or engaging in other meaningful activities

(e.g., spending time with family) to their work (Berkelaar & Buzzanell, 2015). These individuals may

also rationalize unhealthy work behaviors or time investments in work by citing the importance the work

holds for society or for helping others (Duffy et al., 2018).

Individuals with a calling may also be less receptive over time to feedback from mentors,

especially if they perceive this feedback to conflict or seem inconsistent with their perceived calling

(Dobrow & Tosti-Kharas, 2012). This type of behavior over time may lead to premature career

foreclosure.

Measuring Calling

Measurement challenges have functioned as a significant barrier for research on calling, in large

part because measures tend to reflect different definitions of calling (Dik et al., 2012). Calling has been

measured both unidimensionally and multidimensionally based on these diverse definitions (Duffy,

Autin, et al., 2015). This diversity of measures likely reflects the multitude of different definitions of

calling that have been proposed and assessed since calling became a focus of research; however, despite

these diverse conceptualizations, most scholars currently describe calling as a construct consisting of

multiple components that may be summarized unidimensionally as a single "calling" score (Duffy &

Dik, 2013).

Duffy and Dik (2013) identified the perceived source of calling as one of the areas of least

agreement within calling definitions. This disagreement has led to a diversity of measures with regard to

how source of calling is conceptualized and assessed. Several instruments have been developed that do

not specify an external source of calling. Dobrow and Tosti-Kharas (2011) conceptualized calling as a

"meaningful passion" in their measure, the Calling Scale (SCI). Additionally, Steger and Dik (2006)

assessed calling through a two-item scale developed to assess calling in college students; they

purposefully chose to omit a description of the source of calling to leave this idea open to interpretation.

Other measures that have been developed to assess calling as a construct include Hagmaier and

Abele's Multidimensional Calling Measure (MCM; 2012), the Calling Paragraph (Wrzniewski et al.,

1997), Career Commitment Scale (Blau, 1985), the Work-Life Questionnaire (WLQ-Wrzniewski et al.,

1997), and the Work as Meaning Inventory (WAMI; Steger et al., 2012). Of these measures, the MCM

and the Career Commitment Scale are based on a definition of calling that explicitly identifies a

transcendent summons, the WLQ includes a more internal source of calling (i.e., motivation to work is

not external but rather "fulfillment that doing the work brings to the individual"), and the Calling

Paragraph does not identify a source of calling. A comparison study of these measures by Duffy, Autin,

et al. (2015) concluded that a correlational model in which factors were only allowed to correlate with

each other rather than load onto a higher order factor, provided the best fit, indicating that the inclusion

of different proposed aspects of calling (e.g., summons, passion) may lead these scales to measure

slightly different constructs of calling that potentially best operate independently. The idea that the most

commonly used measures of calling may assess slightly different constructs poses a potential barrier for

future meta-analyses or studies seeking to compare calling and its correlates across populations or

settings.

Two of the most commonly used measures of calling within the calling literature are based on

Dik and Duffy's (2009) multidimensional definition of calling (Duffy & Dik, 2013). The most

commonly used measure is the Brief Calling Scale (BCS; Dik et al., 2012), a 4-item measure that yields

a unidimensional calling score. While it does not provide an idea of how individuals perceive calling in terms of its three proposed dimensions of transcendent summons, prosocial orientation, and meaningful work, its utility in research stems from its brief nature and its ability to indicate quickly and efficiently a general idea of an individual's degree of search for and presence of calling. Duffy, Autin, et al. (2015) concluded that this measure was more effective than other calling measures in predicting having a calling, as assessed by a single, face-valid item asking whether the participant had a calling, because it does not include a theoretical definition of calling; participants are free to respond according to their own conceptualization of calling. This conclusion speaks to the importance of utilizing research definitions of calling that accurately describe participants' experiences of calling.

The Calling and Vocation Questionnaire (CVQ; Dik et al., 2012) includes 24 items divided into six subscales: presence/search of *transcendent summons*, presence/search of *prosocial orientation*, and presence/search of *purposeful work*. This measure retains the multidimensional nature of the calling definition it is based on and provides researchers and practitioners with a more detailed idea of how individuals score within each of these dimensions. This level of detail allows for investigation of more specific research questions and for the potential implementation of more targeted career interventions within practice. In their comparison of calling measures, Duffy, Autin, et al. (2015) concluded that the CVQ was the second-best predictor of calling, following the BCS. While they speculated that the BCS was the best predictor because participants respond based on their own individual conceptualization of calling, they also noted that an advantage of the CVQ over the BCS is the theoretically sound basis of its underlying calling construct coupled with face valid items that together lead to high predictive utility.

Purpose of Dissertation

A transcendent summons, the external source of calling, is a key part of Dik and Duffy's (2009) research definition of calling and is consequently included as one factor in the CVQ. However, if

individuals perceive their calling as arising potentially from both external and internal sources (and

sources that do not fit neatly into either category), then in is important to capture these experiences in

the most current definitions of calling (Hunter et al., 2010). Past research has suggested that brief

measures such as the BCS provide utility within both research and intervention settings in yielding an

efficient and general idea of calling for individuals. It has also suggested that face validity may be

important for maximizing the predictive value of these measures, especially given that individuals may

perceive calling differently depending on factors such as source of calling. However, a significant

limitation of the BCS is that it does not reflect the multidimensional nature of calling. The CVQ

provides this information regarding each proposed dimension of calling, but is potentially limited in

both its length and in its lack of inclusion of a potential internal source of calling, which may reflect

many individuals' experiences of calling.

The purpose of my dissertation was to fill this gap in measurement of calling as it has been most

recently conceptualized by (a) creating a revised version of the CVQ (i.e., the CVQ-R) using a

confirmatory factor approach that incorporates the proposed internal source of calling as a factor and

investigating how this additional factor fits with the rest of the measure, and (b) creating a briefer, 10-

item version of the CVQ (the Calling and Vocation Questionnaire-10; CVQ-10) that evaluates the

dimensionality of calling (i.e., search for/presence of prosocial orientation, purposeful work,

transcendent summons, and the newly proposed internal summons dimension).

Chapter II

Method

Participant Characteristics and Sampling Procedures

Participants

Participants were current undergraduate students (N = 496) at a private, liberal arts university in the Pacific Northwest who were over the age of 18 and enrolled in any academic year during fall of 2019.

Participants were predominantly female (63.9%), with 35.9% identifying as male and 0.2% (n = 1) identifying as other. Participants self-identified as White (43.5%), followed by Asian (16.5%), Hispanic of any race (12.7%), Black or African American (6.9%), Hawaiian Native or Pacific Islander (0.6%), or two or more races (9.9%). Additionally, 1% reported that their race was unknown and 8.9% identified themselves as nonresident aliens. 9.3% of participants indicated that they were international students who were studying in the United States. Participants were 18 years or older and ages ranged from 18 to 70 (M = 20.69, SD = 5.37).

Most participants were students who had enrolled at the university directly following high school. The majority were first-year students who had enrolled following high school (52.2%), followed by second-year students (12.9%), fourth-year students (6.0%), and third-year students (5.6%). Other participants were students who had transferred from another university in fall of 2019 (17.7%) or in 2018 (5.4%).

A little fewer than half (40.9%) of participants identified themselves as the first person in their families to attend college. Most participants (74.8%) had enrolled at the university directly following high school, 24.8% had transferred from another university, and 0.4% of participants were post-baccalaureate students. Data on financial need, which can be used as a rough indicator of family income,

indicated that most participants (40.1%) fell into the category of "highest need," followed by "no need"

(25.6%) "high need" (23.2%), "medium need" (5.8%), and "low need" (5.2%).

In terms of religious affiliation, 49.2% of participants self-reported as affiliated with one of 46

different religious denominations. Roughly half (47.3%) of participants overall identified as Christian.

Other religions represented were Muslim (0.6%) and Buddhist (0.6%). One percent identified as non-

religious and information on religious affiliation was not known for 49% of participants.

Survey Administration

Data collection occurred during fall quarter of 2019. The survey was administered with the goals

of (a) examining how the CVQ-R captured the three existing subscales proposed in the construct of

calling (i.e., prosocial orientation, meaningful work, and transcendent summons), and (b) examining

how the proposed internal dimension of calling holds with the rest of this measure and determining

which items best capture this expanded construct of calling. Additional measures were administered to

allow for evaluation of convergent and discriminant validity.

The survey invitation was sent to currently enrolled students and recent graduates (i.e., those

who had graduated within one year) via email. The survey itself was hosted on Canvas, a learning

management system, Canvas. All enrolled students had access to the survey and calling-related

intervention activities via Canvas and were invited to complete the survey prior to their participation in

the intervention activities. Additionally, some professors chose to integrate these activities and the

associated survey into their courses and some additionally chose to grant a small amount of class credit

to students enrolled in their classes who completed the survey and/or activities.

Sampling Size, Power, and Precision

Soper's (2019) Structural Equation Sample Size Calculator was used to determine the

recommended minimum sample required for my analyses.

I indicated an anticipated effect size of 0.3, desired statistical power level of 0.9, and indicated the number of latent variables (i.e., 8, representing search and presence of each of the three original CVQ subscales plus the additional internal summons subscale) and the number of observed variables (i.e., 42), and set the alpha (Type 1 error) level at 0.05. The calculator indicated a recommended minimum sample size of 218 participants for this phase. I randomly divided my sample approximately in half, creating an initial sample to evaluate and reserving a sample for cross-validation. The initial sample included 252 participants and the cross-validation sample included 244 participants. Both samples exceeded the minimum recommended sample size.

Instruments

All students were administered the CVQ-R (i.e., the original CVQ items and the 8 items added to evaluate the proposed internal summons dimension) and the CVQ-10. The additional measures administered to assess convergent and discriminant validity depended on students' academic year. The form administered to first-year and transfer students ($n = 347$) included the Core Self-Evaluations Scale (CSES; Judge et al., 2003). The measures administered to all other continuing students ($n = 149$) included the Social Provisions Scale-10 (SPS; Caron, 2013) and the Career Adapt-Abilities Scale (CAAS; Savickas & Porfeli, 2012).

Demographic Information

Demographic information was collected through institutional records completed by students as part of the admissions process. Available demographic information for this study included (a) age, (b) ethnicity, (c) international student status, (d) sex, (e) first generation student status, (f) religion, (g) term grade point average (GPA), (h) overall GPA, and (j) financial aid need status, an indicator of family income.

CVQ

The CVQ (Dik et al., 2012) is a 24-item measure that assesses search and presence of Dik and Duffy's (2009) three proposed dimensions of calling (i.e., prosocial orientation, meaningful work, and transcendent summons) for a total of 6 subscales, each assessed with 4 items. Sample items include "I believe I have been drawn to my current line of work," "Making a difference for others is the primary motivation in my career," and "I was drawn by something beyond myself to pursue my current line of work." Respondents indicate how well these statements apply to them individually on a 4-point Likert scale ranging from 1 (*not at all true of me*) to 4 (*absolutely true of me*).

The CVQ yields individual scores for each subscale (i.e., search/presence of the three dimensions) in which higher scores indicate a stronger degree of the indicated dimension of calling. The CVQ can also yield overall *search for calling* (e.g., "I'm searching for my calling in my career" and *presence of calling* (e.g., "I'm pursuing my current line of work because I believe I have been called to do so") scores by summing the respective subscales. Although the authors noted that doing so reduced model fit, they propose that the utility of these overall scores for indicating degree of perceived calling may outweigh this potential drawback.

In their initial validation of the CVQ, Dik et al. (2012) found that the model with the best and most parsimonious fit for their data was comprised of three, 4-item subscales evaluating presence of purposeful work, prosocial orientation, and transcendent summons, and three, 4-item subscales evaluating search for purposeful work, prosocial orientation, and transcendent summons. Fit indices indicated acceptable model fit (χ^2 [237, $N = 228$] = 410.87, $p < .001$, CFI = .94, NNFI = .94, SRMR = .05, RMSEA = .06, RMSEA 90% CI [0.5, 0.7]). Although they indicated that allowing four pairs of errors to covary would have improved model fit, they chose to reject this model to avoid overfitting the model. Cross-validation of their model was supported by slightly improved model fit in a split-half

sample (χ^2 [237, $N = 228$] = 391.29, $p < .001$, CFI = .96, NNFI = .95, SRMR = .04, RMSEA = .06,

RMSEA 90% CI [.05, .07]).

Dik et al. (2012) found good internal consistency reliability coefficients across CVQ subscales,

ranging from .85 for presence of transcendent summons to .92 for search for prosocial orientation. They

also observed good test-retest reliability, with coefficients ranging from .60 for search for purposeful

work to .67 for search for transcendent summons. Additionally, a pattern of relationships consistent with

hypotheses between overall presence/search scores and theoretically related scales (i.e., intrinsic work

motivation, extrinsic work motivation, career decision self-efficacy, life satisfaction) was found,

providing evidence of convergent and discriminant validity.

Additional Measures

Additional measures were administered along with the CVQ-R to help establish the new

measure's place in the nomological net through analysis of convergent and discriminant validity.

Core Self-Evaluations Scale.

The Core Self-Evaluations Scale (CSES; Judge et al., 2003) is a 12-item scale assessing people's

core self-evaluations (CSE), their overall perceptions of their worth and capability, which the authors

claim predicts job satisfaction and performance. The CSES evaluates CSE on the basis of four subscales

with three items each: *self-esteem*, *neuroticism*, and *locus of control*. Participants are asked to indicate

their degree of agreement to each statement on a five-point Likert scale ranging from 1 (*Strongly

disagree*) to 5 (*Strongly agree*). Sample items include: "I am confident I get the success I deserve in

life," "I am capable of coping with most of my problems," and "I am filled with doubts about my

competence" (reverse scored).

Judge et al. (2003) indicated that the items of the CSES load onto a single factor and report strong internal consistency reliability (Cronbach's alphas ranging from .81 to .85), test-retest reliability ($r = .81$) and between self- and partner-report ($r = .43$).

Social Provisions Scale-10.

The Social Provisions Scale- 10 item (SPS-10; Caron, 2013) is a shortened version of Cutrona and Russell's (1987) Social Provision Scale that measures perceived availability of social support. It assesses the five subscales of emotional support or attachment, social integration, reassurance of worth, tangible help, and orientation, with two items per subscale. Participants indicate on a 4-point Likert scale their degree of agreement with statements on a scale from 1 (*Strongly disagree*) to 4 (*Strongly agree*). Sample items include: "There are people I can depend on to help me if I really need it," "I have relationships where my competence and skills are recognized," and "There is no one can I can turn to for guidance in times of stress" (reverse scored). Subscales are moderately correlated with each other and all load more highly onto a support global score.

Caron (2013) states that the SPS-10 has excellent internal reliability, with a Cronbach's alpha of 0.880 for the global scale and alphas for subscales ranging from 0.528 to 0.690.

Career Adapt-Abilities Scale.

The Career Adapt-Abilities Scale (CAAS; Savickas & Porfeli, 2012) is a 24-item scale that assesses career adaptability, or the perceived ability of an individual to adapt to work-related situations. The measure includes four subscales, each measured with 6 items, which reflect psychosocial resources hypothesized to facilitate several forms of adaptability: *concern, control, curiosity,* and *confidence*. Participants are asked to "please rate how strongly you have developed each of the following abilities using the scale below." Participants indicate their responses on a 5-point Likert scale ranging from 1

(*not strong*) to 5 (*strongest*). Sample items include, "Becoming aware of the educational and vocational choices that I must make," "Becoming curious about new opportunities," and "Solving problems."

The CAAS yields a total career adaptability score as well as scores for each of its four subscales. In its initial validation study across populations within 13 countries (Savickas & Porfeli, 2012), the authors note that reliability of subscales and the total career adaptability index varied across countries but was generally acceptable (Cronbach's alpha = .74-.92).

Research Design

Study Approval

The data used for this dissertation was part of a larger study that was approved by the Seattle Pacific University Institutional Review Board (IRB), #171801007. Students were informed that while completion of activities associated with the larger project may have been required by some professors, completion of the associated survey and collection of university institutional data for demographic purposes were optional.

Item Creation

I created two sets of items that I administered along with the 24 original CVQ items. First, I wrote four items assessing presence of internal summons and four items assessing search for internal summons. I based wording and content of these items on the original CVQ and from qualitative research (e.g., Hunter et al., 2010) that has evaluated perceived potential internal sources of calling. This process resulted in a pool of eight new items that were randomly interspersed with the original CVQ items to form a 32-item revised CVQ (CVQ-R). Participants were asked to respond to all 32 items using the CVQ's original 4-point Likert scale.

Next, I wrote 10 items for the CVQ-10. Each of Dik et al. (2012)'s original six dimensions of calling (i.e., search and presence of prosocial orientation, purposeful work, and transcendent summons)

and the proposed internal summons dimension was assessed with one item clearly stating the definition

of the dimension, resulting in eight items. I also created 2 items directly assessing perceived presence of

calling and search for calling to add to this measure for a total of 10 items. Rather than responding using

the CVQ's original 4-point Likert scale, I administered these 10 items on a 100-point Likert scale in

which anchors were based on the wording of the original CVQ's Likert scale. I chose to utilize a 100-

point scale to account for the potential loss of statistical information in attempting to capture each

calling subscale with only one item. The CVQ-10 scale was administered in the survey as a separate

measure from the revised, 32-item version of the CVQ (CVQ-R). Both the CVQ-R, including the

original 24 CVQ items and the 8 items assessing internal summons, and the CVQ-10 are included in

Appendix A.

Data Analytic Strategy

In parallel to Dik et al. (2012) in their development of the CVQ, I evaluated a series of

hypothesized models to determine (a) how well Dik et al.'s (2012) best-fit model (i.e., a bifactor model

including search for/presence of the three subscales of prosocial orientation, purposeful work, and

transcendent summons) fit in my sample, (b) how the addition of items assessing search for/presence of

internal summons fit within this and alternative models (i.e., for the CVQ-R), (c) how well the CVQ-10

items represented their respective subscales compared to other items assessing the same constructs in the

CVQ, and (d) how well the CVQ-10 functioned on its own to represent search for/presence of the four

subscales of calling. I created and evaluated models in a systematic manner to allow for understanding

of relatively simpler relations before adding complexity, consistent with the model-generating approach

as recommended by Jöreskog (1993). Dik et al. (2012) indicated CFA as the preferred method for

measure development because it includes indicators of model fit, which allows subsequent models to be

compared and provides modification indices (MIs) that indicate how model fit may be improved; I

utilized these indicators of model fit in evaluating models and deciding on how to improve model fit

through allowing errors to covary. Following Byrne's (2016) recommendations, I chose to allow errors

to covary only when a theoretical rationale existed for doing so and avoided allowing error covariance

when the errors mapped onto different factors.

I examined three primary fit statistics to evaluate model fit for my hypothesized factor structures.

In utilizing the chi square (χ^2) statistic, I looked for a non-significant statistic which would allow me to

reject the null hypothesis through indication that my model fit the population (Byrne, 2016); however, I

considered that a large sample size can render this test overly sensitive, requiring the use of other fit

indices. The comparative fit index (CFI) compares the hypothesized model to the null model and should

ideally be above .95 to indicate adequate model fit (Hu & Bentler, 1999). The root mean square error of

approximation (RMSEA) estimates the error of approximation. When using this statistic to evaluate

model fit, values less than or equal to .05 indicate excellent fit, values .06-.08 indicate acceptable fit, and

values .10 and above represent poor fit (Byrne, 2016). I additionally included Akaike's Information

Criterion (AIC) and the Bayes Information Criterion (BIC) in order to provide a way of comparing non-

nested models. The AIC addresses parsimony in evaluating model fit by considering statistical goodness

of fit as well as the number of estimated parameters. The BIC operates similarly to the AIC but imposes

greater penalties for model complexity. When using the AIC and BIC to compare non-nested models,

small values indicate the better fitting model (Byrne, 2016; Kline, 2016). All models were evaluated for

both the initial sample and cross-validation sample data. All models are depicted within thumbnail

representations in Table 8.

The first model was evaluated to establish a baseline for how well Dik et al.'s (2012) best-fit

model in their development and validation of the original CVQ represented data from my sample. Model

1 (M1) therefore evaluated the fit of a bifactor model with items loading onto their respective

presence/search dimensions as well as onto one of the three hypothesized subscales of calling (i.e.,

transcendent summons, purposeful work, and prosocial orientation).

I next evaluated model fit of the CVQ-R, which added eight items assessing the presence of and

search for an internal summons to the original 24 CVQ items for a total of 32 items. In Model 2 (M2), I

added these items loading onto their respective search/presence dimensions as an additional subscale to

the factor structure evaluated in Model 1. Given negative factor loadings of three items within the

transcendent summons items Model 2, I next removed the transcendent summons items and internal

summons items (M3) to evaluate the original CVQ factor structure including only the purposeful work

and prosocial orientation items. In Model 4 (M4), I added back the internal summons items to evaluate

how model fit changed with the addition of this subscale.

Next, I evaluated a series of models which included the CVQ-R along with the items of the

CVQ-10 (denoted as the *Full CVQ* within tables). While the CVQ-R and the CVQ-10 were administered

as separate scales in the survey, they were included together in my CFA models as all items were

intended to assess the same overall construct of calling with its eight hypothesized subscales (i.e., search

for/presence of prosocial orientation, purposeful work, transcendent summons, and internal summons).

This analysis method also allowed me to determine how well each item of the CVQ-10 captured its

intended subscale; a 10-item, 2 x 5 bifactor scale was statistically under-identified to test all but the

simplest of models, so I used the results of the combined CVQ-R/CVQ-10 models to determine if these

newly constructed items (representing the construct definition) had item loadings suggesting that,

statistically, they represented the construct. Specifically, I expected that these items would have among

the highest factor loadings, which would provide evidence for allowing them to stand on their own in

this construct-updated, yet shortened, measure (P. Bentler, personal communication, April 27, 2019).

The first of these models (M5) evaluated a single-order, single-factor model in which all items loaded

onto a latent calling variable. In M6, I divided items into their respective uncorrelated presence and

search subscales. M7 paralleled M6 but allowed the presence and search subscales to correlate. I then

evaluated a model in which all items loaded onto their respective subscales (i.e., transcendent summons,

purposeful work, prosocial orientation, or internal summons) without separate presence and search

dimensions (M8). The most complex model in this set (M9) again paralleled Dik et al.'s (2012) best-fit

model with the addition of the internal summons subscale and the CVQ-10 items: a bifactor model with

items loading onto their respective presence/search dimensions as well as onto one of the four

hypothesized subscales of calling. I then evaluated presence items (M10) and search items (M11)

separately, with items loading onto their respective subscale.

The next set of models evaluated the CVQ-10 as a stand-alone measure of calling. M12 was a

single-order, single-factor structure in which all items loaded onto a latent calling variable. M13 divided

these items into correlated presence and search dimensions.

Given poor performance of the CVQ-10 items both with the CVQ-R and independently, I chose

to further explore the feasibility of a short-form version of the CVQ-R and evaluated two additional

models, which included one item to represent presence/search of the four hypothesized subscales. To

choose these items, I evaluated the factors loadings of items in the best-fit model of the CVQ-R (see

M2) and chose one item from each subscale (presence/search of the four dimensions of calling) that best

represented its construct based on having the highest factor loading in its subscale. This process resulted

in a pool of eight items that were then evaluated in parallel to the CVQ-10 models: as a single-order,

single-factor model (M14) and as a bifactor model with correlated search/presence dimensions (M15).

This exploratory scale is denoted as the Calling and Vocation Questionnaire-Short Form (CVQ-SF) in

the included tables.

Chapter III

Results

Data Screening

I first examined my data for potential outliers. I identified outliers using the squared

Mahalanobis distance (D^2), which calculates the distance in standard deviations between the scores for

each case and the sample means for all variables in the analysis (Byrne, 2016). I observed minimal

differences among these scores, suggesting little evidence of outliers.

Next, I checked for both univariate and multivariate normality, which are key assumptions in

SEM (Byrne, 2016). Multivariate normality is an assumption of structural equation modeling, and data

that are multivariate kurtotic are especially problematic in SEM analyses since SEM is based on analysis

of covariances (Byrne, 2016). Univariate normality is a necessary but not sufficient condition for

multivariate normality (Byrne, 2016). To evaluate univariate normality, I checked for standardized

kurtosis values greater than 7, per Byrne's (2016) recommendations, and found no evidence of

univariate kurtosis. To evaluate multivariate kurtosis, I checked for a critical ratio z-statistic over 5; in

my data, this statistic was 23.91 which was suggestive of multivariate non-normality. Byrne (2016)

suggested using an alternative method of estimation, the asymptotic distribution-free (ADF) distribution

in cases of multivariate non-normality if the sample size is at least 10 times the number of estimated

parameters. However, my sample size precluded use of this method, so results should be interpreted with

caution.

I then examined patterns of missingness in my data and found that most participants adopted an

"all-or-nothing" approach in which they either completed all items or no items on each measure, with

the majority (76%) of participants completing all items. For participants with usable data but missing

items, the pattern of missingness was haphazard (Enders, 2010), and no more than three participants

missed any one item. I set my tolerance of scale-level missingness at 25% given that each subscale in

the CVQ comprised 4 items, which excluded participants from subsequent analysis if they had not

completed at least 3 out of the 4 items of at least one CVQ subscale ($n = 121$). Participants were also

excluded if their calculated age at time of survey completion was under 18 years old ($n = 57$). This

process resulted in a total analysis sample of 496 participants, representing 73% of total attempted

responses to the survey.

I used multiple imputation (MI; Enders, 2010) to manage the small amount of missing data

remaining and imputed at the item level given the psychometric nature of my dissertation; SEM in

AMOS requires item-level data and its listwise deletion procedures delete cases with missing data if

present (Byrne, 2016). I constrained scale items to the scale-determined minimum and maximum values

and included gender and age as auxiliary variables in the imputation process to help preserve dataset

structure and reduce bias in imputed values (Enders, 2010). Maximum case draws were specified at 50

and maximum parameter draws were specified at 2.

Examining Item-Total Correlations

I first examined item-total correlation matrices for all variations of the scales I tested: the

original CVQ, CVQ-R, Full CVQ, CVQ-10, and CVQ-SF. For both item-total correlations and the

scale/subscale correlations provided next, the CVQ and CVQ-R are included in one table together so it

is clearer how the new items (i.e., those assessing the theorized internal dimension) related to the

original CVQ. Likewise, item-total correlations and scale/subscale correlations for the full CVQ

(including the CVQ-R and CVQ-10 items together, as they were administered) and the CVQ-10 measure

independently are included together in a separate table. Finally, the statistics for the exploratory CVQ-

SF are included in their own table.

Throughout the item-total correlation tables, items are organized by theorized subscale. Item-total correlations are correlations computed between each item on the scale and the total scale score (or subscale). In using item-total correlation matrices in item analysis, items that have high positive correlations should be chosen to the degree that they theoretically best capture the construct of interest; items with weak correlations with the total score may need to be deleted or revised (Green & Salkind, 2014, p. 302). I used item-total correlation matrices to estimate each item's correlation with its own and other subscales as well the measure as a whole. Ideally, in the subscale analysis each item should have a higher correlation with its own scale than with other scales; this pattern would indicate that these more highly correlated items together form a factor, as hypothesized.

For the original CVQ and CVQ-R (see Table 1), most items correlated more strongly with their own subscale than with other subscales, which lends support to the convergent and discriminant validity of these scales. However, a few exceptions to this pattern were noted. One common pattern was that some items correlated almost equally strongly across presence and search dimensions within the same subscale (e.g., search for purposeful work and presence of purposeful work). Item 17 (number reflects the CVQ-R) in the search for transcendent summons dimension had the *lowest* correlation with its own scale (0.080) contrary to what would be expected and correlated most strongly with the presence of prosocial orientation subscale. Additionally, some items within the internal summons subscales had almost equal correlations with other subscales (e.g., purposeful work) as with their own subscales, meaning that these items may not have been cleanly representing only their intended factors.

Table 1.   *Item Statistics for the Original Calling and Vocation Questionnaire (CVQ) and the Calling and Vocation Questionnaire-Revised (CVQ-R), with Subscale Alphas, Standard Estimates, Item-Total Correlations for Total Scale and Subscales*

Version (Item Number)		Subscale/Item	M1:ß	M2:ß	Corrected Item-Total Correlation		Subscale Item-Total Correlations							
Original CVQ	CVQ-R				Original CVQ	CVQ-R	PTS	STS	PPW	SPW	PPO	SPO	PIS	SIS
		Presence of transcendent summons (PTS)					Corr	STS	PPW	SPW	PPO	SPO	PIS	SIS
1	1	I believe that I have been called to my current line of work.	0.42	0.59	0.390	0.432	**0.413**	-0.032	0.427	0.231	0.337	0.386	0.471	0.308
8	10	I do not believe that a force beyond myself has helped guide me to my career. (r)	-0.03	-0.05	0.123	0.084	**0.213**	0.062	0.025	0.110	0.058	0.105	-0.049	-0.28
11	15	I was drawn by something beyond myself to pursue my current line of work.	0.37	0.42	0.480	0.485	**0.522**	0.159	0.413	0.286	0.463	0.340	0.378	0.305
23	30	I am pursuing my current line of work because I believe I have been called to do so.	0.39	0.44	0.595	0.612	**0.556**	0.200	0.553	0.384	0.526	0.445	0.475	0.432
		Search for transcendent summons (STS)	ß	ß			PTS	Corr	PPW	SPW	PPO	SPO	PIS	SIS
2	2	I'm searching for my calling in my career.	0.10	-0.12	0.268	0.246	0.020	**.443**	.116	.316	.225	.160	0.025	0.209
13	17	I yearn for a sense of calling in my career.	0.86	0.64	0.608	0.591	0.413	**.080**	.439	.372	.650	.644	0.376	0.352
18	23	I am trying to figure out what my calling is in the context of my career.	0.05	-0.27	0.307	0.286	0.060	**.564**	.154	.291	.277	.147	0.034	0.259
19	24	I'm trying to identify the area of work I was meant to pursue.	-0.04	-0.33	0.168	0.154	-0.076	**.488**	.040	.201	.147	.070	-0.042	0.188
		Presence of purposeful work (PPW)	ß	ß			PTS	STS	Corr	SPW	PPO	SPO	PIS	SIS
3	3	My work helps me live out my life's purpose.	0.51	0.55	.515	0.546	.459	.098	**.478**	.390	.446	.437	0.495	0.389
15	19	I see my career as a path to purpose in my life.	0.62	0.54	.586	0.620	.331	.257	**.541**	.590	.497	.414	0.532	0.464
20	26	My career is an important part of my life's meaning.	0.59	0.53	.545	0.602	.288	.263	**.549**	.510	.481	.373	0.544	0.540
24	32	I try to live out my life purpose when I am at work.	0.56	0.46	.525	0.548	.428	.188	**.535**	.446	.438	.335	0.432	0.421
		Search for purposeful work (SPW)	ß	ß			PTS	STS	PPW	Corr	PPO	SPO	PIS	SIS
4	5	I am looking for work that will help me live out my life's purpose.	0.54	0.44	.538	0.538	.275	.363	.458	**.554**	.415	.374	0.354	0.376
6	7	I intend to construct a career that will give my life meaning.	0.64	0.50	.597	0.606	.296	.300	.549	**.623**	.457	.479	0.433	0.433
14	18	Eventually, I hope my career will align with my purpose in life.	0.48	0.31	.521	0.510	.255	.410	.455	**.550**	.381	.318	0.291	0.350
21	28	I want to pursue a career that is a good fit with the reason for my existence.	0.63	0.50	.510	0.529	.283	.250	.520	**.503**	.400	.346	0.408	0.401
		Presence of prosocial orientation (PPO)	ß	ß			PTS	STS	PPW	SPW	Corr	SPO	PIS	SIS
9	11	The most important aspect of my career is its role in helping to meet the needs of others.	0.73	0.66	.556	0.548	.376	.278	.410	.289	**.512**	.623	0.363	0.344
12	16	Making a difference for others is the primary motivation in my career.	0.25	0.05	.508	0.483	.313	.473	.367	.507	**.264**	.300	0.227	0.313
17	22	My work contributes to the common good.	0.69	0.66	.571	0.563	.400	.222	.471	.305	**.548**	.615	0.412	0.313
22	29	I am always trying to evaluate how beneficial my work is to others.	0.54	0.42	.593	0.590	.324	.346	.531	.425	**.517**	.507	0.365	0.421
		Search for prosocial orientation (SPO)	ß	ß			PTS	STS	PPW	SPW	PPO	Corr	PIS	SIS
5	6	I am trying to find a career that ultimately makes the world a better place.	0.62	0.52	.621	0.600	.371	.305	.429	.500	.581	**.608**	0.348	0.369
7	8	I want to find a job that meets some of society's needs.	0.64	0.51	.548	0.538	.267	.323	.367	.365	.532	**.652**	0.329	0.353
10	13	I am trying to build a career that benefits society.	0.64	0.59	.575	0.568	.376	.234	.424	.362	.548	**.689**	0.384	0.356
16	21	I am looking for a job where my career clearly benefits others.	0.75	0.66	.642	0.627	.451	.321	.468	.380	.638	**.631**	0.412	0.369
		Presence of internal summons (PIS)	ß	ß			PTS	STS	PPW	SPW	PPO	SPO	Corr	SIS
-	4	I feel called to my major/career because it aligns well with my own interests.	-	0.63	-	0.438	0.377	0.008	0.432	0.296	0.270	0.289	**0.565**	0.402
-	9	I know I am called to my major/career because my skills align well with my work demands	-	0.60	-	0.444	0.326	0.049	0.423	0.261	0.346	0.304	**0.482**	0.464

			β	β	Original CVQ	CVQ-R	PTS	STS	PPW	SPW	PPO	SPO	PIS	Corr
-	20	I feel called to my major/career because of my passion for it.	-	0.74	-	0.529	0.424	0.064	0.496	0.345	0.349	0.397	**0.625**	0.472
-	27	I am called to my major/career by my personal values.	-	0.36	-	0.519	0.192	0.257	0.585	0.496	0.409	0.332	**0.294**	0.426
		Search for internal summons (SIS)	*ß*	*ß*	Original CVQ	CVQ-R PTS	STS	PPW SPW PPO SPO PIS						Corr
-	12	My personal values are guiding me as I search for my calling.	-	0.35	-	0.523	0.321	0.317	0.453	0.383	0.408	0.375	0.399	**0.381**
-	14	I will know when I've found my calling because of my passion for the work.	-	0.61	-	0.532	0.353	0.178	0.454	0.387	0.376	0.396	0.539	**0.439**
-	25	My search for calling is guided by how my own skills align with the work demands.	-	0.25	-	0.467	0.189	0.372	0.401	0.372	0.345	0.303	0.352	**0.413**
-	31	My search for calling is guided by my own interests.	-	0.43	-	0.372	0.145	0.166	0.380	0.284	0.240	0.177	0.404	**0.463**

Note: Data are from the total sample (*N* = 496). Standardized regression weights for the original CVQ items only (*M1: ß*) are from the initial sample's data for CFA model 1: a bifactor structure with items loading on to two factors representing *presence of calling* and *search for calling* and also loading onto the subscales of *transcendent summons, purposeful work,* and *prosocial orientation* (χ^2 [226, *N* = 252] = 572.328, *p* < .001, CFI = .849, RMSEA = .078 for the initial sample; χ^2 [225, *N* = 244] = 556.201, *p* < .001, CFI = .870, RMSEA = .078 for the cross-validation sample). Standardized regression weights for the revised CVQ items (*M2: ß*) are from the initial sample's data for CFA model 2: a bifactor structure with items loading on to two factors representing *presence of calling* and *search for calling* and also loading onto the subscales of *transcendent summons, purposeful work, prosocial orientation*, and *internal summons* (χ^2 [429, *N* = 252] = 1026.058, *p* < .001, CFI = .810, RMSEA = .074 for the initial sample; χ^2 [429, *N* = 244] = 988.358, *p* < .001, CFI = .838, RMSEA = 0.73 for the cross-validation sample). Scale/subscale abbreviations: PTS (Presence of Transcendent Summons), PPW (Presence of Purposeful Work), PPO (Presence of Prosocial Orientation), PIS (Presence of Internal Summons), STS (Search for Transcendent Summons), SPW (Search for Purposeful Work), SPO (Search for Prosocial Orientation), SIS (Search for Internal Summons).

Item-total correlations are provided for the full CVQ (i.e., CVQ-R and CVQ-10 items) in Table 2. I again noticed a similar pattern in that some items correlated strongly onto both their respective presence and search dimensions. While I expected the CVQ-10 items to have among the strongest correlations with their respective subscales, I found that in six out of the eight subscales they had stronger correlations with other subscales than their own subscale. Compared to the CVQ-R without the addition of the CVQ-10 items, much lower item-total correlations were also observed for items within the presence of prosocial orientation and presence of internal summons subscales in particular.

Table 2.   *Item Statistics for the Full Calling and Vocation Questionnaire (Including CVQ-R and CVQ-10 Items), with Subscale Alphas, Standard Estimates, Item-Total Correlations for Total Scale and Subscales*

Version (Item Number)	Subscale/Item	M9: *ß*	Corrected	PTS	STS	PPW	SPW	PPO	SPO	PIS	SIS
40	*Presence of transcendent summons (PTS)*		Corrected	Corr	STS	PPW	SPW	PPO	SPO	PIS	SIS
1	I believe that I have been called to my current line of work.	0.559	.211	**.230**	0.004	0.343	-0.005	0.210	0.076	-0.022	0.006
10	I do not believe that a force beyond myself has helped guide me to my career. (r)	0.194	.236	**.395**	0.262	0.141	0.174	-0.089	0.122	-0.179	-0.042
15	I was drawn by something beyond myself to pursue my current line of work.	0.665	.306	**.407**	0.208	0.292	0.088	0.129	0.185	0.094	0.031

30	I am pursuing my current line of work because I believe I have been called to do so.	0.762	.369	**.410**	0.204	0.405	0.147	0.192	0.204	0.097	0.072
R2	The source of this calling comes from outside myself.	0.471	.514	**.504**	0.536	0.477	0.322	0.073	0.315	0.327	0.080

40	*Search for transcendent summons (STS*	*ß*	**Corrected**	**PTS**	**Corr**	**PPW**	**SPW**	**PPO**	**SPO**	**PIS**	**SIS**
2	I'm searching for my calling in my career.	0.168	.208	0.058	**.217**	0.059	0.254	0.069	0.167	0.271	0.223
17	I yearn for a sense of calling in my career.	0.576	.325	0.231	**.141**	0.370	0.152	0.154	0.330	0.172	0.126
23	I am trying to figure out what my calling is in the context of my career.	0.246	.291	0.116	**.318**	0.082	0.318	0.131	0.262	0.358	0.257
24	I'm trying to identify the area of work I was meant to pursue.	0.113	.188	0.001	**.241**	0.008	0.280	0.058	0.212	0.289	0.291
R7	I'm searching for this calling outside myself.	0.342	.615	0.537	**.312**	0.337	0.556	0.092	0.542	0.622	0.416

40	*Presence of purposeful work (PPW)*	*ß*	**Corrected**	**PTS**	**STS**	**Corr**	**SPW**	**PPO**	**SPO**	**PIS**	**SIS**
3	My work helps me live out my life's purpose.	0.215	.208	0.175	-0.044	**.301**	0.048	0.218	0.069	0.030	0.073
19	I see my career as a path to purpose in life.	-0.004	.350	0.109	0.143	**.256**	0.281	0.304	0.235	0.227	0.273
26	My career is an important part of my life's meaning.	0.041	.347	0.113	0.074	**.347**	0.205	0.481	0.378	0.217	0.174
32	I try to live out my life purpose when I am at work.	0.131	.345	0.267	0.143	**.361**	0.186	0.212	0.205	0.166	0.167
5R	This calling brings purpose and meaning to my life.	-0.214	.641	0.489	0.345	**.387**	0.347	0.427	0.514	0.330	0.325

40	*Search for purposeful work (SPW)*	*ß*	**Corrected**	**PTS**	**STS**	**PPW**	**Corr**	**PPO**	**SPO**	**PIS**	**SIS**
5	I am looking for work that will help me live out my life's purpose.	0.084	.342	0.190	0.187	0.237	**.297**	0.204	0.233	0.235	0.235
7	I intend to construct a career that will give my life meaning.	0.123	.358	0.127	0.193	0.293	**.285**	0.291	0.231	0.254	0.226
18	Eventually, I hope my career will align with my purpose in life.	0.298	.392	0.166	0.259	0.241	**.420**	0.279	0.257	0.339	0.260
28	I want to pursue a career that is a good fit with the reason for my existence.	0.111	.317	0.190	0.144	0.253	**.277**	0.211	0.220	0.164	0.204
10R	I'm searching for a calling that brings purpose and meaning to my life.	0.770	.659	0.314	0.569	0.341	**.386**	0.227	0.606	0.601	0.583

40	*Presence of prosocial orientation (PPO)*	*ß*	**Corrected**	**PTS**	**STS**	**PPW**	**SPW**	**Corr**	**SPO**	**PIS**	**SIS**
11	The most important aspect of my career is its role in helping to meet the needs of others.	0.653	.283	0.215	0.119	0.386	0.087	**.119**	0.312	0.119	0.090
16	Making a difference for others is the primary motivation in my career.	0.398	.378	0.246	0.308	0.194	0.338	**.143**	0.312	0.334	0.244
22	My work contributes to the common good.	0.672	.277	0.180	0.114	0.450	0.078	**.125**	0.255	0.086	0.079
29	I am always trying to evaluate how beneficial my work is to others.	0.639	.291	0.150	0.127	0.273	0.171	**.189**	0.325	0.130	0.192
4R	This calling helps meet some of society's needs.	0.160	.387	0.061	0.083	0.414	0.228	**.165**	0.230	0.223	0.467

40	*Search for prosocial orientation (SPO)*	*ß*	**Corrected**	**PTS**	**STS**	**PPW**	**SPW**	**PPO**	**Corr**	**PIS**	**SIS**
6	I am trying to find a career that ultimately makes the world a better place.	0.630	.345	0.228	0.212	0.362	0.231	0.128	**.329**	0.196	0.133
8	I want to find a job that meets some of society's needs.	0.671	.281	0.132	0.168	0.353	0.144	0.114	**.368**	0.125	0.171
13	I am trying to build a career that benefits society.	0.638	.315	0.212	0.127	0.389	0.152	0.176	**.435**	0.113	0.133
21	I am looking for a job where my career clearly benefits others.	0.746	.359	0.249	0.204	0.421	0.199	0.164	**.353**	0.162	0.120
9R	I'm searching for a calling that helps meet some of society's needs.	0.403	.648	0.308	0.556	0.495	0.613	0.254	**.392**	0.514	0.537

40	*Presence of internal summons (PIS)*	*ß*	**Corrected**	**PTS**	**STS**	**PPW**	**SPW**	**PPO**	**SPO**	**Corr**	**SIS**
4	I feel called to my major/career because it aligns well with my own interests.	0.278	.204	0.097	-0.032	0.310	0.070	0.271	0.037	**.042**	0.053
9	I know I am called to my major/career because my skills align well with my work demands.	0.233	.206	0.095	0.025	0.265	0.034	0.259	0.118	**.019**	0.094
20	I feel called to my major/career because of my passion for it.	0.207	.254	0.149	0.006	0.309	0.110	0.287	0.090	**.060**	0.109
27	I am called to my major/career by my personal values.	-0.070	.277	0.048	0.081	0.251	0.180	0.303	0.142	**.190**	0.259
3R	The source of this calling comes from within myself.	-0.783	.597	0.317	0.640	0.310	0.601	0.213	0.505	**.070**	0.511

40	*Search for internal summons (SIS)*	*ß*	**Corrected**	**PTS**	**STS**	**PPW**	**SPW**	**PPO**	**SPO**	**PIS**	**Corr**
12	My personal values are guiding me as I search for my calling.	0.093	.319	0.168	0.152	0.256	0.196	0.239	0.256	0.177	**.228**
14	I will know when I've found my calling because of my passion for the work.	-0.079	.290	0.121	0.040	0.282	0.172	0.310	0.161	0.156	**.224**

25	My search for calling is guided by how my own skills align with the work demands.	0.153	.330		0.091	0.181	0.223	0.259	0.303	0.291	0.230	**.287**
31	My search for calling is guided by my own interests.	-0.076	.169		-0.029	-0.055	0.156	0.094	0.376	0.055	0.062	**.209**
8R	I'm searching for this calling within myself.	0.622	.560		0.075	0.434	0.325	0.585	0.460	0.530	0.518	**.313**

Note: Item-total correlation data are from the total sample (*N* = 496). Standardized regression weights (*M9: ß*) are from the initial sample's data for CFA Model 9: a bifactor structure with items loading on the two factors representing *presence of calling* and *search for calling* and also loading onto the subscales of *transcendent summons, purposeful work, prosocial orientation,* and *internal summons* (χ^2 [699; *N* = 252] = 1889.513, *p* < .001, CFI = .730, RMSEA = .082 for initial sample; χ^2 [699, *N* = 244] = 1921.815, *p* < .001, CFI = .735, RMSEA = .085 for cross-validation sample). Scale/subscale abbreviations: PTS (Presence of Transcendent Summons), PPW (Presence of Purposeful Work), PPO (Presence of Prosocial Orientation), PIS (Presence of Internal Summons), STS (Search for Transcendent Summons), SPW (Search for Purposeful Work), SPO (Search for Prosocial Orientation), SIS (Search for Internal Summons).

Item-total correlations for the CVQ-10 alone are available in Table 3. In this case, items did not consistently correlate more strongly with other items from their own subscale than the other subscale, implying that search and presence factors were not functioning as clearly separate dimensions.

Table 3.   *Item Statistics for the Calling and Vocation Questionnaire-10 Item (CVQ-10), with Subscale Alphas, Standard Estimates, Item-Total Correlations for Total Scale and Subscales*

Version (Item Number)	Subscale/Item	M13: ß	Corrected	Presence	Search
CVQ-10	*Presence*		**Corrected**	**Corr**	**Search**
1	I've experienced the *presence* of a calling in one or more of my life roles (e.g., choice of major, career planning, relationships, volunteering).	0.460	0.579	**0.648**	0.465
2	The source of this calling comes from outside myself.	0.474	0.512	**0.518**	0.446
3	The source of this calling comes from within myself.	0.789	0.602	**0.377**	0.671
4	This calling helps meet some of society's needs.	0.363	0.378	**0.324**	0.371
5	This calling brings purpose and meaning to my life.	0.528	0.630	**0.621**	0.556
CVQ-10	*Search*	ß	**Corrected**	**Presence**	**Corr**
6	I'm *searching* for a calling in one or more of my life roles (e.g., choice of major, career planning, relationships, volunteering).	0.553	0.650	0.707	**0.461**
7	I'm *searching* for this calling outside myself.	0.738	0.622	0.562	**0.588**
8	I'm *searching* for this calling within myself.	0.683	0.562	0.452	**0.605**
9	I'm *searching* for a calling that helps meet some of society's needs.	0.747	0.646	0.530	**0.682**
10	I'm *searching* for a calling that brings purpose and meaning to my life.	0.816	0.663	0.523	**0.731**

Note: Data are from the total sample (*N* = 496). Standardized regression weights (*M13: ß*) are from CVQ Model 13: a single-order, bifactor structure with items loading on the two factors representing *presence of calling* and *search for calling* (χ^2 [34, *N* = 252] = 498.560, *p* < .001, CFI = .642, RMSEA = .209 for initial sample; χ^2 [34, *N* = 244] = .676, *p* < .001, CFI = .676, RMSEA = .214 for cross-validation sample). Scale abbreviations: CVQ-10 (Calling and Vocation Questionnaire- 10 Item).

A similar pattern was found for items within the exploratory CVQ-SF (see Table 4). This pattern provides evidence that the CVQ-10 may not have strong within-scale convergent and discriminant validity, which may be consistent with the idea that the two subscales represented within these scales (presence of and search for calling) may not be independent subscales and may better be conceptualized as correlated or even overlapping subscales.

Table 4.   *Item Statistics for the Alternative Short-Form Calling and Vocation Questionnaire Scale (CVQ-SF), with Subscale Alphas, Standard Estimates, Item-Total Correlations for Total Scale and Subscales*

Version (Item Number)	*Subscale*/Item	M15: β	Corrected	Presence	Search
CVQ-SF	**Presence**		**Corrected**	**Corr**	**Search**
30	I am pursuing my current line of work because I believe I have been called to do so.	0.502	0.538	**0.525**	0.474
3	My work helps me live out my life's purpose.	0.536	0.548	**0.527**	0.486
11	The most important aspect of my career is its role in helping to meet the needs of others.	0.669	0.582	**0.429**	0.606
20	I feel called to my major/career because of my passion for it.	0.536	0.530	**0.483**	0.488
CVQ-SF	**Search**	β	**Corrected**	**Presence**	**Corr**
17	I yearn for a sense of calling in my career.	0.712	0.608	0.593	**0.492**
7	I intend to construct a career that will give my life meaning.	0.407	0.469	0.415	**0.458**
13	I am trying to build a career that benefits society.	0.621	0.571	0.522	**0.528**
14	I will know when I've found my calling because of my passion for it.	0.512	0.509	0.491	**0.430**

Note: Data are from the total sample ($N = 496$). Item numbers reflect CVQ-R numbers. Standardized regression weights (*M15: β*) are from CFA Model 15: a single-order, bifactor structure with items loading on the two factors representing *presence of calling* and *search for calling* (χ^2 [19; $N = 252$] = 64.789, $p < .001$, CFI = .911, RMSEA = .098 for initial sample; χ^2 [19; $N = 244$] = 44.245, $p < .001$, CFI = .959, RMSEA = .074 for cross-validation sample). Scale abbreviations: CVQ-SF (Calling and Vocation Questionnaire-SF).

Examining Scale and Subscale Correlations

I also examined bivariate correlations between scales and subscales for each of the CVQ versions. To provide evidence of within-scale convergent and discriminant validity, I expected to observe higher correlations between subscales within the same dimension (i.e., presence of transcendent summons and presence of purposeful work) than with subscales in the other dimension (e.g., search for transcendent summons and search for purposeful work), and I expected to observe higher correlations with subscales purporting to measure the same construct across dimensions (e.g., search for purposeful work and presence of purposeful work) than with subscales measuring different constructs across dimensions (e.g., search for purposeful work and search for prosocial orientation).

Scale and subscale correlations within both initial and cross-validation samples are presented in

Table 5 for the original CVQ and the CVQ-R, in Table 6 for the full CVQ (i.e., CVQ-R and CVQ-10

items) and CVQ-10, and in Table 7 for the CVQ-SF. In general, evidence for within-scale convergent

and discriminant validity was observed for the CVQ, CVQ-R, and CVQ-SF. However, the scales which

included the CVQ-10 items (i.e., the full CVQ and CVQ-10) demonstrated a less consistent pattern.

Additionally, some subscales that I expected to correlate significantly to provide evidence of within-

scale convergent and discriminant validity demonstrated correlations that were not statistically

significant (e.g., presence of transcendent summons and presence of internal summons; presence of

transcendent summons and presence of prosocial orientation) or were weaker than expected.

Table 5.   *Convergent/Discriminant Validity Correlations within CVQ and CVQ-R Scales/Subscales*

	Calling	Presence	PTS	PPW	PPO	PIS	Search	STS	SPW	SPO	SIS
Initial Sample (*N* = 252; all *p* values < .01)											
Calling	1.000	0.929	0.499	0.727	0.741	0.627	0.916	0.407	0.648	0.679	0.628
Presence	0.917	1.000	0.535	0.728	0.623	0.642	0.703	0.303	0.591	0.646	0.605
PTS	0.466	0.508	1.000	0.465	0.450	0.450	0.403	0.192	0.317	0.375	0.346
PPW	0.653	0.637	0.465	1.000	0.624	0.662	0.618	0.229	0.600	0.509	0.552
PPO	0.767	0.707	0.450	0.624	1.000	0.462	0.707	0.443	0.524	0.728	0.439
PIS	-	-	-	-	-	1.000	0.524	0.107	0.444	0.463	0.606
Search	0.906	0.662	0.370	0.559	0.710	-	1.000	0.494	0.595	0.571	0.524
STS	0.426	0.346	0.192	0.229	0.443	-	0.466	1.000	0.418	0.394	0.375
SPW	0.641	0.586	0.317	0.600	0.524	-	0.559	0.418	1.000	0.517	0.447
SPO	0.679	0.649	0.375	0.509	0.728	-	0.683	0.394	0.517	1.000	0.427
SIS	-	-	-	-	-	-	-	-	-	-	-
Cross-validation sample (*N* = 244; all *p* values < .01)											
Calling	1.000	0.946	0.558	0.792	0.773	0.646	0.937	0.406	0.708	0.674	0.685
Presence	0.936	1.000	0.601	0.755	0.661	0.641	0.774	0.332	0.673	0.683	0.671
PTS	0.546	0.604	1.000	0.548	0.540	0.451	0.473	0.104	0.412	0.527	0.384
PPW	0.725	0.667	0.548	1.000	0.626	0.683	0.726	0.314	0.703	0.542	0.667
PPO	0.787	0.729	0.540	0.626	1.000	0.496	0.757	0.495	0.557	0.701	0.538
PIS	-	-	-	-	-	1.000	0.579	0.173	0.535	0.457	0.620
Search	0.926	0.733	0.451	0.664	0.751	-	1.000	0.463	0.642	0.534	0.592
STS	0.418	0.356	0.104	0.314	0.495	-	0.453	1.000	0.444	0.341	0.353
SPW	0.678	0.656	0.412	0.703	0.557	-	0.564	0.444	1.000	0.478	0.570
SPO	0.681	0.697	0.527	0.542	0.701	-	0.481	0.341	0.478	1.000	0.466
SIS	-	-	-	-	-	-	-	-	-	-	1.000

Note. Original CVQ on the lower half, CVQ-R on the upper half. Scale/subscale abbreviations: PTS (Presence of Transcendent Summons), PPW (Presence of Purposeful Work), PPO (Presence of Prosocial Orientation), PIS (Presence of Internal Summons), STS (Search for Transcendent Summons), SPW (Search for Purposeful Work), SPO (Search for Prosocial Orientation), SIS (Search for Internal Summons).

Table 6.   *Convergent/Discriminant Validity Correlations within Full CVQ and CVQ-10 Scales/Subscales*

	Calling	Presence	PTS	PPW	PPO	PIS	Search	STS	SPW	SPO	SIS
Initial Sample (N = 252; all p values < .01 except those with *)											
Calling	1.000	0.718	0.489	0.596	0.385	0.658	1.000	0.630	0.768	0.640	0.569
Presence	0.919	1.000	0.496	0.609	0.339	0.376	0.714	0.540	0.543	0.516	0.452
PTS	0.491	0.502	1.000	0.477	0.039*	0.291	0.423	0.480	0.364	0.261	0.056*
PPW	0.610	0.628	0.484	1.000	0.362	0.295	0.511	0.315	0.318	0.467	0.249
PPO	0.414	0.368	0.058*	0.402	1.000	0.275	0.369	0.108	0.212	0.191	0.439
PIS	0.672	0.396	0.294	0.315	0.305	1.000	0.748	0.636	0.677	0.604	0.635
Search	0.934	0.717	0.423	0.522	0.393	0.757	1.000	0.628	0.762	0.680	0.614
STS	0.631	0.538	0.478	0.310	0.124	0.648	0.633	1.000	0.622	0.577	0.470
SPW	0.769	0.545	0.362	0.327	0.233	0.680	0.766	0.631	1.000	0.622	0.599
SPO	0.643	0.523	0.264	0.484	0.218	0.600	0.681	0.581	0.619	1.000	0.529
SIS	0.576	0.461	0.058*	0.271	0.465	0.641	0.621	0.473	0.604	0.530	1.000
Cross-validation sample (N = 244; all p values < .01 except those with *)											
Calling	1.000	0.739	0.536	0.665	0.371	0.547	0.937	0.614	0.718	0.652	0.549
Presence	0.930	1.000	0.540	0.634	0.310	0.377	0.735	0.583	0.503	0.544	0.452
PTS	0.542	0.549	1.000	0.479	0.068	0.353	0.470	0.598	0.269	0.351	0.100
PPW	0.687	0.660	0.496	1.000	0.440	0.322	0.602	0.367	0.354	0.523	0.386
PPO	0.415	0.356	0.104	0.482	1.000	0.127	0.373	0.045*	0.216	0.261	0.465
PIS	0.567	0.403	0.352	0.355	0.175	1.000	0.596	0.615	0.520	0.421	0.388
Search	0.938	0.744	0.475	0.622	0.411	0.611	1.000	0.548	0.700	0.684	0.596
STS	0.619	0.582	0.588	0.373	0.077*	0.625	0.562	1.000	0.491	0.514	0.372
SPW	0.727	0.521	0.279	0.384	0.255	0.534	0.710	0.509	1.000	0.600	0.563
SPO	0.664	0.562	0.370	0.547	0.298	0.426	0.689	0.529	0.601	1.000	0.543
SIS	0.569	0.468	0.106	0.410	0.494	0.402	0.606	0.389	0.572	0.543	1.000

Note. Full CVQ on the lower half, CVQ-10 on the upper half. Scale/subscale abbreviations: PTS (Presence of Transcendent Summons), PPW (Presence of Purposeful Work), PPO (Presence of Prosocial Orientation), PIS (Presence of Internal Summons), STS (Search for Transcendent Summons), SPW (Search for Purposeful Work), SPO (Search for Prosocial Orientation), SIS (Search for Internal Summons).

Table 7. *Convergent/Discriminant Validity Correlations within Alternative CVQ-SF Scale/Subscales*

	Calling	Presence	PTS	PPW	PPO	PIS	Search	STS	SPW	SPO	SIS
Initial Sample (N = 252; all p values < .01)											
Calling	1.000										
Presence	0.921	1.000									
PTS	0.481	0.493	1.000								
PPW	0.519	0.493	0.403	1.000							
PPO	0.523	0.368	0.295	0.300	1.000						
PIS	0.527	0.461	0.388	0.383	0.254	1.000					
Search	0.901	0.662	0.395	0.452	0.552	0.488	1.000				
STS	0.585	0.584	0.354	0.370	0.647	0.291	0.427	1.000			
SPW	0.391	0.325	0.195	0.311	0.163	0.253	0.404	0.246	1.000		
SPO	0.541	0.458	0.225	0.271	0.476	0.341	0.545	0.479	0.335	1.000	
SIS	0.498	0.481	0.326	0.318	0.243	0.489	0.403	0.237	0.338	0.348	1.000
Cross-validation sample (N = 244; all p values < .01)											
Calling	1.000										
Presence	0.938	1.000									
PTS	0.594	0.556	1.000								
PPW	0.582	0.567	0.461	1.000							
PPO	0.638	0.494	0.413	0.408	1.000						
PIS	0.545	0.512	0.418	0.445	0.347	1.000					
Search	0.931	0.746	0.550	0.523	0.657	0.503	1.000				
STS	0.632	0.605	0.418	0.362	0.645	0.382	0.554	1.000			
SPW	0.543	0.505	0.405	0.427	0.357	0.319	0.507	0.393	1.000		
SPO	0.599	0.583	0.461	0.368	0.567	0.336	0.513	0.501	0.365	1.000	
SIS	0.521	0.501	0.333	0.391	0.346	0.450	0.461	0.360	0.419	0.309	1.000
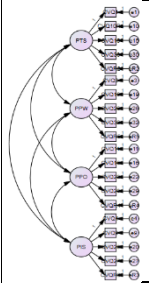
Note. Scale/subscale abbreviations: PTS (Presence of Transcendent Summons), PPW (Presence of Purposeful Work), PPO (Presence of Prosocial Orientation), PIS (Presence of Internal Summons), STS (Search for Transcendent Summons), SPW (Search for Purposeful Work), SPO (Search for Prosocial Orientation), SIS (Search for Internal Summons).

Evaluating Structural Validity (CFA)

After examining item-total correlations and scale/subscale correlations, I conducted CFAs to
evaluate the fit of a series of models depicting hypothesized factor structures. For efficiency of
presentation, the results of all CFAs for both the initial sample and cross-validation sample are available
in Table 8. This table includes thumbnail representations of each model, an indication of the number of
items included in the model, fit statistics for each model, and the range of factor loadings for each
subscale. When appropriate, the thumbnail representations depict the final structural model with errors
free to covary as supported by both modification indices and theoretical rationale.

Table 8.   *Structural Validity Estimates Comparing 15 Models with Initial (i) and Cross-Validation Samples for the CVQ, CVQ-R, Full CVQ, CVQ-10, and CVQ-SF*

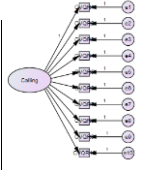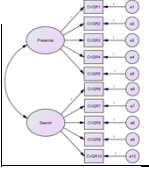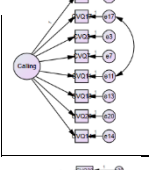| Conceptual Figure	ID	Fit Indices				Range of standardized factor loadings							
	M1	χ^2 (df)	CFI	RMSEA	AIC/BIC	PTS	STS	PPW	SPW	PPO	SPO	PIS	SIS
	CVQi	410.87 (237)	.849	.078	Not available	.62 - .89	.61-.93	.73 - .84	.73-.84	.64 - .86	.81-.89	N/A	N/A
	CVQxv				Not available	.54 - .91	.59-.88	.81 -.87	.77-.92	.74 -.91	.87 - .91	N/A	N/A
	24i	572.328 (226)	.849	.078	720.328/ 981.506	-.03 - .420	-.04 - .86	.46 - .62	.48 - .64	.25 - .73	.62 - .75	N/A	N/A
	24xv	556.201 (226)	.870	.078	704.201/ 962.991	.23 - .67	-.30 - .62	.57 - .68	.35 - .59	.1 - .70	.63 - .75	N/A	N/A
	M2	χ^2 (df)	CFI	RMSEA	AIC/BIC	PTS	STS	PPW	SPW	PPO	SPO	PIS	SIS
	32i	1026.058 (429)	.810	.074	1224.058/ 1573.472	.05 - .59	-.34 - .64	.46 - .55	.31 - .50	.05 - .66	.51 - .66	.36 - .74	.25 - .61
	32xv	988.358 (429)	.838	.073	1186.358/ 1532.577	.22 - .67	-.30 - .62	.43 - .71	.31 -.54	.12 - .72	.63 - .75	.34 - .79	.33 - .55
	M3	χ^2 (df)	CFI	RMSEA	AIC/BIC	PTS	STS	PPW	SPW	PPO	SPO	PIS	SIS
	16i	206.366 (86)	.918	.075	306.366/ 482.837	N/A	N/A	.59 - .70	.53 - .65	.34 - .70	.64 - .72	N/A	N/A
	16xv	182.835 (86)	.943	.068	282.835/ 457.694	N/A	N/A	.45 - .72	.55 - .77	.40 - .62	.35 - .61	N/A	N/A
	M4	χ^2 (df)	CFI	RMSEA	AIC/BIC	PTS	STS	PPW	SPW	PPO	SPO	PIS	SIS
	24*i	459.432 (224)	.894	.065	611.432 / 879.668	N/A	N/A	.22 - .47	-.06 - .20	-.02 - .69	.46 - .65	.18 -.69	.27 - .52
	24*xv	480.197 (224)	.899	.069	632.197/ 897.982								
	M5	χ^2 (df)	CFI	RMSEA	AIC/BIC				Calling				
	42i	3478.307 (819)	.451	.114	3646.307/ 3942.779				.07 - .64				

| | 42xv | 3114.792 (819) | .545 | .107 | 3282.792/ 3576.555 | | | | .10 - .72 | |

M6	χ^2 (*df*)	**CFI**	**RMSEA**	**AIC/BIC**				**Search**		
42i	3584.428 (819)	.429	.116	3752.428/ 4048.900	.29 - .61					
42xv	3396.093 (819)	.489	.114	3564.093/ 3857.855	.21 - .73					

M7	χ^2 (*df*)	**CFI**	**RMSEA**	**AIC/BIC**		**Search**			**Presence**	
42i	3402.001 (818)	.466	.112	3572.001/ 3872.003	.21 - .62			.05 - .65		
42xv	3095.258 (818)	.549	.107	3265.258/ 3562.517	.14 - .73			.20 - .70		

M8	χ^2 (*df*)	**CFI**	**RMSEA**	**AIC/BIC**	**TS**		**PW**	**PO**		**IS**
40i	2840.281 (734)	.522	.107	3012.281/ 3315.812	.12 - .72		.29 - .69	.16 - .75		.21 - .67
40xv	2563.443 (734)	.603	.101	2735.443/ 3036.200	.044 - .72		.43 - .74	.26 - .78		.29 - .66

M9	χ^2 (*df*)	**CFI**	**RMSEA**	**AIC/BIC**	**PTS**	**STS**	**PPW**	**SPW**	**PPO**	**SPO**	**PIS**	**SIS**
40i	1889.513 (699)	.730	.082	2131.513/ 2558.574	.19 - .76	.11 - .57	.43 - .69	.29 - .63	.16 - .67	.40 - .75	.27 - .67	.41 - .66
40xv	1921.815 (699)	.735	.085	2163.815 – 2586.972	.28 - .73	-.21 - .63	.41 - .69	.12 - .63	.17 - .73	.31 - .77	.04 - .76	.08 - .59

M10	χ^2 (*df*)	**CFI**	**RMSEA**	**AIC/BIC**	**STS**		**SPW**	**SPO**		**SIS**
20i	810.939 (164)	.627	.125	902.939/ 1065.293	.15 - .81		.44 - .71	.42 - .70		.50 - .57
20xv	718.244 (164)	.696	.118	810.244/ 971.114	.16 - .80		.51 - .74	.49 - .84		.40 - .59

M11	χ^2 (*df*)	**CFI**	**RMSEA**	**AIC/BIC**	**PTS**		**PPW**	**PPO**		**PIS**

	χ²(df)	CFI	RMSEA	AIC/BIC				
20i	647.336 (164)	.704	.108	739.336/ 901.690	.14 - .81	.46 - .67	.20 - .70	.05 - .76
20xv	633.307 (164)	.734	.109	725.307/ 886.177	.30 - .81	.57 - .64	.39 - .75	.16 - .80

M12	χ²(df)	CFI	RMSEA	AIC/BIC	Calling
10i	498.563 (35)	.643	.230	538.563/ 609.151	.36 - .82
10xv	419.742 (35)	.670	.213	459.742/ 529.686	.42 - .73

M13	χ²(df)	CFI	RMSEA	AIC/BIC	Search	Presence
10i	498.560 (34)	.642	.233	540.560/ 614.678	.55 - .82	.36 - .79
10xv	411.851 (34)	.676	.214	453.851/ 527.292	.63 - .74	.42 - .72

M14	χ²(df)	CFI	RMSEA	AIC/BIC	Calling
8i	64.789 (19)	.911	.098	98.798/ 158.798	.50 - .64
8xv	44.245 (19)	.959	.074	78.245/ 137.697	.58 - .67

M15	χ²(df)	CFI	RMSEA	AIC/BIC	Search	Presence
8i	63.949 (18)	.911	.101	99.949/ 163.479	.48 - .61	.50 - .65
8xv	44.127 (18)	.958	.077	80.127/ 143.076	.58 - .65	.61 - .67

Note. The "ID" column indicates the scale version and the sample (initial [*i*, $N = 252$] or cross-validation [*xv*, $N = 244$]. The *p* values associated with all χ^2 tests were < .001. Scale/subscale abbreviations: CVQ (Calling and Vocation Questionnaire), CVQ-R (Calling and Vocation Questionnaire-Revised), CVQ-10 (Calling and Vocation Questionnaire-10 items), PTS (Presence of Transcendent Summons), STS (Search for Transcendent Summons), PPW (Presence of Purposeful Work), SPW (Search for Purposeful Work), PPO (Presence of Prosocial Orientation), SPO (Search for Prosocial Orientation), PIS (Presence of Internal Summons), SIS (Search for Internal Summons), TS (Transcendent Summons), PW (Purposeful Work), PO (Prosocial Orientation), IS (Internal Summons). All thumbnail representations and statistics were calculated using AMOS.

Evaluating Structural Validity for the Original CVQ and CVQ-R

The first model (M1) replicated Dik et al.'s (2012) best-fit model in their initial validation of the original CVQ. I evaluated this model to determine (a) how well it fit the data from my samples (i.e., to evaluate for baseline differences in fit between my samples and those found in initial validation of the CVQ), and (b) to provide a reference point for comparing model fit with the addition of the eight internal summons items (i.e., M2). M1 was a bifactor model in which each item pointed to one of the source dimensions (i.e., search and presence) and one of the subscale dimensions (i.e., prosocial

orientation, purposeful work, and transcendent summons). I chose not evaluate modification indices because while Dik et al. (2012) concluded that allowing errors to covary would improve model fit, they ultimately chose to reject this model in the interests of parsimony. Model fit in my sample was substantially lower in both my initial sample (χ^2 [226, $N = 252$] = 572.328, $p < .001$, CFI = .849, RMSEA = .078) and cross-validation sample (χ^2 [225, $N = 244$) = 556.201, $p < .001$, CFI = .870, RMSEA = .078) than in Dik et al.'s (2012) sample (χ^2 [237, $N = 456$] = 410.87, CFI = .94, RMSEA = .06).

Given the relatively poorer fit of this model in my sample than in Dik et al.'s (2012) samples, I then examined the standardized regression weights for each item and found that two items, both in the transcendent summons scale, had negative regression weights (see Table 5), meaning that they loaded onto this construct in the *opposite* direction as expected.

Next I added the 8 internal summons items to this bifactor model as an additional subscale (M2) and evaluated fit for the initial sample (χ^2 [429, $N = 252$] = 1026.058, $p < .001$, CFI = .810, RMSEA = .074) and cross-validation sample (χ^2 [429, $N = 244$] = 988.358, $p < .001$, CFI = .838, RMSEA = 0.73]. Compared to the previous model (M1), the CFI indicated worse model fit while the RMSEA indicated better model fit. I again examined standardized regression weights (see Table 8) and found that four items, including the two that had previously been negative and again all in the transcendent summons scale, had negative regression weights, meaning that items in these scales were no longer mapping onto their intended subscale in the direction hypothesized and were detracting from overall model fit. All other regression weights were positive, including those in the added internal summons scale; this meant that they loaded onto their respective factors as hypothesized and improved model fit.

Because the presence of negative regression weights indicates that those items are not loading onto their respective subscales as hypothesized and because all negative regression weights occurred for

items within the transcendent summons subscale, I chose to explore how model fit changed with the transcendent summons scale removed from the model. I therefore evaluated two models: (a) Dik et al.'s (2012) original bifactor model without the transcendent summons subscale (M3) and (b) Dik et al.'s (2012) original bifactor model with the internal summons subscale substitute for the transcendent summons subscale (M4).

The first of these models (M3) indicated improved model fit for both the initial (χ^2 [86, N = 252] = 206.366, $p < .001$, CFI = .918, RMSEA = .075) and cross-validation (χ^2 [86, N = 244] = 182.835, $p < .001$, CFI = .943, RMSEA = .069) samples compared to both the original CVQ including transcendent summons (i.e., M1) and compared to the original CVQ with the 8 internal summons items added as a subscale (e.g., M2). Fit statistics indicated that this model came close to meeting acceptable standards for model fit. Modification indices suggested that allowing the errors associated with items 6 and 7 to covary would improve model fit, but I chose not to allow these errors to covary because it is not recommended to allow items from different subscales to covary, especially when a lack of theoretical rationale exists for doing so (Byrne, 2016).

The second of these models (M4) with the internal summons items added back to the model I place of the transcendent summons items indicated improved model fit for initial (χ^2 [224, N = 252] = 459.432, $p < .001$, CFI = .894, RMSEA = .065) and cross-validation (χ^2 [224, N = 244] = 480.197, $p < .001$, CFI = .899, RMSEA = .069) samples in comparison to the same model with the transcendent summons dimension included (i.e., M1). Compared to the original CVQ with the transcendent summons subscale removed (i.e., M3), the CFI for this model in which the internal summons dimension was added indicated worse model fit while the RMSEA indicated improved fit. Modification indices again suggested allowing the errors associated with items 6 and 7 to covary, and I again chose to not make this potential change because the errors loaded into different factors.

Evaluating Structural Validity for the Full CVQ

I next evaluated the fit of hypothesized models for scales including the CVQ-10 items: the 42 item full CVQ (i.e., 24 original CVQ items, 8 internal summons items, 10 CVQ-10 items) as administered and the CVQ-10 as an independent scale. I employed a model-generating approach in which I began with a simpler statistical model before adding complexity, and I expected the best-fit model for the original CVQ (M1) and CVQ-R (M2), a bifactor model in which arrows for each item point to both a subscale (e.g., purposeful work) and dimension (e.g., presence vs. search) of calling, to have the best fit. To provide support for the CVQ-10 items' ability to adequately represent their intended factors as a single item, I expected these items to have among the highest loadings onto their respective factors.

The first structural model I examined with all 42 items of the full CVQ (i.e., 24 original CVQ items, eight internal summons items, CVQ-10 items) was a single-order, one-factor structure with all items contributing to an overall latent calling variable (M5). The fit of this model was very poor for both initial (χ^2 [819; $N = 252$] = 3478.307, $p < .001$, CFI = .451, RMSEA = .114) and cross-validation (χ^2 [810; $N = 244$] = 3114.792, $p < .001$, CFI = 545, RMSEA = 107) samples. Due to very poor model fit found in my data and Dik et al. (2012)'s similar finding that a one-factor structure did not provide an acceptable fit for the data, I did not attempt to improve the model through examination of modification indices.

The second structural model (M6) was a single-order, two-factor structure with half of the items contributing to a search factor and half contributing to a presence factor; search and presence factors were uncorrelated. Fit indices indicated poor model fit for both initial (χ^2 [819; $N = 252$] = 3584.428, $p < .001$, CFI = .429, RMSEA = .116) and cross-validation (χ^2 [819; $N = 244$] = 3396.093, $p < .001$, CFI = .489, RMSEA = .114) samples.

The next structural model (M7) was the same as M6 but with correlated factors of search and presence. Fit indices again indicated poor model fit for both initial (χ^2 [818; $N = 252$] = 3402.001, $p <$ .001, CFI = .466, RMSEA = .112) and cross-validation (χ^2 [818; $N = 244$] = 3095.258, $p < .001$, CFI = .549, RMSEA = .108) samples.

The next model was a single-order, four-factor structure with a quarter of the items, each, pointing to internal, external, prosocial orientation, and purposeful work dimensions (M8). The two items from the CVQ-10 directly assessing search for calling or presence of calling were removed for this analysis as they were not written or hypothesized to load onto one of the four subscales of calling but rather to assess general search/presence for calling overall. Fit for this structural model again was poor for both initial (χ^2 [734; $N = 252$] = 2840.281, $p < .001$, CFI = .522, RMSEA = .082) and cross-validation (χ^2 [734; $N = 244$] = 2563.433, $p < .001$, CFI = .603, RMSEA = .101) samples.

Model 9 (M9) paralleled Dik et al.'s (2012) best-fit model but additionally included the internal summons dimension and the items from the CVQ-10. The model was a bi-factor structure with each item pointing to one of the source dimensions (i.e., presence, search) and one of the subscale dimensions (i.e., internal summons, transcendent summons, prosocial orientation, purposeful work). I again excluded the two items from CVQ directly assessing only search and presence of calling in general. This model had the best model fit compared to previous models with both CVQ-R and CVQ-10 items, but fit was still unacceptable for both initial (χ^2 [699; $N = 252$] = 1889.513, $p < .001$, CFI = .730, RMSEA = .082) and cross-validation (χ^2 [699, $N = 244$] = 1921.815, $p < .001$, CFI = .735, RMSEA = .085) samples.

The next two models paralleled the structural model tested in M9 but evaluated this model for search items (M10) and presence items (M11) separately given previous evidence both within my study (e.g., item-total correlations not suggesting two distinct search/presence factors in some measures;

variable correlations between some search/presence subscales) and in the literature (e.g., Duffy &

Sedlacek, 2007; Bikos et al., 2015) that these factors may not have been operating as distinctive

dimensions but rather according to more complex relationships. However, unacceptable model fit was

found for M10 initial (χ^2 [164; $N = 252$] = 810.939, $p < .001$, CFI = .627, RMSEA = .125) and cross-

validation (χ^2 [164; $N = 244$] = 718.244, $p < .001$, CFI = .696, RMSEA = .118) samples. Slightly higher

but still unacceptable fit statistics were found for M11 initial (χ^2 [164; $N = 252$] = 647.336, $p < .001$, CFI

= .704, RMSEA = .108) and cross-validation (χ^2 [164; $N = 244$] = 633.307, $p < .001$, CFI = .734,

RMSEA = .109) samples.

Evaluating Structural Validity of the CVQ-10 Independently

To evaluate how well the CVQ-10 items were capturing their respective subscales, I examined

factor loadings for the best fitting model which included these items (M9) and found that, contrary to my

hypotheses, the CVQ-10 items performed variably and in many cases had some of the lowest factor

loadings in their subscales (see Table 2). For two subscales, the CVQ-10 items had the strongest factor

loadings within that subscale; factor loadings on the search for purposeful work (SPW) subscale ranged

from 0.084 to 0.298 for CVQ-R items while the CVQ-10 item had a factor loading of 0.770, and factor

loadings for the search for internal summons (SIS) subscale ranged from -0.079 to 0.153 for CVQ-R

items while the CVQ-10 item had a factor loading of 0.622. In most other scales, the CVQ-10 item had

similar factor loadings to its subscale as other items in that subscale. However, in two subscales the

CVQ-10 items actually had strong *negative* factor loadings onto their subscales: factor loadings for the

presence of purposeful work (PPW) subscale range from -0.004 to 0.215 while the CVQ-10 item had a

factor loading of -0.214, and even more notably, factor loadings for the presence of internal summons

subscale ranged from -0.070 to 0.278 while the CVQ-10 item had a factor loading of -0.783. These

variable factor loadings suggest that while some CVQ-10 items are representing their respective

subscale as well or better than the CVQ-R items, others are not capturing their constructs of interest well in comparison to the existing items and are, in fact, loading onto these constructs in the opposite direction as hypothesized. Despite this initial lack of support for this shortened measure, I evaluated two more models including just the CVQ-10 items to explore how the items fit together independent from the full CVQ.

The first CVQ-10 model was a single-order, single-factor model to evaluate the fit of an overall measure of calling (M12). Model fit was poor for both initial (χ^2 [35, $N = 252$) = 498.563, $p < .001$, CFI = .643, RMSEA = .230) and cross-validation (χ^2 [35, $N = 244$) = 419.742, $p < .001$, CFI = .670, RMSEA = .213) samples.

The second CVQ-10 model was a single-order, two-factor model to evaluate the fit of the 10 items on their respective subscales of search and presence (M13). Model fit was again poor for both initial (χ^2 [34, $N = 252$) = 498.560, $p < .001$, CFI = .642, RMSEA = .209) and cross-validation (χ^2 [34, $N = 244$] = .676, $p < .001$, CFI = .676, RMSEA = .214) samples.

Exploring Alternative Short-Form CVQ Options

Given the relatively poor performance of the CVQ-10 options both when integrated with the CVQ-R and independently, I decided to investigate which items of the CVQ-R best represented their constructs of interest and therefore could potentially function as an alternative short form of the CVQ. I examined standardized regression weights of items in each subscale of the best-fitting model that included all CVQ-R items (including the internal summons dimension) without CVQ-10 items. I then chose one item from each subscale (i.e., search/presence of prosocial orientation, purposeful work, transcendent summons, internal summons) that had the highest factor loading with its respective subscale. This process resulted in selection of eight items that statistically best represented their

respective subscales; a list of these items is provided in Appendix A. Two structural models paralleling those evaluated with the CVQ-10 were then evaluated with these models.

Model 14 (M14) was a single-factor, single-factor model in which all items loaded onto a latent calling variable. Model fit was initially lower than acceptable in both the initial sample (χ^2 [20; $N = 252$] = 118.700, $p < .001$, CFI = .808, RMSEA = .140) and the cross-validation (χ^2 [20, $N = 244$] = 71.222, $p < .001$, CFI = .917, RMSEA = .103) samples. Given the relatively improved model fit in comparison to previous models, I evaluated modification indices and decided to allow the error covariances between items 11 and 17 to covary given that these items loaded onto the same factor and the wording provided some evidence of theoretical similarity; in examining the wording, item 11 "I yearn for a sense of calling in my career" appears to evaluate a more general sense of calling, while item 17 "The most important aspect of my career is its role in helping to meet the needs of others" evaluates how this sense of calling may have a prosocial orientation. This modification led to improved model fit for both the initial and cross-validation samples, with model fit indices approaching acceptable limits in the initial sample (χ^2 [19; $N = 252$] = 64.789, $p < .001$, CFI = .911, RMSEA = .098) indicating acceptable fit in the cross-validation sample (χ^2 [19; $N = 244$] = 44.245, $p < .001$, CFI = .959, RMSEA = .074).

Model 15 (M15) was a single-order, two-factor model in which latent search and presence variables were correlated. Initial model fit was similar as to M14 for both initial (χ^2 [19; $N = 252$] = 117.631, $p < .001$, CFI = .818, RMSEA = .144) and cross-validation (χ^2 [19; $N = 244$] = 69.768, $p < .001$, CFI = .918, RMSEA = .105) samples. I again allowed the error covariances for items 11 and 17 to covary based on similar results within modification indices, and again observed fit indices approaching acceptable levels for the initial sample (χ^2 [18; $N = 252$] = 63.949, $p < .001$, CFI = .911, RMSEA = .101) and acceptable model fit for the cross-validation sample (χ^2 [18; $N = 244$] = 44.127, $p = .001$, CFI = .958, RMSEA = .077).

Evaluating Internal Consistency Estimates

Internal consistency estimates (Cronbach's alphas) were calculated for all evaluated versions of the CVQ (i.e., original CVQ, CVQ-R, Full CVQ, CVQ-10, and CVQ-SF) for both the initial and cross-validation samples to evaluate how well the items were assessing a consistent underlying calling construct. Cronbach's alphas, means, and standard deviations for all scales and subscales are provided in Table 9. For the original CVQ items only, alphas ranged from .609 to .888 for the initial sample and from .590 to .904 for the cross-validation sample; the mean alpha across all observations for this scale was .752. For the CVQ-R, alphas ranged from .607 to .910 for the initial sample and from .590 to .923 for the cross-validation sample; the mean alpha across all observations for this scale was .744. For the CVQ-10, alphas ranged from .729 to .868 for the initial sample and from .735 to .869 for the cross-validation sample; the mean alpha across all observations for this scale was .807. For the CVQ-SF, alphas ranged from .662 to .798; the mean alpha across all observations for this scale was .739.

For the full CVQ, alphas ranged from .011 to .813 for the initial sample and from 0.021 to .818 for the cross-validation sample; the mean alpha across all observations for this scale was .242. Given this wide range with very low alpha coefficients, I hypothesized that the 100-point scaling might contribute to the inconsistency. To explore this further, I transformed transforming the CVQ-10 items from their original 100-point scale to a 4-point scale in parallel to the scale used for the CVQ-R items. I found that that doing so substantially improved alpha coefficients. With this coding scheme, alphas ranged from .523 to .917 for the initial sample and from .591 to .933 for the cross-validation sample; the mean alpha across all observations for this scale was .727. Because the CVQ-10 items were not originally administered to participants on this 4-point scale, I was unable to use these re-scaled items in the formal CFA analyses; however, an exploratory analysis indicated that re-scaling these items for consistency with the other CVQ-R items did not substantially change model fit for the structures which

included CVQ-10 items. Of course this should be further investigated in subsequent research that

administers the scale in a 4-point format.

Table 9.   *Reliability Coefficients (Cronbach's alphas) and Means (Standard Deviations) of Original CVQ, CVQ-R, CVQ-10, and Alternative CVQ-SF Scales/Subscales in Initial and Cross-Validation Samples*

Sample	Initial Sample ($N = 252$)										
Scale Version	CVQ		CVQ-R		Full CVQ		Full CVQ (4-point)		CVQ-10		CVQ-SF	
Scale/Subscale	*M(SD)*	α	*M(SD)*	α	*M(SD)*	α	*M(SD)*	α	*M(SD)*	α	*M(SD)*	α
Calling	2.94(.25)	.888	2.97(.23)	.910	16.50(24.66)	.813	2.90(.25)	.917	59.82(5.82)	.868	2.97(.26)	.798
Presence	2.82(.19)	.822	2.88(.21)	.860	16.29(24.64)	.637	59.42(.22)	.859	59.18(4.03)	.728	2.81(.23)	.671
PTS	2.69(.25)	.609	2.69(.25)	.609	12.66(22.30)	.088	2.64(.24)	.670	52.54(34.84)	-	2.55(.99)	-
PPW	2.85(.10)	.740	2.85(.10)	.740	14.75 (26.60)	.073	2.84(.09)	.714	62.33(32.38)	-	2.70(.97)	-
PPO	2.92(.15)	.644	2.92(.15)	.644	13.98(24.74)	.016	2.86(.19)	.523	58.23(32.02)	-	2.92(.92)	-
PIS	-	-	3.07(.14)	.691	14.71(26.01)	.011	3.00(.20)	.549	61.24(34.11)	-	3.08(.89)	-
Search	3.06(.25)	.821	3.05(.23)	.844	16.71(25.29)	.712	2.97(.27)	.861	60.45(7.68)	.826	3.13(.18)	.662
STS	2.76(.13)	.607	2.76(.13)	.607	12.41(21.57)	.065	2.68(.20)	.616	51.00(33.61)	-	2.91(.92)	-
SPW	3.24(.10)	.764	3.24(.10)	.764	16.326(29.25)	.067	3.12(.13)	.753	68.65(34.38)	-	3.35(.80)	-
SPO	3.17(.12)	.774	3.17(.12)	.774	14.27(24.82)	.067	3.07(.25)	.736	58.66(32.69)	-	3.13(.82)	-
SIS	-	-	3.01(.18)	.643	13.61(23.70)	.059	2.92(.25)	.643	56.00(33.65)	-	3.14(.86)	-
Sample	Cross-Validation Sample (N=244)											
Scale Version	CVQ		CVQ-R		Full CVQ		Full CVQ (4-point)		CVQ-10		CVQ-SF	
Scale/Subscale	*M(SD)*	α	*M(SD*	α	*M(SD)*	α	*M(SD)*	α	*M(SD)*	α	*M(SD)*	α
Calling	2.89(.24)	.904	2.92(.24)	.923	16.25(24.32)	.818	2.86(.26)	.933	58.924(6.29)	.869	2.97(.24)	.846
Presence	2.81(.18)	.846	2.88(.22)	.875	16.02(24.16)	.652	2.82(.23)	.888	58.06(4.35)	.735	2.85(.52)	.738
PTS	2.71(.25)	.663	2.71(.25)	.663	12.38(21.61)	.100	2.65(.27)	.716	51.03(35.34)	-	2.61(.1.03)	-
PPW	2.84(.10)	.727	2.84(.10)	.727	14.68(26.47)	.087	2.83(.10)	.729	62.03(32.82)	-	2.68(.90)	-
PPO	2.87(.15)	.694	2.87(.15)	.694	13.688(24.19)	.055	2.82(.17)	.663	56.96(32.86)	-	2.87(.93)	-
PIS	-	-	3.10(.21)	.708	14.38(25.23)	.021	3.01(.27)	.591	59.50(35.57)	-	3.21(.81)	-
Search	2.97(.28)	.828	2.96(.27)	.855	16.49(25.08)	.707	2.89(.29)	.876	59.79(8.25)	.815	3.09(.17)	.720
STS	2.63(.15)	.590	2.63(.15)	.590	11.97(20.89)	.056	2.57(.18)	.594	49.34(34.68)	-	2.85(.94)	-
SPW	3.16(.12)	.753	3.16(.12)	.753	16.25(29.26)	.080	3.13(.13)	.744	68.58(33.99)	-	3.25(.85)	-
SPO	3.12(.12)	.858	3.12(.12)	.858	14.04(24.41)	.093	3.02(.25)	.817	57.71(33.92)	-	3.06(.90)	-
SIS	-	-	2.91(.25)	.644	13.44(23.54)	.049	2.84(.28)	.612	55.55(33.42)	-	3.17(.83)	-

Note: Scale/subscale abbreviations: CVQ (Calling and Vocation Questionnaire), CVQ-R (Calling and Vocation Questionnaire-Revised), CVQ-10 (Calling and Vocation Questionnaire-10 items), PTS (Presence of Transcendent Summons), STS (Search for Transcendent Summons), PPW (Presence of Purposeful Work), SPW (Search for Purposeful Work), PPO (Presence of Prosocial Orientation), SPO (Search for Prosocial Orientation), PIS (Presence of Internal Summons), SIS (Search for Internal Summons), TS (Transcendent Summons), PW (Purposeful Work), PO (Prosocial Orientation), IS (Internal Summons).

Evaluating Construct Validity of the CVQ-R and CVQ-10

To evaluate convergent and discriminant validity for all calling scales evaluated (i.e., original

CVQ, CVQ-R, full CVQ, CVQ-10, CVQ-SF), I administered one additional scale that purported to

measure the same trait as the CVQ (i.e., calling) and two scales measuring different traits that are

theoretically purported to be related. To provide evidence of convergent and discriminant validity, I

expected to see that measures of the same trait correlated more highly than with each other than they did with measures of different traits involving different methods (Campbell & Fiske, 1959). For convergent validity, I expected strong and high correlations with a scale measuring perceived ability to adapt in work-related circumstances (CAAS; Career Adapt-Abilities Scale, Savickas & Porfeli, 2012). For discriminant validity, I expected comparatively less strong correlations with a scale measuring overall perception of capability and self-worth (CSES; Core Self-Evaluations Scale, Judge et al., 2003) and with a scale measuring perceived availability of social support (SPS; Social Provisions Scale, Caron, 2013). Bivariate correlations between CVQ scales, subscales and CSES, SPS, and CAAS scores are presented in Table 10 for all evaluated versions of the CVQ.

Consistent with hypotheses, calling as assessed by all versions of the CVQ was most strongly correlated with scores on the CAAS (CVQ $r = 0.526$; CVQ-R $r = 0.580$; full CVQ $r = 0.316$, CVQ-10 $r = 0.289$; CVQ-SF $r = 0.526$). Presence of calling scores were more strongly correlated with CAAS scores (CVQ $M = 0.460$, range 0.325 to 0.523; CVQ-R $M = 0.487$, range 0.325 to 0.575; full CVQ $M = 0.253$, range 0.120 to 0.347; CVQ-10 $M = 0.224$, range 0.083 to 0.318; CVQ-SF $M = 0.419$, range 0.307 to 0.543) than search for calling scores (CVQ $M = 0.251$, range 0.139 to 0.456; CVQ-R $M = 0.251$, range 0.139 to 0.518; full CVQ $M = 0.201$, range 0.139 to 0.258; CVQ-10 $M = 0.176$, range 0.122 to 0.235; CVQ-SF $M = 0.344$, range 0.288 to 0.431). These results provide evidence for convergent validity for the CVQ versions with theoretically related constructs.

However, almost equally strong correlations were observed between the overall calling scales (CVQ $r = 0.386$; CVQ-R $r = 0.383$; full CVQ $r = 0.294$; CVQ-10 $r = 0.279$; CVQ-SF $r = 0.342$) and SPS scores and between the presence of calling subscales and SPS scores (CVQ $M = 0.388$, range 0.277 to 0.328; CVQ-R $M = 0.306$, range 0.277 to 0.361; full CVQ $M = 0.269$, range 0.205 to 0.344; CVQ-10 $M = .253$, range 0.184 to 0.330; CVQ-SF $M = 0.265$, range 0.178 to 0.344). A moderately strong,

statistically significant correlation was also observed for the overall search scale (CVQ $r = 0.357$; CVQ-R $r = 0.362$; full CVQ $r = 0.221$; CVQ-10 $r = 0.206$; CVQ-SF $r = 0.290$). Correlations observed between search subscales and the SPS were generally weaker, positive, and non-significant (CVQ $M = 0.286$, range 0.137 to 0.220; CVQ-R $M = 0.156$, range 0.124 to 0.144; full CVQ $M = 0.158$, range 0.130 to 0.220; CVQ-10 $M = 0.142$, range 0.116 to 0.205; CVQ-SF $M = 0.217$, range 0.133 to 0.254). These results suggest a non-hypothesized relation may exist between presence of calling as assessed by the CVQ and social support as measured by the SPS; it is possible that higher social support facilitates exploration of calling. This relation indicated potentially poor discriminant validity between the presence subscales and the SPS.

A similar pattern was also observed in examining correlations between CVQ subscales and scores on the CSES. To a lesser degree than for the CAAS or SPS, statistically significant positive correlations were found between overall calling scores and CSES scores (CVQ $r = 0.158$; CVQ-R $r = 0.196$; full CVQ $r = 0.139$; CVQ-10 $r = 0.131$; CVQ-SF $r = 0.218$) and between the presence of calling scales and CSES scores (CVQ $M = 0.163$, range 0.138 to 0.187; CVQ-R $M = 0.189$, range 0.138 to 0.257; full CVQ $M = 0.127$, range 0.024 to 0.211; CVQ-10 $M = 0.116$, range 0.006 to 0.203; CVQ-SF $M = 0.169$, range 0.112 to 0.212). Correlations between search subscales and the CSES were variable, including negative values, non-significant positive values, and statistically significant weak positive correlations (CVQ $M = 0.082$, range 0.017 to 0.144; CVQ-R $M = 0.113$, range 0.017 to 0.197; full CVQ $M = 0.047$, range -0.037 to 0.132; CVQ-10 $M = 0.040$, range -0.040 to 0.125; CVQ-SF $M = 0.143$, range 0.099 to 0.188).

Table 10. *Convergent, Discriminant, and Predictive Validity Estimates (Bivariate Correlations) Between Original CVQ, CVQ-R, Full CVQ, CVQ-10, and CVQ-SF Scales/Subscales with Related Scales*

	CSES					SPS						CAAS			
	Convergent/ Discriminant					Convergent/Discriminant									
	Original CVQ	CVQ-R	Full CVQ	CVQ-10	CVQ-SF	Original CVQ	CVQ-R	Full CVQ	CVQ-10	CVQ-SF	Original CVQ	CVQ-R	Full CVQ	CVQ-10	CVQ-SF
Calling	0.158**	0.196**	0.139**	0.131*	0.218**	0.386**	0.383**	0.294**	0.279**	0.342**	0.526**	0.580**	0.316**	0.289**	0.526**

Presence	0.187**	0.221**	0.179**	0.170**	0.212**	0.328**	0.361**	0.344**	0.330**	0.344**	0.523**	0.575**	0.347**	0.318**	0.543**
PTS	0.182**	0.182**	0.064	0.053	0.112*	0.258**	0.258**	0.219**	0.208*	0.275**	0.325**	0.325**	0.174*	0.156	0.446**
PPW	0.145**	0.145**	0.157**	0.150**	0.156**	0.290**	0.290**	0.330**	0.316**	0.178*	0.538**	0.538**	0.319**	0.285**	0.307**
PPO	0.138**	0.138**	0.211**	0.203**	0.162**	0.277**	0.277**	0.245**	0.226**	0.282**	0.454**	0.454**	0.307**	0.276**	0.388**
PIS	--	0.257**	0.024	0.006	0.204**	--	0.342**	0.205*	0.184*	0.248**	--	0.545**	0.120	0.083	0.411**
Search	0.099	0.139**	0.080	0.074	0.188**	0.357**	0.362**	0.221**	0.206*	0.290**	0.456**	0.518**	0.258**	0.235**	0.431**
STS	0.017	0.017	-0.037	-0.040	0.176**	0.137	0.137	0.137	0.123	0.254**	0.139	0.139	0.139	0.122	0.306**
SPW	0.067	0.067	0.058	0.054	0.099	0.220	0.220	0.220	0.205*	0.247**	0.199*	0.199*	0.199*	0.178*	0.288**
SPO	0.144**	0.144**	0.132*	0.125*	0.100	0.144	0.144	0.144	0.124	0.233**	0.210*	0.210*	0.210*	0.181*	0.328**
SIS	--	0.197**	0.001	-0.013	0.155*	--	0.124	0.130	0.116	0.133	--	0.190*	0.197*	0.166*	0.368**

Note. ** $p < .01$, * $p < .05$. Convergent/discriminant validity with the CSES was assessed with data from the sample of first-year students, *N* = 347. Convergent/discriminant validity with SPS and CAAS was assessed with data from the sample of second-year through fourth-year students, *N* = 149. Scale Abbreviations: Original CVQ (Original Calling and Vocation Questionnaire), CVQ-R (Calling and Vocation Questionnaire-Revised), Full CVQ (CVQ-R and CVQ-10 items), CVQ-10 (Calling and Vocation Questionnaire-10 item), CVQ-SF (Calling and Vocation Questionnaire-Short Form), PTS (Presence of Transcendent Summons), PPW (Presence of Purposeful Work), PPO (Presence of Prosocial Orientation), PIS (Presence of Internal Summons), STS (Search for Transcendent Summons), SPW (Search for Purposeful Work), SPO (Search for Prosocial Orientation), SIS (Search for Internal Summons), CSES (Core Self-Evaluations Scale), SPS (Social Provisions Scale), CAAS (Career Adapt-Abilities Scale).

Chapter IV

Discussion

General Discussion

As research on calling progresses, it is important to ensure that researchers are assessing this construct based on its most up-to-date and empirically supported definitions. I attempted to address this need in my dissertation by evaluating whether the addition of a proposed internal summons dimension to one of the most commonly used measures of calling was preliminarily supported. Additionally, I sought to develop a briefer measure that would retain the ability to assess calling according to its most current, multidimensional definition. To do so, I wrote eight items to assess the presence of and search for an internal summons, wrote 10 clearly worded items assessing each proposed dimension of calling as well as presence and search in general, and administered these items along with all items from the original CVQ and scales to assess these measures' place in a nomological net of related constructs. I administered these measures to college students, for whom career discernment and exploration are developmentally salient tasks, and evaluated the fit of series of CFA models to determine how well the models including these items fit within this sample.

In evaluating these models, I unfortunately observed poor model fit across many models. The results of these analyses suggest that more research is needed to better understand how people perceive the source of their calling and that an internal source of calling may accurately represent this source for some people. More research is also needed to explicate for whom a transcendent, internal, or combined source of calling better reflects the lived experience of calling. Additionally, while the CVQ-10 did not achieve adequate model fit and items may not have unambiguously represented only their intended subscales alone, the possibility of a short-form CVQ continues to be a future possibility, especially as our understanding of the perceived source(s) of calling progresses.

Functioning of the Original CVQ

In investigating potential reasons for inadequate model fit across many tested models, one important step was considering how well the original CVQ items functioned within my sample. I evaluated the fit of Dik et al.'s (2012) best-fit model within my sample in Model 1 (see Table 8), which provided a baseline for comparison of the next sets of models evaluated. I found that the fit of this structure was significantly poorer in both my initial and cross-validation samples than in Dik et al.'s (2012) sample. Notably, while Dik et al. (2012) achieved adequate model fit within their samples (i.e., students from a large, Western public research university and from two small, Midwestern, Christian, liberal arts colleges) the poor model fit I observed indicated that, at baseline, this structure of calling may not have adequately captured the construct of calling within my sample of undergraduate students at a private, Christian, liberal arts institution in the Pacific Northwest. Although reasons for the discrepancy in the CVQ's ability to capture perceived calling across these samples are unclear, it is possible that my sample's prior exposure to calling definitions through online modules and career-focused classes may have influenced participants' conceptualizations of calling. Additionally, my sample may differ from Dik et al.'s (2012) sample in terms of factors research suggests relate to defining and exploring calling, such as religious engagement or socioeconomic status. Regardless of the reason for this discrepancy, the poorer baseline fit of the CVQ within my sample compared to Dik et al.'s (2012) validation sample may help to explain why subsequent models involving many of the same items also had poorer fit. To explore potential causes for the relatively poorer fit of the original CVQ within my sample, I investigated reliability coefficients, within-scale and subscale convergent validity, and item-total correlations. In reporting these results, I have included values from both the initial and cross validation samples (i.e., x_i, x_{xy}).

Reliability Across Original CVQ Subscales

Significantly lower reliability for the CVQ as a whole and across CVQ subscales indicated that

CVQ items may not have reliably assessed a consistent underlying calling construct in this sample. Dik

et al. (2012) found generally acceptable alpha coefficients (i.e., ranging from .85 to .93) within their

samples. The lowest observed reliability coefficients were for presence of transcendent summons (alpha

of .85) and search for transcendent summons (alpha of .86). In contrast, I found generally low and varied

alpha coefficients within my sample for the original CVQ. Cronbach's alpha coefficients ranged from

.609 to .904. However, similarly to Dik et al. (2012), the subscales with the lowest reliability

coefficients across both samples were the presence of transcendent summons scale (i.e., .609, .663) and

the search for transcendent summons scale (i.e., .607, .590). In my sample, these values were noticeably

lower than the reliability coefficients for the other subscales of the original CVQ. Additionally, two

items in the transcendent summons scale (i.e., "I do not believe that a force beyond myself has helped

guide me to my career," "I'm trying to identify the area of work I was meant to pursue") had negative

standardized regression weights, indicating that they were not mapping onto their construct in the

hypothesized direction. Bikos et al. (2015), who assessed presence of calling within a similar

undergraduate sample from the same university, also found significantly lower alpha coefficients (i.e.,

typically around .75) across CVQ subscales than were found in Dik et al.'s (2012) original validation

sample and expressed that future research should address reliability within the transcendent summons

subscales in particular.

One potential reason for this poor reliability pertains to the relationship between presence of

calling and search for calling, both as a whole and at a subscale level and within the transcendent

summons dimension in particular. Past research has demonstrated mixed results regarding the

relationship between presence and search dimensions and has not yet clearly explicated whether a

person can experience both a search for calling and the presence of a calling simultaneously, whether

search necessarily leads to high levels of presence in a linear fashion, or whether presence may

sometimes be negatively associated with search. Dik et al. (2012) observed consistently positive

correlations between search and presence dimensions for the full calling scale (r = .77) and across

subscales in their initial validation study, but Duffy and Sedlacek (2007) reported a negative correlation

between these dimensions (r = -.48). Likewise, Bikos et al. (2015) found a positive relationship between

persistent searching of calling and presence of calling, but only a marginal increase in presence of

calling with fluctuating search scores. These varied results support Dobrow's (2013) suggestion that

calling may not be a static construct, but rather may change over time and with exposure to various life

experiences. Bikos et al. (2015) suggested that the transcendent summons subscales, in particular, may

not be consistently linearly related to each other because while higher levels of searching may be

motivated by an absence of presence of calling, moderate amounts of searching may be associated with

higher levels of presence.

In my study, search for and presence of transcendent summons subscales were positively

correlated (rs = 0.662, 0.773) within the original CVQ. Presence of transcendent summons and search

for transcendent summons were also positively related (r = 0.192 for the initial sample, r = 0.104 for the

cross-validation sample), but this relation between presence and search subscales was substantially

weaker than the correlations found between the other presence and search subscales (i.e., PW rs = 0.600,

0.703; PO rs = 0.729, 0.701).

Regarding subscale and total scale correlations, both presence of transcendent summons (rs =

0.466, 0.546) and search for transcendent summons (rs = 0.426, 0.418) were also positively correlated

with the overall calling scale as a whole, but again these relationships were noticeably weaker than those

observed between the other subscales and the overall calling scale (i.e., PPW rs = 0.653, 0.725; PPO rs

= 0.767, 0.787; SPW rs = 0.641, 0.678; SPO rs = 0.679, 0.681). Together, these results lend support to

the idea that the transcendent summons subscales may relate differently to each other than the search

and presence subscales of other calling dimensions and suggest that they may not reliably map onto the

overall construct of calling as strongly as the other subscales. These results also suggest a need for

further research to clarify (a) the relations between search and presence subscales, and particularly

between the transcendent summons subscales, and (b) the populations for whom the transcendent

summons subscales more reliably assess calling and those for whom they may not adequately or

completely represent the perceived source of calling. Past research (e.g., Adams, 2012) suggests that

differential perceptions of source of calling (i.e., transcendent, internal, or both) may represent an

important difference in how calling is conceptualized and that this divide may also be related to adopting

a more traditionally religious versus secular definition of calling. Considering the samples within which

calling has been assessed and the religiosity of those samples may provide clues as to why the

transcendent summons dimension had lower internal reliability than the other dimensions of calling in

my sample.

Considering Religiosity in Calling

The samples with which Dik et al. (2012) validated the original CVQ and found acceptable

model fit for all calling subscales and dimensions included students from a large, Western public

research university (n = 360) and students from two small, Midwestern, Christian, liberal arts colleges (n

= 96). In their initial validation of the CVQ, they hypothesized and found that frequency of attendance at

religious services was positively associated with both search for and presence of calling overall.

Supporting the finding that religiosity is associated with increased calling as assessed by the CVQ,

Bikos et al. (2015) investigated the presence of calling across time as a function of faith and search for

calling in international learning participants. They found that steadfastness of religious faith was

positively associated with magnitude of the presence of calling. This relation suggests that either (a)

religion may help people to discern their calling, or (b) religion may influence how people conceptualize

the construct of a calling. While both hypotheses require further investigation, the latter hypothesis

should be considered when interpreting measurement of calling as traditionally defined given the

construct's grounding within explicitly Christian terms, including the necessity of a transcendent

summons from an external "caller" such as God or a higher power. Specifically, these findings call for

further research on how calling is defined within non-religious populations or within populations of

members of non-Christian religions.

Similarly to Dik et al's (2012) original validation population, my sample included college

students from a small, Christian, liberal arts university, in the Pacific Northwest. About half of

participants (49.2%) identified as affiliated with an organized religion, with most students identifying

with Christian denominations. Given that more secular definitions of calling tend to deviate from

traditional definitions primarily with regard to the perceived source of calling as either external or

internal (Adams, 2012), reliability may have been lower within the transcendent summons dimension of

the original CVQ in part because participants responded differentially to the items assessing

transcendent summons based on how well these items captured their perceived source of calling.

Therefore, I considered how well the internal summons dimension both in addition to the transcendent

summons dimension and instead of the transcendent summons dimension fit within my sample.

Investigating Support for an Internal Summons Dimension of Calling

Evaluating Internal Summons Versus Transcendent Summons Within the CVQ-R

Given the occurrence of poor baseline model fit with the original CVQ items, it was especially

important to consider comparisons of fit between models rather than values of fit indices alone when

determining whether preliminary support existed for the existence of an internal summons dimension of

calling. Overall, model fit when I added the internal summons dimension to the existing CVQ items

(i.e., Model 2) to create the CVQ-R did not reach acceptable standards (see Table 8). I examined

standardized regression weights to investigate potential causes of this poor model fit and found that four

items within the transcendent summons subscale (i.e., "I do not believe that a force beyond myself has

helped guide me to my career," "I'm trying to identify the area of work I was meant to pursue," "I'm

searching for my calling in my career," "I am trying to figure out what my calling is in the context of my

career."), including the two items that had also had negative regression weights within the original CVQ

model (Model 1) had negative regression weights (see Table 1). These negative regression weights

meant that they were loading onto their factor in the opposite direction as expected. However, the

standardized regression weights for all internal summons items were positive and of similar magnitude

to the regression weights observed across other subscales; in fact, the presence of internal summons

scale also included the item with the highest loading across all subscales (0.74; "I feel called to my

major/career because of my passion for it"). Together, these results suggest that while internal summons

items loaded adequately onto their respective subscales and to calling as a whole, the inclusion of both

internal summons items and transcendent summons items within the same scale may have led to poorer

model fit due to transcendent summons items loading more poorly onto their respective subscale when

internal summons items are also present.

The wording of the items within the transcendent summons dimension that had negative

regression weights should also be considered in understanding these results. It is notable that three of the

four items do not explicitly clarify an external source of the calling, but seem to make more general

statements about seeking a calling. Theoretically, if some items directly assessed source of calling while

others assessed search or presence of calling more generally, the items in these subscales could be

mapping onto slightly different constructs, accounting for poorer reliability values and lower regression

standardized regression weights.

　　　To further evaluate the possibility of an internal summons dimension, I considered internal

reliability (Table 9) as well as within-scale convergent and discriminant validity (Table 2) of the CVQ-R

(Model 2). Although reliability coefficients across subscales were again lower than in Dik et al.'s (2012)

sample, alpha coefficients for the presence of internal summons (i.e., .691, .708) search for internal

summons (i.e., .643, .644) subscales were similar to the coefficients found for other subscales and were

both slightly higher than those found for the transcendent summons subscales (i.e., PTS = .609, .663;

STS = .607, .590). Additionally, the alpha coefficient for overall calling in the CVQ-R reached

acceptable limits (i.e., .910, .923) and was slightly higher than for the original CVQ (i.e., .888, .904).

These results indicate that the addition of the internal summons scale in the CVQ-R increased the

internal reliability of the scale, and therefore may have more reliably assessed the construct of calling as

perceived within my sample of participants than the original CVQ.

　　　In examining item-total correlations (Table 1), I found that internal summons items were all

positively correlated with their respective subscales and were generally more strongly correlated with

their own subscales than with other subscales; the next highest correlations were typically with the other

internal summons scale (i.e., presence or search of internal summons). Examination of within-scale

convergent and discriminant validity also indicated that both presence and search scales of the internal

summons dimension correlated strongly with the overall construct of calling and with their respective

overall presence scales, and slightly less strongly with their overall search scales. Again, both presence

and search subscales for the transcendent summons dimension had the lowest correlations with overall

calling.

Including Source of Calling Leads to Poorer Model Fit

I removed the transcendent summons scales and the internal summons scales (i.e., Model 3) to investigate how model fit changed with no source of calling assessed and found that while fit indices were still just below acceptable limits, this model fit significantly better than the model with all original CVQ items. This provided an indication that the prosocial orientation and meaningful work dimensions of calling may have been more strongly contributing to participants' understandings of a calling than either source dimension, or that the perceived source(s) of calling were not cleanly captured by the items in their respective subscales.

Given that understanding the perceived source of one's calling may be an important consideration in understanding and providing interventions around calling (Hall & Chandler, 2005), my next step allowed for comparison between the CVQ with its original transcendent summons dimension versus the CVQ with the internal summons dimension substituted.

Comparing Model Fit of the CVQ with Internal Summons Dimension versus Transcendent Summons Dimension

When I substituted the internal summons subscale for the transcendent summons subscale (Model 4), I found that model fit again worsened compared to the model with no source subscale included (i.e., Model 3). However, model fit with the internal summons subscale was significantly better than model fit with the transcendent summons subscale of the original CVQ (i.e., Model 1). This result indicated that, in my sample, internal summons may have more adequately represented the perceived source of calling than a transcendent summons. In this model, all standardized regression weights were also positive in contrast to Model 1, which provided further evidence that the internal summons items were loading onto their respective factors adequately and in the hypothesized direction.

Functioning of the CVQ-10

        None of the structural models tested including the CVQ-10 items, either in conjunction with the

CVQ-R items as part of the full CVQ or as an independent scale, indicated adequate model fit. In fact,

model fit for the best-fit structure of the full CVQ was poorer than for either the original or the CVQ-R.

A closer look at standardized regression weights, internal reliability, and item-total correlations provided

an indication of potential reasons for this surprisingly poor model fit.

The CVQ-10 Within the Full CVQ

        In examining item-total correlations (see Table 2), I found that the CVQ-10 items had among the

highest correlations with their respective subscales; these values were the highest within their subscale

for the presence of transcendent summons, search for transcendent summons, presence of purposeful

work, and search for internal summons dimensions compared to the correlations of other items within

these same subscales. Additionally, all CVQ-10 items had the highest correlation across their respective

subscales with the overall calling factor. However, in six out of the eight subscales, the CVQ-10 items

correlated more highly with another subscale than with their own subscale. This pattern indicated that

some items may have cross-loaded onto other calling subscales and may not have independently

assessed their intended construct of interest.

        Consistent with this idea, I found varied loadings among CVQ-10 items that may suggest that

items represent their constructs of interests to varying degrees of accuracy. For six items, representing

the subscales of search for purposeful work (0.770), search for internal summons (0.622), presence of

transcendent summons (0.471), search for transcendent summons (0.342), and search for prosocial

orientation (0.403), the factor loadings were either the highest or among the highest within their

subscales. However, the CVQ-10 items had the lowest factor loadings within their subscales in items

representing the dimensions of presence of purposeful work (-0.214), presence of prosocial orientation

(0.160), search for prosocial orientation (0.403), and presence of internal summons (-0.783); two of these factors loadings were also negative, meaning they detracted from model fit when mapped onto their assigned subscale and may not have adequately represented their construct of interest.

Together, these patterns indicate that while CVQ-10 items may have adequately mapped onto their respective subscales as intended, they may also have cross-loaded onto other subscales and thus not provided a clear and ambiguous measure of their intended construct independently or in relation to the other subscales. CVQ-10 items were written to clearly state the definitions of each calling subscale; the fact that they had some of the highest correlations with their intended subscale and with the overall calling factor speaks to their ability to tap into these constructs as defined. However, it is possible that these definitions map onto a slightly different construct of calling than that assessed by the CVQ-R items as currently written, or that the subscales of calling as clearly defined by CVQ-10 items do not represent independent but conceptually overlapping constructs. The former hypothesis is supported by the observation that, after rescaling for consistency, the CVQ-10 items when considered as an independent scale demonstrated good internal reliability and, in fact, better reliability for the overall calling construct than observed within either the CVQ or CVQ-R and only demonstrated poorer reliability when combined with the CVQ-R items to form the full-CVQ.

In general, internal reliability was extremely varied for the full CVQ. The overall calling scale (.813), the overall presence scale (.637), and the overall search scale (.861) demonstrated adequate Cronbach's alpha values. However, values ranged from .011 to .088 across subscales. To explore whether the difference in scaling (i.e., the 4-point Likert scale used for the CVQ-R items and the 100-point Likert scale used for the CVQ-10 items) within this measure contributed to poor reliability values, I rescaled the CVQ-10 items into a 4-point scale paralleling the scale used in the CVQ-R. I found that both full-scale and subscale reliability increased, with overall calling (.917), overall presence (.859),

overall search (.816) and all subscales (ranging from .523 to .753) improved and more often indicating

adequate reliability. However, because the CVQ-10 was not administered in this 4-point scale, this

analysis was considered exploratory and the remaining analyses reflect the CVQ-10 as administered on

its 100-point scale. While the CVQ-10 was originally administered on the 100-point scale to avoid

potential loss of statistical information arising from reducing the number of items being used to assess

each construct, it may be that this scale contributed to differential responding by participants on these

items in comparison to the CVQ-R items administered on a 4-point scale.

The CVQ-10 Independently

In terms of item and scale statistics, the CVQ-10 items demonstrated variable characteristics as

an independent scale. Item-total correlations indicated that items correlated positively but not as strongly

with the overall calling factor (ranging from 0.378 to 0.663) and with overall presence (ranging from

0.324 to 0.648) and search factors (ranging from 0.461 to 0.731). Additionally, standardized regression

weights were all positive (ranging from 0.363 to 0.816), with values for the search subscale (ranging

from 0.553 to 0.816) generally stronger than those for the presence subscale (ranging from 0.363 to

0.789); this suggested that all items were mapping onto the calling factor and their respective search and

presence factors in the hypothesized direction. Reliability was also adequate for the overall calling scale

(.868), presence scale (.728), and search scale (0.826).

Investigating the Possibility of a Short-Form CVQ

The complexity of the multidimensional calling definition and the failure of the CVQ-10 to

adequately represent this construct of calling introduces questions regarding the possibility of a short-

form of the CVQ. My final two models (i.e., Models 14 and 15), in which I chose one item from each

calling subscale to form a pool of the eight CVQ-R items that best represented their construct based on

factor loadings, speak to this possibility. These models achieved adequate fit according to the CFI and

borderline acceptable model fit according to the RMSEA.

However, item-total correlations for overall calling (0.496 to 0.608), presence, (.483 to .527),

and search (.430 to .492) were not as strong as in the CVQ-10 or unabbreviated forms of the CVQ, and

reliability coefficients (ranging from .662 to .798 for initial, .720 to .846 for cross-validation sample)

were not as high as other forms of the CVQ. Analyses regarding this scale were intended as very

preliminary exploration into the feasibility of a short-form CVQ, and these results suggest that more

research is needed through either (a) exploratory factor analysis of the CVQ and/or the CVQ-R to

determine which items best represent the construct of calling as currently defined and its subscales, or

(b) creation of new items that purport to assess calling and its subscales.

Limitations and Strengths

The results of this study offer tentative support to the utility of an internal summons subscale of

calling as currently defined by the CVQ and suggest that while the CVQ-10 did not adequately assess

calling according to its most current multidimensional definition, a short-form version of the CVQ may

be possible in the future given further exploration into how the "source" dimensions of calling relate to

each other and to the calling construct as a whole. However, no models, including the original CVQ,

demonstrated adequate model fit statistics, which indicates that further research is warranted to address

these questions. Ideally, future research in these areas should address some of the limitations both within

this study and within the literature of calling in general.

One important consideration, as discussed earlier, is the population of participants in which

calling was assessed. Even across relatively similar student populations, the CVQ functioned

differentially; Dik et al. (2012) achieved adequate model fit within their samples while Bikos et al.

(2015) and this study found inadequate model fit and variable reliability. This inconsistency speaks to

the need to assess calling across different types of populations and to consider both refining how we

measure calling to better capture the experience of calling as perceived across these more diverse

populations and specifying for which specific populations the current definitions and measures

adequately capture this construct. Most research on calling so far, including this study, has focused on

student populations. While calling may be a particularly salient notion within this population given the

developmental tasks with which college students typically engage (Hunter et al., 2010), limiting research

on calling to this population also introduces questions of generalizability to populations of youth and

adults at other stages of their career exploration and discernment process. Capturing the experience of

calling across populations at different developmental levels may be especially important specifically

because calling- and career-related exploration is so salient for students; they may not progress through

search of all subscales simultaneously or linearly and may perceive the presence of these facets of

calling differentially across this active process as well. For example, when students engaged in the

online calling course available to students in my sample are offered career development activities

created for all academic years simultaneously, they often choose to complete activities outside of their

"assigned" academic year and may pick and choose activities "meant" for many academic years. This

lack of a linear process of exploration may theoretically contribute to decreased reliability if students do

not necessarily experience similar levels of all hypothesized subscales simultaneously and if their

endorsement of these subscales also changes over time. Clearly, more research into this career

exploration may help to better define calling overall or understanding how it fluctuates and evolves as a

natural part of this process.

      Students also typically represent a population with resources that enable them to forego higher

levels of income for many years while engaging in processes meant to facilitate career exploration and

later employment. One strength of my sample includes diversity within family income given that

financial resources may influence the extent to which people are able to live out their perceived calling (Hall & Chandler, 2005). However, more research is needed to understand how financial resources may influence the career exploration and understanding of calling within this developmental stage. In my sample, students additionally were engaged in an online course including career discernment and exploration resources across their college career; they may have had more exposure to the concept of calling than students without these resources, students in trade schools, or same-aged peers not enrolled in college. More research is needed to determine how well our current definition of calling as assessed by the CVQ captures the perceived experience of a calling, and its perceived source(s), within these populations. To address this need, data are currently being collected using the CVQ-10 within community populations engaged in the prosocial behavior of making facemasks during the COVID-19 pandemic; ideally, factor analysis should be applied within this sample to explore model fit within this non-student population.

The results of this study also speak to the importance of understanding how religious engagement relates to conceptualization of calling, and particularly to source of calling. One strength of this study is sampling of both religious and non-religious participants. However, lack of information on religious affiliation for about half of participants precluded meaningful statistical analysis to compare how well the transcendent summons dimension, internal summons dimension, or both dimensions together captured the construct of calling based on religious affiliation. Additionally, the vast majority of participants who endorsed that they were religious identified as Christian. Evaluating how religious engagement and religious membership relate to endorsement of calling in general and perceived source of calling in particular represents an important direction for future research. These results are also consistent with the idea that participants in previous research (Hunter et al., 2010) have sometimes not been able to articulate a clear source of their calling. In my sample, removing the source of calling

dimensions altogether led to better model fit; clearly more research on how people perceive the source of their calling and the reliable assessment of this factor is needed.

Finally, an important limitation of this study is that measures were not counterbalanced; all participants took the 32-item CVQ-R before taking the CVQ-10. It is possible that the CVQ-R items may have influenced participants' interpretation of CVQ-10 items or that participants may have spent less time on these seemingly repetitive items due to test fatigue. Counterbalancing these items in the future could help to clarify how well the CVQ-10 functions in relation to the CVQ-R or original CVQ.

Conclusions

This dissertation represented an important first step in investigating the possibility of an internal summons dimension of calling, adding to our understanding of how calling, and specifically its source, is perceived. However, the poor model fit observed across all forms of the CVQ, including the original CVQ, introduce more questions regarding how reliably our current definitions of calling capture this experience across different populations and even within student populations. Model comparisons indicated that (a) transcendent summons items work less well when internal summons items are included in the same model, (b) transcendent summons items had some of the lowest reliability values across the scales tested, and (c) including the internal summons subscale rather than the transcendent summons subscale was associated with slightly improved model fit. Together, these results suggest that more research is needed to determine (a) for whom, across religion and developmental stage in career exploration and discernment process, each "source" dimension better captures the experience of calling, (b) whether people can experience both an internal and transcendent source of calling simultaneously and if, so, how this overlap manifests on the CVQ-R.

Results of this study also indicated that the CVQ-10 items, which clearly defined each subscale of the CVQ-R, did not adequately capture the multidimensional construct of calling. While these items

often had the highest correlations with their respective subscale factors, they often also correlated as strongly or more strongly with other factors and particularly with their opposite search/presence factor. The potential utility of a short-form CVQ that allows for brief assessment of calling while retaining the ability to assess each dimension of calling remains, and more research is warranted to continue exploring the possibility of a short-form scale that adequately and unambiguously captures each subscale of interest according to our most current definitions of calling. While this study did not support current use of the CVQ-R or CVQ-10 as measures of calling, these tools and the CVQ-SF represent an important continuation in research evaluating measurement of calling and understanding its development, including its perceived sources, and may benefit from continued exploratory factor analysis and use within diverse populations.

References

Adams, C.M. (2012) Calling and career counseling with college students: Finding meaning in work and life. *Journal of College Counseling*, *15*, 65-80.

Allan, B. A., Tebbe, E. A., Duffy, R. D., & Autin, K. L. (2015). Living a calling, life satisfaction, and workplace climate among a lesbian, gay, and bisexual population. *The Career Development Quarterly*, *63*(4), 306-319. https://doi.org/10.1002/cdq.12030

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American psychologist*, *55*(5), 469. https://doi.org/10.1037/0003-066X.55.5.469

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. https://doi.org/10.1287/orsc.1090.0497

Berkelaar, B. L., & Buzzanell, P. M. (2015). Bait and switch or double-edged sword? The (sometimes) failed promises of calling. *Human Relations*, *68*(1), 157-178. https://doi.org/10.1177/0018726714526265

Bikos, L.H., Rodney, H., Gowen, M., Yamamoto, M., & Dykhouse, E.C. (2015). Effects of searching, faith, and time on the presence of calling in international service learning returnees. *Journal of Psychology and Christianity, 34*(4), 325-339.

Blau, G. J. (1985). The measurement and prediction of career commitment. *Journal of Occupational Psychology*, *58*(4), 277-288. https://doi.org/10.1111/j.2044-8325.1985.tb00201.x

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. https://doi.org/10.2189/asqu.2009.54.1.32

Byrne, B. M. (2016). *Structural equation modeling with AMOS: Basic concepts, applications and programming*, 3rd edition. Abingdon: Routledge.

Campbell, D.T., & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*, 81-105.

Cardador, M. T., & Caza, B. B. (2012). Relational and identity perspectives on healthy versus unhealthy pursuit of callings. *Journal of Career Assessment*, *20*(3), 338-353. https://doi.org/10.1177/1069072711436162

Caron, J., (2013). A validation of the Social Provisions Scale: The SPS-10 items. *Sante Mentale au Quebec, 38*(1), 297-318.

Clark, M. A., Michel, J. S., Zhdanova, L., Pui, S. Y., & Baltes, B. B. (2016). All work and no play? A meta-analytic examination of the correlates and outcomes of workaholism. *Journal of Management*, *42*(7), 1836-1873. https://doi.org/10.1177/0149206314522301

Cutrona, C.E., & Russell, D.W. (1987). The provisions of social relationships and adaptation to stress. In Jones, W.H., & Perlman, D. (Eds). *Advances in Personal Relationships, 1,* 37-67. Greenwich, CT: JAI Press.

Davidson, J. C., & Caddell, D. P. (1994). Religion and the meaning of work. *Journal for the Scientific Study of Religion*, *33*(2), 135-147. https://doi.org/10.2307/1386600

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. https://doi.org/10.1177/0011000008316430

Dik, B.J., Duffy, R.D., & Eldridge, B.M. (2009). Calling and vocation in career counseling: Recommendations for promoting meaningful work. *Professional Psychology: Research and Practice*, *40*(6), 625-632. https://doi.org/10.1037/a0015547

Dik, B.J., Eldridge, B.M., & Steger, M.F., & Duffy, R.D. (2012). Development and validation of the Calling and Vocation Questionnaire (CVQ) and Brief Calling Scale (BCS). Journal of Career Assessment, *20*(3), 242-263. https://doi.org/10.1177/1069072711434410

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

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

Dobrow, S. R., & Tosti-Kharas, J. (2012). Listen to your heart? Calling and receptivity to career advice. *Journal of Career Assessment*, *20*(3), 264-280. https://doi.org/10.1177/1069072711434412

Dobrow, S. (2004). Extreme subjective career success: A new integrated view of having a calling. *Academy of Management Proceedings, 2004*(1), B1-B6. https://10.5465/AMBPP.2004.13863838

Duffy, R. D., & Dik, B. J. (2013). Research on calling: What have we learned and where are we going? *Journal of Vocational Behavior*, *83*(3), 428-436. https://doi.org/10.1016/j.jvb.2013.06.006

Duffy, R.D. & Sedlacek, W.E. (2007). The presence and search for a calling: Connections to career development. *Journal of Vocational Behavior*, *70*, 590-601. https://doi.org/10.1016/j.jvb.2007.03.007

Duffy, R. D., & Sedlacek, W. E. (2010). The salience of a career calling among college students: Exploring group differences and links to religiousness, life meaning, and life satisfaction. *The Career Development Quarterly*, *59*(1), 27-41. https://doi.org/10.1002/j.2161-0045.2010.tb00128.x

Duffy, R. D., Allan, B. A., Bott, E. M., & Dik, B. J. (2014). Does the source of a calling matter?

    External summons, destiny, and perfect fit. *Journal of Career Assessment*, *22*(4), 562-574.

    https://doi.org/10.1177/1069072713514812

Duffy, R.D., Autin, K.L., Allan, B.A., & Douglass, R.P. (2015). Assessing work as a calling: An

    evaluation of instruments and practice recommendations. *Journal of Career Assessment, 23*(3),

    351-366. https://doi.org/10.1177/1069072714547163

Duffy, R. D., Bott, E. M., Allan, B. A., Torrey, C. L., & Dik, B. J. (2012). Perceiving a calling, living a

    calling, and job satisfaction: Testing a moderated, multiple mediator model. *Journal of*

    Counseling Psychology, 59(1), 50. https://doi.org/10.1037/a0026129

Duffy, R. D., Dik, B. J., & Steger, M. F. (2011). Calling and work-related outcomes: Career

    commitment as a mediator. *Journal of Vocational Behavior, 78*(2), 210-218.

    https://doi.org/10.1016/j.jvb.2010.09.013

Duffy, R.D., Dik, B.J., Douglass, R.P., England, J.W., & Velez, B.L. (2018). Work as a calling: A

    theoretical model. *Journal of Counseling Psychology, 64*(4), 423-439.

    https://doi.org/10.1037/cou0000276

Duffy, R. D., Douglass, R. P., & Autin, K. L. (2015). Career adaptability and academic satisfaction:

    Examining work volition and self efficacy as mediators. *Journal of Vocational Behavior, 90*, 46-

    54. https://doi.org/10.1016/j.jvb.2015.07.007

Duffy, R.D., Foley, P.F., Raque-Bodgan, T.L., Reid-Marks, L., Dik, B.J., Castano, M.C., & Adams,

    C.M. (2012). Counseling psychologists who view their careers as a calling: A qualitative study.

    Journal of Career Assessment, 20(3), 293-308. https://doi.org/10.1177/1069072711436145

Eldridge, B.M., & Dik, B.J. (2008, August). Calling vs. vocation: The role of a transcendent summons.

    Paper presented at the American Psychological Association Convention, Boston, MA.

Enders, C. K. (2010). *Applied missing data analysis* (2010-13190-000). Guilford Press.

Fine, M. (2003). Career Spirituality--Learning the ROPES.

Gazica, M. W., & Spector, P. E. (2015). A comparison of individuals with unanswered callings to those with no calling at all. *Journal of Vocational Behavior, 91*, 1-10. https://doi.org/10.1016/j.jvb.2015.08.008

Green, S.B., & Salkind, N.J. (2014). *Using SPSS for Windows and Macintosh* (7th ed.)*.* Upper Saddle River, NJ: Pearson.

Hagmaier, T., & Abele, A. E. (2012). The multidimensionality of calling: Conceptualization, measurement and a bicultural perspective. *Journal of Vocational Behavior, 81*(1), 39-51. https://doi.org/10.1016/j.jvb.2012.04.001

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

Hansen, L.S. (1997). Integrative life planning: Critical tasks for career development and changing life patterns. San Francisco, CA: Jossey-Bass.

Hardy, L. (1990). The fabric of this world: Inquiries into calling, career choice, and the design of human work. Grand Rapids, MI: Eerdmans.

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

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55.

Hunter, I., Dik, B.J., & Banning, J.H. (2010). College students' perceptions of calling in work and life: A

    qualitative analysis. *Journal of Vocational Behavior, 76*, 178-186.

    https://doi.org/10.1016/j.jvb.2009.10.008

Jöreskog, K. G. (1993). Testing Structural Equation Models. In K. A. Bollen, & J. S. Long (Eds.),

    Testing Structural Equation Models (pp. 294-316). Thousand Oaks, CA: Sage.

Judge, T.A., Erez, A., Bono, J.E., & Thoresen, C.J. (2003). The Core Self-Evaluations Scale (CSES):

    Development of a measure. *Personnel Psychology, 56,* 303-331.

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford

    Publications. http://ebookcentral.proquest.com/lib/spu/detail.action?docID=4000663

Maslach, C. Schaufeli, W.B., & Leiter, M.P. (2001) Job burnout. *Annual Review of Psychology, 52*, 397-

    422. https://doi.org/10.1146/annurev.psych.52.1.397

Novak, M. (1996). Business as a calling: Work and the examined life. New York: The Free Press.

Praskova, A., Hood, M., & Creed, P. A. (2014). Testing a calling model of psychological career success

    in Australian young adults: A longitudinal study. *Journal of Vocational Behavior, 85*(1), 125-

    135. https://doi.org/10.1016/j.jvb.2014.04.004

Savickas, M.L. & Porfeli, E.J. (2012). Career Adapt-Abilities Scale: Construction, reliability, and

    measurement equivalence across 13 countries. *Journal of Vocational Behavior, 80*(3), 661-673.

    https://doi.org/10.1016/j.jvb.2012.01.011

Scholljegerdes, K., Dik, B. J., & Steger, M. F.(2010). The Bethel group study: Randomized trial of two

    strategies for integrating calling into career counseling with Christian college students. Paper

    presented at the annual convention of the American Psychological Association, San Diego, CA.

Soper, D.S. (2019). A-priori Sample Size Calculator for Structural Equation Models [Software].

    Available from http://www.danielsoper.com/statcalc

Steger, M.F., & Dik, B.J. (2006, March). Advances in spirituality research: The role of meaning in work. Paper presented at APA Division 36: Psychology of religion, Baltimore, MD.

Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work: The work and meaning inventory (WAMI). *Journal of Career Assessment, 20*(3), 322-337. https://doi.org/10.1177/1069072711436160

Steger, M.F., Pickering, N.K., Shin, J.Y., & Dik, B.J. (2010). Calling in work: Secular or sacred? *Journal of Career Assessment, 18*(1), 18-96. https://doi.org/10.1177/106807270972709350905

Treadgold, R. (1999). Transcendent vocations: Their relationship to stress, depression, and clarity of self-concept. *Journal of Humanistic psychology, 39*(1), 81-105. https://doi.org/10.1177/0022167899391010

Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of Research in Personality, 31*(1), 21-33. https://doi.org/10.1006/jrpe.1997.2162