Measuring Meaningful Work: The Work and Meaning Inventory (WAMI)

Michael F. Steger[1,2], Bryan J. Dik[1], and
Ryan D. Duffy[3]

Abstract

Many people desire work that is meaningful. However, research in this area has attracted diverse ideas about meaningful work (MW), accompanied by an equally disparate collection of ways of assessing MW. To further advance study in this area, the authors propose a multidimensional model of work as a subjectively meaningful experience consisting of experiencing positive meaning in work, sensing that work is a key avenue for making meaning, and perceiving one's work to benefit some greater good. The development of a scale to measure these dimensions is described, an initial appraisal of the reliability and construct validity of the instrument's scores is reported using a sample of university employees ($N = 370$) representing diverse occupations. MW scores correlated in predicted ways with work-related and general well-being indices, and accounted for unique variance beyond common predictors of job satisfaction, days reported absent from work, and life satisfaction. The authors discuss ways in which this conceptual model provides advantages to scholars, counselors, and organizations interested in fostering MW.

Keywords

meaningful work, calling, meaning in life

Many people want their careers and their work to be more than simply a way to earn a paycheck or pass their time; they want their work to mean something (Šverko & Vizek-Vidović, 1995). If the vast array of books, websites, and seminars promising to help people find purpose and meaning in their work are any indication, people are more interested than ever in having the time they spend working matter. Organizational scholars have conducted a steady inquiry into the potential benefits of meaningful work (MW; e.g., Pratt & Ashforth, 2003; Rosso, Dekas, & Wrzesniewski, 2010). However, research on MW has suffered from a lack of consensus regarding what the experience of MW is like,

[1] Department of Psychology, Colorado State University, Fort Collins, CO, USA
[2] North-West University, Vanderbijlpark, South Africa
[3] Department of Psychology, University of Florida, Gainesville, FL, USA

Corresponding Author:
Michael F. Steger, Department of Psychology, Colorado State University, Fort Collins, CO 80523, USA
Email: michael.f.steger@colostate.edu

and from an accompanying proliferation of strategies for operationalizing MW. This article presents a psychological measure of the core dimensions of the experience of MW, and demonstrates the relevance of MW for important work-related and well-being variables. Following Rosso, Dekas, and Wrzesniewski (2010), we define MW not as simply whatever work means to people (meaning), but as work that is both significant and positive in valence (meaningfulness). Furthermore, we add that the positive valence of MW has a eudaimonic (growth- and purpose-oriented) rather than hedonic (pleasure-oriented) focus.

Why Should We Care About MW?

Although a case can be made that organizations may have an ethical or moral obligation to help workers experience MW (Michaelson, 2005), a more tangible reason why MW matters is its consistent association with benefits to workers and organizations. People who say their work is meaningful and/or serves some greater social or communal good report better psychological adjustment, and simultaneously possess qualities that are desirable to organizations. People who feel their work is meaningful report greater well-being (Arnold, Turner, Barling, Kelloway, & McKee, 2007), view their work as more central and important (Harpaz & Fu, 2002), place higher value on work (Nord, Brief, Atieh, & Doherty, 1990), and report greater job satisfaction (e.g., Kamdron, 2005). People who feel their work serves a higher purpose also report greater job satisfaction and work unit cohesion (Sparks & Schenk, 2001).

Perceiving one's work to be meaningful or purposeful and to serve a higher purpose are key defining characteristics of work that is a calling (e.g., Dik & Duffy, 2009), a more specific construct that falls under the umbrella of MW. It is not surprising, therefore, that similar results have been obtained when investigating perceptions of calling. People who feel their work is a calling report greater work satisfaction and spend more discretionary, unpaid hours working (e.g., Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). In addition, having a calling is associated with more faith in management and better work team functioning (Wrzesniewski, 2003), greater vocational self-clarity and choice comfort (Duffy & Sedlacek, 2007), and perceptions of greater meaning in life as a whole (Dik, Sargent, & Steger, 2008; Dik & Steger, 2008).

Despite such promising results from research, there is little consensus on the *meaning* of MW. Although several models of MW have been proposed, and a number of factors that contribute to MW have been suggested, it is quite common for there to be comingling between the *causes* or *sources* of MW and the *experience* of MW itself. For example, in the influential job characteristics model, MW is seen as an important psychological state that mediates between the job characteristics of skill variety, task identity, and task significance and outcomes (Hackman & Oldham, 1976). Unfortunately, later research stopped assessing MW per se and began using the task characteristics as proxies for MW (e.g., Piccolo & Colquitt, 2006). Similarly, recent research on how MW boosts morale has assessed MW in a variety of ways that resemble the job characteristics tradition. For example, MW was indicated by identity, engagement, and importance in one study (Britt, Adler, & Bartone, 2001) and by task significance, military pride, engagement, and challenge in a later study (Britt, Dickinson, Moore, Castro, & Adler, 2007). Spirituality (Clark et al., 2007) and good pay and reputation (Oscós-Sánchez, Oscós-Flores, & Burge, 2008) also have been used to indicate MW. Furthermore, multidimensional models of MW have incorporated work centrality, work values, and intrinsic work orientation (Roberson, 1990). One could conclude from a reading of the literature that MW consists of (at least) skill variety, opportunity to complete an entire task (task identity), task significance to other people, military pride, engagement, a sense of calling, challenge, work role identity, work centrality, work values, intrinsic work orientation, spirituality, good pay, and reputation. Adding to this complicated picture are other constructs that are thought to include MW as a component. For example, MW is proposed to be a dimension of psychological empowerment in the

workplace (Spreitzer, 1995) and workplace spirituality (Ashmos & Duchon, 2000; Clark et al., 2007).

We are not arguing for or against theories of what *causes* MW; rather we are identifying a need to clarify the experiential dimensions of MW. Other authors have provided suggestions along these lines. For example, Wrzesniewski (2003) and Pratt and Ashforth (2003) have advanced conceptual models highlighting the importance of workplace relations to the experience of meaning at work, and Grant (2007) proposed a model of how relational job design may facilitate the motivation for employees to make a prosocial difference. Other work on this topic has highlighted the importance of a desire to serve the greater good (e.g., Jahoda, 1979; Wrzesniewski et al., 1997), making sense of one's self (Ashforth, 2001; Pratt, 2000 ; Shamir, 1991) and one's work environment (e.g., Pratt & Ashforth, 2003; Weick, 1995; Weick, Sutcliffe, & Obstfeld, 2005; Wrzesniewski, Dutton, & Debebe, 2003); and finding a sense of purpose in one's work (e.g., Haslam, Powell, & Turner, 2000; Sparks & Schenk, 2001). Most recently, Rosso et al. (2010), reviewed four main sources of MW (i.e., the self, others, the context, and the spiritual life) and mechanisms through which work becomes meaningful (i.e., authenticity, self-efficacy, self-esteem, purpose, belongingness, transcendence, and cultural/interpersonal sensemaking), then offered an integrative theoretical framework. This framework is built around two psychological dimensions that differ according to their underlying motives. The first dimension represents a continuum that ranges from agency to communion, which captures whether the perceived source of impetus in the workplace is located within the individual (agency) or some kind of collective group (communion). The second dimension contrasts self-directed and other-directed action, which obviously corresponds to the target of one's work efforts. This conceptual model is one of the first attempts to provide a theoretical framework of MW. It highlights the importance of reciprocal dynamics between individuals and groups; through MW, the individual works to benefit the self and the collective, and the fruits of this work enhance both self and collective. This approach is consistent with the approach of the present article.

On a practical level, identifying factors that foster MW is difficult when potential causes are viewed as alternative measures. For example, one plausibly could propose that engagement creates MW, which then creates empowerment—and use published operationalizations of MW to test each node in that causal chain. Even in research in which specified measures of MW have been used to conduct research, there has been little scrutiny of the definition of MW used, nor of the correspondence of measures to definitions.

In response, we identify key facets of MW and propose a measurement approach that directly parallels these dimensions. Specifically, consistent with the emphasis on experiencing work as meaningful and serving a greater good found in research on calling (e.g., Dik, Eldridge, Steger, & Duffy, 2012 ; Wrzesniewski et al., 1997), and the emphasis on comprehending one's experience and having a sense of purpose found in research on meaning in life (e.g., Steger, Oishi, Frazier & Kaler, 2006), we conceptualize MW as consisting of three primary facets that need to be represented in future research on the construct:

(1)   *PM in work.* This facet is a straightforward reflection of the idea of psychological meaningfulness that has been part of work psychology since the job characteristics model (Hackman & Oldham, 1976). As Rosso and colleagues (2010) point out, MW is often a subjective experience that what one is doing has personal significance. This facet should be included to capture the sense that people judge their work to matter and be meaningful.

(2)   *Meaning making (MM) through work.* Empirical research has shown that work frequently is an important source of meaning in life as a whole (e.g., Steger & Dik, 2010). There seems to be a common overlap between one's *work* and one's *life work* (Michaelson, 2005). Indeed, the idea that work could be meaningful without also leading people to build meaning in their lives as a whole makes little sense (Steger & Dik, 2009). Rosso and colleagues (2010) also emphasize

this notion through their inclusion of self-directed action in MW. Ideally, items assessing this facet should be linked to specific ways in which people's meaning in life benefits from MW. Steger and Dik (2010) drew on the meaning in life literature to identify ways in which this might occur. They suggested that MW may help people deepen their understanding of their selves and the world around them, facilitating their personal growth. Thus, this facet helps capture the broader life context of people's work.

(3) *Greater good (GG) motivations.* The desire to make a positive impact on the greater good is consistently related to the experience of MW (e.g., Grant, 2007), as well as the related construct of calling (Dik & Duffy, 2009). Rosso and colleagues address this facet through their inclusion of other-directed action in MW, and Steger and Dik (2010) also emphasized this dimension. This facet reflects commonly held ideas that work is most meaningful if it has a broader impact on others.

In the next section, a review of existing MW measures demonstrates the need for a new measure. Following this review, we will describe the development of a measure that assesses these three facets of MW.

Assessing MW

Currently, there are only a handful of published measures of MW available. In the job characteristics model (Hackman & Oldham, 1976), a set of important job qualities were proposed to lead to valued personal and work outcomes. MW was seen as an important psychological state that mediates between the job characteristics and the outcomes (Hackman & Oldham, 1976). As part of this research, Hackman and Oldham developed the Job Diagnostics Survey (JDS; 1975), which defined the *experienced meaningfulness of the work* as "[t]he degree to which the employee experiences the job as one which is generally meaningful, valuable, and worthwhile" (Hackman & Oldham, 1976, p. 162). This early understanding of MW has dominated later MW assessment strategies, as almost every instrument incorporates the essence of this definition (Steger, Dik, & Shim, in press).

The JDS uses two pairs of items to assess experienced meaningfulness of work referring to respondents' personal feelings and perceptions of coworkers' feelings about (a) whether job tasks seem useless or trivial and (b) whether the work is meaningful. Although the reliability of the JDS scale has been acceptable, the odd nature of the items requiring judgments about other people's attitudes introduces raises questions about what is being measured. Discarding these items leaves only 2 items remaining. Yet, the influence of these items is seen in both ad hoc measures of MW, such as the 3 items Spreitzer (1995) used to assess a meaning dimension of empowerment (work is important, work is meaningful, job activities are meaningful). As is the case for most measures of MW, there has been no rigorous psychometric examination of these items.

May, Gilson, and Harter (2004) added 2 items from an unpublished dissertation and a modified item from the JDS (Hackman & Oldham, 1976) to Spreitzer's (1995) items. The resulting measure asked for responses about work being important and meaningful, and work/job activities being significant, worthwhile, valuable, and meaningful. All of these items are slight variations on Hackman and Oldham's (1976) original work.

Arnold, Turner, Barling, Kelloway, and McKee (2007) proposed a different definition of MW as: "finding a purpose in work that is greater than the extrinsic outcomes of the work" (Arnold et al., 2007, p. 195). Arnold and colleagues used two different measures in the two studies they conducted. However, their measures do not seem to apply this definition very evenly. One study used items asking about work being fulfilling, rewarding, and allowing someone to achieve important outcomes. The second study used 6 items taken from a subscale of Ashmos and Duchon's (2000), intended to assess MW as an important component of workplace spirituality. Despite Arnold et al.'s definition,

the workplace spirituality scale was not, itself, driven by a well-articulated definition, but rather by the insight that ''employees want to be involved in work that gives meaning to their lives'' (Ashmos & Duchon, 2000, p. 136). These items reflect a workplace spirituality perspective that shifts the focus away from some types of work tasks as having meaning (while others presumably do not), to people's perceptions of their work as meaningful and as connected to the common good of the community, irrespective of the type of work in which they are engaged. However, the remaining items include unrelated content assessing joy, energy, and vaguely positive feelings about work.

To summarize, the trends in MW measurement are to use Hackman and Oldham's definition of work and work tasks being worthwhile, important, and meaningful, supplemented by conceptually erratic ad hoc measures that have received little psychometric evaluation. Clearly, there is a need for a well designed and conceptually sound measure of MW.

The Present Study

Previous theory related to MW and related constructs point to three principal facets of the construct: PM in work, work as a means of making meaning, and the desire to positively contribute to the greater good. Existing measurement has developed erratically and on an ad hoc basis, while still demonstrating an allegiance to a rather vague definition of MW. In addition, there has been no rigorous psychometric evaluation of MW measures aside from the first version of Hackman and Oldham's (1976) idiosyncratic 4-item JDS subscale. The primary purpose of the present study is to develop a theoretically driven measure of MW that captures the three key facets identified in our literature review.

Secondarily, we assessed a range of work-related and general well-being variables in a sample of people employed in heterogeneous jobs at a university to evaluate the psychometric properties of the new measure and to test the hypothesis that people experiencing MW would report more positive work attitudes and well-being. According to previous research, MW benefits individuals (e.g., Arnold et al., 2007). Being engaged in MW implies that work matters for its own sake and makes an important, generative contribution to one's quality of life. Under these circumstances, work likely is experienced as motivating, satisfying, and meaningful, and a rich part of one's experience in life. Therefore, we hypothesize positive correlations between MW and intrinsic work motivation, job satisfaction, life satisfaction, meaning in life, and negative correlations with psychological distress. Furthermore, organizations benefit from having employees who are committed to their organization's mission and welfare. We hypothesize that people who experience MW are highly committed to their work, both in terms of their specific organization and their chosen profession, and report lower withdrawal intentions and fewer days absent. We also hypothesize that people who desire to serve the greater good engage in organizational citizenship behavior.

It also is necessary to demonstrate that MW and its dimensions converge with related measures. Therefore, we used two brief measures of calling to assess convergence, and hypothesize that the pattern of correlations would support a distinction between having and seeking MW, with large correlations among measures of calling and MW. Finally, we hypothesize that MW accounts for incremental variance in job satisfaction, days reported absent, and life satisfaction, beyond that accounted for by common predictors of these criterion variables.

Method

Participants

We recruited 370 employees from a large Western research university. Participants (M age = 44.6; SD = 11.2 years) were mostly female (69.7%) and White/European American (90.0%), followed by Hispanic American (6.5%), Indigenous American (1.4%), Asian/Pacific Island American (1.4%),

Black/African American (0.5%), and Other (3.0%). The sample reported a mean of 9.4 years of education past 8th grade ($SD = 3.1$), with a mean annual household income (gross) of \$83,309 ($SD = \$53,548$; $M = \$72,000$). A wide range of occupations were represented in the sample, including faculty/instructors ($n = 58$), administrative assistants ($n = 47$), accounting professionals ($n = 29$), research associates ($n = 26$), administrative professionals ($n = 26$), student affairs professionals ($n = 17$), information technology specialists ($n = 15$), facilities management professionals ($n = 12$), extension agents ($n = 10$), librarians ($n = 8$), and foresters ($n = 7$). Participants reported being absent from work (not including vacation or personal days) a mean of 3.2 days per year ($SD = 4.5$, $M = 2.0$).

Procedure

Participants responded to an e-mail advertising the study, and completed a questionnaire battery on a web-hosted survey page after indicating their informed consent. Contact with employees was restricted by the university to a single e-mail, and the response rate was accordingly low. The e-mail advertisement was sent to approximately 3,400 employees, and the 370 respondents represent a response rate of 11%. Participants who completed the survey were entered in to a drawing for one of the ten \$49 gift certificates to the university bookstore.

Instruments

Sense of calling. The Brief Calling scale (BCS; Dik, Eldridge, Steger, & Duffy, 2012) is comprised of a pair of 2-item subscales that measure the degree to which people feel they have a calling (Calling, e.g., I have a calling to a particular kind of work; $M = 6.1$, $SD = 2.7$; $\alpha = .86$; item intercorrelation = .76) and the degree to which they are searching for a calling (Calling-seeking, e.g., I am trying to figure out my calling in my career; $M = 3.9$, $SD = 2.4$; $\alpha = .92$; item intercorrelation = .76). The BCS includes a description of calling followed by items, rated from 1 (*not at all true of me*) to 5 (*totally true of me*). Research has supported score reliability and validity (Dik et al., 2012; Dik et al., 2008; Duffy & Sedlacek, 2007).

Work orientations. Scores for each of Bellah, Madsen, Sullivan, Swidler, and Tipton (1986) three work orientations (job, career, or calling) were obtained using the method developed by Wrzesniewski, McCauley, Rozin, and Schwartz (1997). Participants indicated on a 4-point scale (0 = *not at all like me* to 3 = *very much*) the extent to which each orientation was characteristic of them after being presented with three paragraphs describing an individual with a job orientation ($M = 1.1$, $SD = 1.1$), career orientation ($M = 1.3$, $SD = 1.0$), or calling orientation ($M = 1.4$, $SD = 1.2$). Research has supported the concurrent validity of this approach (Wrzesniewski et al., 1997).

Organizational citizenship behaviors. Organizational citizenship behavior was measured using 5 items regarding citizenship behaviors that benefit supervisors (e.g., Accept added responsibility when your supervisor is absent; $M = 16.4$, $SD = 3.1$; $\alpha = .81$). Items were rated from 1 (*never*) to 4 (*very often*). Research has supported score reliability and validity (Williams & Anderson, 1991).

Withdrawal intentions. Withdrawal intentions for one's organization (e.g., I think a lot about leaving my organization; $M = 6.7$, $SD = 3.7$; $\alpha = .91$) and occupation (e.g., I am actively searching for an alternative to my occupation; $M = 6.1$, $SD = 3.7$; $\alpha = .92$) were each measured using 3 items rated from 1 (*very unlikely*) to 5 (*very likely*). Research using has supported score reliability (e.g., Blau, 2000).

Career commitment. The Career Commitment scale (Blau, 1985) is a 7-item measure of one's level of commitment to one's occupation or career field (e.g., I definitely want a career for myself in my current field of employment; $M = 24.2$, $SD = 7.1$; $\alpha = .90$). Items are rated from 1 (*strongly disagree*) to 5 (*strongly agree*). Research has supported score reliability and validity (Blau, 1985).

Organizational commitment. Organizational commitment was assessed using by Allen and Meyer's (1990) 7-item scale (e.g., I really feel as if this organization's problems are my own; $M = 30.6$, $SD = 9.6$; $\alpha = .87$). Items were rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Research has supported score reliability (Allen & Meyer, 1990).

Job satisfaction. A 3-item scale (e.g., All in all, I'm satisfied with my job; $M = 14.3$, $SD = 3.6$; $\alpha = .91$) was used to assess overall (i.e., facet-free) job satisfaction (Chen & Spector, 1991). Items were rated from 1 (*strongly disagree*) to 6 (*strongly agree*).

Intrinsic and extrinsic work motivation. The 30-item Work Preference Inventory (WPI; Amabile, Hill, Hennessey, & Tighe, 1994) was used to assess intrinsic (e.g., I enjoy doing work that is so absorbing that I forget about doing anything else; $M = 79.0$, $SD = 10.1$; $\alpha = .81$) and extrinsic (e.g., I'm less concerned with what work I do than with what I get for it; $M = 59.5$, $SD = 10.5$; $\alpha = .71$) work motivation. Items were rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Research has supported score reliability and validity (Amabile et al., 1994).

Satisfaction with life. The Satisfaction with Life scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item measure assessing life satisfaction (e. g., In most ways my life is close to the ideal; $M = 25.9$, $SD = 5.4$; $\alpha = .90$). Items are rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Research has supported score reliability and validity (Diener et al., 1985).

Depression, anxiety, and hostility. Subscales of the Brief Symptom Inventory (BSI; Derogatis, 1993) were used to assess anxiety (6 items; e.g., Nervousness or shakiness inside; $M = 9.5$, $SD = 3.5$; $\alpha = .83$), hostility (5 items; e.g., Having urges to beat, injure, or hurt someone; $M = 7.1$, $SD = 2.3$; $\alpha = .75$), and depression (6 items; e.g., Feelings of worthlessness; $M = 9.7$, $SD = 4.3$; $\alpha = .88$). Participants rated distress over the past month from 0 (*not at all*) to 4 (*extremely*). Research has supported score reliability and validity (Derogatis, 1993).

Meaning in life. The Meaning in Life Questionnaire (MLQ; Steger et al., 2006) is a 10-item measure assessing search for meaning in life (e.g., I am seeking a purpose or mission for my life; $M = 26.4$, $SD = 6.1$; $\alpha = .94$), and presence of meaning in life (e.g., I have a good sense of what makes my life meaningful; $M = 20.0$, $SD = 8.3$; $\alpha = .92$). Items are rated from 1 (*absolutely untrue*) to 7 (*absolutely true*). Research has supported score reliability and validity (e.g., Gaderman & Zumbo, 2006).

Work as meaning inventory. The Work as Meaning Inventory (WAMI) was designed to produce a MW score that incorporates the three facets of MW identified above. An initial item pool of 40 items was developed to assess PM, contribution to broader MM, and GG. To finalize the form of the WAMI, we adopted a simple cross-validation strategy (e.g., Mosier, 1951; Yu, 2003) in which we randomly selected roughly 50% of the sample to conduct the initial model-fitting, cross-validating the final model in the remaining half of the sample. First, we eliminated poor items using exploratory factor analysis (principal axis extraction with promax rotation), using criteria of primary rotated pattern matrix loadings <.60 or cross-loadings >.30 ($n = 22$). Next, because the scale was theoretically derived, we used confirmatory factor analysis (i.e., AMOS 6.0; Arbuckle, 2005) to test and refine the proposed model, in accordance with recommendations (see Floyd & Widaman, 1995).
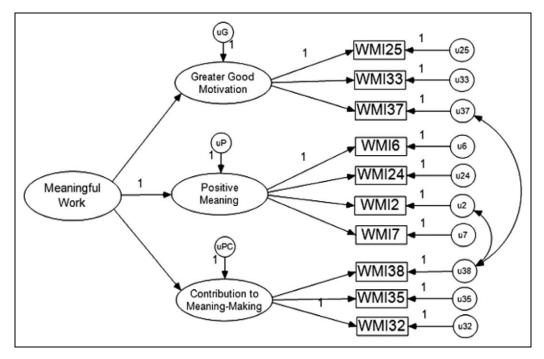
Figure 1. Model of meaningful work.

Therefore, in the first half of the sample, we attempted to fit a model with three factors (PM, MM through Work, GG) that were organized under a higher-order factor of MW. Initially, fit was poor, according to Hu and Bentler's (1999) criteria, $\chi^2(df = 131) = 849.63$; comparative fit index (CFI) = .73; non-normed fit index (NNFI) = .68; standardized root mean square residual (SRMR) = .10; root mean square error of approximation (RMSEA) = .18; RMSEA 90% confidence interval (CI) = [.17, .20]. We further refined the item pool by deleting items ($n = 18$) with low-factor loadings (<.60) and high associated modification indices (>15.0). This next model provided an acceptable fit on some of the fit indices, $\chi^2(df = 32) = 78.33$; CFI = .96; NNFI = .94; SRMR = .04; RMSEA = .09; RMSEA 90% CI = [.07, .12]. Allowing the residual of 1 item (*My work helps me make sense of the world around me*) to correlate with the residuals of 2 other items (*I understand how my work contributes to my life's meaning* and *I know my work makes a positive difference in the world*) achieved good fit, $\chi^2(df = 30) = 69.05$; CFI = .97; NNFI = .95; SRMR = .04; RMSEA = .09; RMSEA 90% CI = [.06, .12]. This model is shown in Figure 1.

Next, we attempted to replicate this structural model in the validation half of the data set ($n = 152$). The fit was also good, $\chi^2(df = 30) = 64.19$; CFI = .96; NNFI = .95; SRMR = .05; RMSEA = .09; RMSEA 90% CI = [.06, .11]. Subscale scores were internally consistent in the total sample ($N = 370$), with α coefficients of .89, .82, and .83 for PM, MM through Work, GG, respectively. The total MW scale internal consistency was high ($\alpha = .93$). Items on the WAMI are rated from 1 (*absolutely untrue*) to 5 (*absolutely true*); thus scores on the PM scale could range from 4 to 20, and scores on the other two subscales could range from 3 to 15. The items and their subscale loadings are found in Table 1.

Results

As a preliminary step, we examined the descriptive statistics for the WAMI subscales. Total scores on the PM ($M = 15.12$, $SD = 4.01$), MM ($M = 10.70$, $SD = 3.05$), and GG ($M = 11.80$, $SD = 2.85$)

Table 1. Items From the Work as Meaning Inventory (WAMI) and Factor Loadings

Subscale	Item	Loading on Subscale
Positive meaning	1. I have found a meaningful career.	.92
	4. I understand how my work contributes to my life's meaning	.60
	5. I have a good sense of what makes my job meaningful.	.82
	8. I have discovered work that has a satisfying purpose.	.87
Meaning making through work	2. I view my work as contributing to my personal growth	.70
	7. My work helps me better understand myself.	.82
	9. My work helps me make sense of the world around me.	.86
Greater good motivations	3. My work really makes no difference to the world. (R)	.60
	6. I know my work makes a positive difference in the world.	.80
	10. The work I do serves a greater purpose.	.88

Note. All factor loadings are taken from first random half of the sample.

spanned the entire range of responses (3–15 or 4–20). The GG subscale received the highest ratings per item (3.93) followed by the PM (3.78) and MM subscales (3.57). The mean for the full MW scale was 37.54 ($SD = .8.84$). There were no differences across gender, $ts \le 1.27$, *ns*, or race/ethnicity, $Fs \le 1.45$, *ns*, and there was only one significant correlation between age and the WAMI subscales. Older workers were slightly more likely to find positive meaning in their work ($r = .11$, $p < .05$). Table 1 shows that the subscales are highly intercorrelated (.65–.78) and highly correlated with the total score (.85–.94).

Correlations With Calling and Work Orientations

We hypothesized significant correlations between the dimensions of MW and existing measures of calling. The subscales of the WAMI correlated as expected with the BCS, showing a clear pattern of differentiation from experiencing calling and seeking calling (Table 2). In addition, the WAMI showed clear differentiation of strong negative correlations with Wrzesniewski et al.'s (1997) Job Orientation score, smaller negative correlations with the Career Orientation score, and strong positive correlations with the Calling Orientation score. Thus, dimensions of MW are correlated in predictable ways with calling and work orientations.

MW, Work-Related, and General Well-Being Variables

We hypothesized that WAMI subscales and total score would be positively related to desirable work variables (organizational citizenship behaviors, career commitment, organizational commitment, job satisfaction, and intrinsic work motivations) and negatively related to undesirable work variables (days reported absent, withdrawal intentions, extrinsic work motivations). As can be seen in Table 2, these hypotheses were supported. The PM subscale showed the largest correlations with these variables, including very large correlations with career commitment and job satisfaction. The other two subscales had smaller, yet significant, correlations in the expected direction. One exception to this pattern was that the MM subscale had the highest correlation with intrinsic work motivation. The WAMI subscales and total score also were significantly related to the total number of days missed at work for all causes.

We also hypothesized that WAMI scores would be positively related to well-being (meaning in life and life satisfaction) and negatively related to psychological distress (anxiety, hostility, and

Table 2. Intercorrelations, Convergent, Discriminant, and Concurrent Validity of the WAMI Subscales

	1	2.	3	4
Meaningful work				
Positive meaning				
Meaning making through work	.67***			
Greater good motivations	.78***	.65***		
Meaningful work total score	.94***	.85***	.86***	
Related measures				
Calling	.51***	.47***	.42***	.54***
Calling-seeking	−.30***	.00	−.17***	−.19***
Job orientation	−.59***	−.52***	−.51***	−.60***
Career orientation	−.23***	−.07	−.12*	−.17**
Calling orientation	.60***	.52***	.49***	.61***
Work-related variables				
Days reported absent	−.15**	−.12*	−.14**	−.16**
Withdrawal intentions-organization	−.40***	−.22***	−.29***	−.35***
Withdrawal intentions-occupation	−.48***	−.28***	−.35***	−.42***
Career commitment	.70***	.50***	.59***	.68***
Organizational commitment	.51***	.41***	.40***	.49***
Organizational citizenship behaviors	.22***	.16**	.18***	.20***
Job satisfaction	.62***	.40***	.47***	.56***
Intrinsic work motivation	.19**	.29***	.24***	.27***
Extrinsic work motivation	−.11*	−.05	−.12*	−.09
Well-being variables				
Presence of meaning	.60***	.38***	.47***	.57***
Search for meaning	−.16***	.16**	−.06	−.03
Life satisfaction	.49***	.35***	.39***	.47***
Anxiety	−.11**	.10	−.07	−.04
Hostility	−.23***	−.14**	−.20***	−.22***
Depression	−.33***	−.17***	−.29***	−.31***

Note. N = 370 *p < .05. **p < .01. ***p < .001.

depression). These hypotheses were supported, with the exception of anxiety symptoms. Again, the MM subscale provided a point of departure from the overall pattern of larger correlations for the PM subscale. In this case, MM had a positive correlation with the MLQ-search for meaning subscale, whereas the PM subscale had a negative correlation of equal magnitude. Taken in light of the relation of the MM subscale with intrinsic work motivation, it may be that the MM subscale captures a uniquely motivational element of MW that transcends the workplace.

Incremental Validity

To provide additional evidence of the unique contribution of WAMI scores, hierarchical regression analyses were conducted to examine the ability of work meaning to add unique variance in the prediction of (1) job satisfaction, (2) days reported absent, and (3) life satisfaction above and beyond the variance accounted for by already established predictors. Specifically, in an initial step for each analysis, job satisfaction was regressed on withdrawal intentions (organization), organizational commitment, and presence of calling; days absent was regressed on these same three predictors plus job satisfaction; and life satisfaction was regressed on the meaning in life, calling, and job satisfaction. For all three analyses, MW was added as a predictor in the second step. As seen in Tables 3–5, beyond the first step predictors, MW was found to add small, but significant, portions of variance.

Table 3. Hierarchical Regression Analysis Predicting Job Satisfaction

	B	SE B	95% CI	β	R	R^2	$R^2\Delta$
Step 1							
Withdrawal intentions	−.37	.04	[−.45,−.28]	−.38[**]			
Organizational commitment	.17	.02	[.14, .20]	.46[**]			
Calling	.05	.05	[−.04, .14]	.04	.76[***]	.58[***]	
Step 2							
Withdrawal intentions	−.33	.04	[−.41,−.25]	−.35[**]			
Organizational commitment	.13	.02	[.10, .17]	.36[**]			
Calling	−.12	.05	[−.21,−.02]	−.09[*]			
Meaningful work	.12	.02	[.09, .15]	.30[***]	.79[***]	.62[***]	.05[**]

Note. [*]$p < .05$. [**]$p < .01$. [***]$p < .01$.

Table 4. Hierarchical Regression Analysis Predicting Days Absent

	B	SE B	95% CI	β	R	R^2	$R^2\Delta$
Step 1							
Withdrawal intentions	−.03	.10	[−.22, 16]	−.02			
Organizational commitment	.04	.04	[−.04, .11]	.08			
Calling	−.22	.10	[−.40,−.03]	−.13[*]			
Job satisfaction	−.08	.11	[−.30, .14]	−.06	.14	.02	
Step 2							
Withdrawal intentions	−.01	.10	[−.20, .18]	−.01			
Organizational commitment	.05	.04	[−.03, .13]	.10			
Calling	−.07	.11	[−.28, .15]	−.04			
Job satisfaction	.05	.12	[−.18, .28]	.04			
Meaningful work	−.12	.04	[−.20, −.04]	−.22[**]	.21[**]	.04[**]	.03[**]

Note. [*]$p < .05$. [**]$p < .01$.

Table 5. Hierarchical Regression Analysis Predicting Life Satisfaction

	B	SE B	95% CI	β	R	R^2	$R^2\Delta$
Step 1							
Meaning in life	.56	.06	[.45, .67]	−.51[***]			
Calling	−.08	.12	[−.31, .16]	−.03			
Job satisfaction	.42	.09	[.24, .60]	.21[***]	.60[***]	.36[***]	
Step 2							
Meaning in life	.50	.06	[.38, .61]	.45[**]			
Calling	−.22	.13	[−.48, .03]	−.09			
Job satisfaction	.28	.10	[.08, .48]	.14[**]			
Meaningful work	.14	.05	[.04, .24]	.18[**]	.62[***]	.38[**]	.02[**]

Note. [**]$p < .01$. [***]$p < .01$.

Discussion

Work matters and plays an important role in people's psychological health (Blustein, 2008). Investigating the influence of perceptions that work is meaningful on work-related variables and well-being is an exciting area of growing relevance to researchers, coaches, managers, organizations, and

those who seek to increase their own satisfaction with their work and their contributions to their organizations and communities. Previous research on MW is limited, but demonstrated that further investigation of the construct is warranted. To further advance this research, we identified important facets of MW, developed a structurally sound measure to assess them, and evaluated the concurrent and incremental validity of the new measure, the WAMI. Importantly, dimensions of MW accounted for significant variance in important work-related and general well-being variables in both bivariate and multivariate analyses. Correlations with these variables were similar for each of the three subscales, and all three subscales tracked the total score in the direction and magnitude of relations. As we outlined in our literature review, the positive meaning of work is, in many ways, the "flagship" indicator of the overall construct of MW. Accordingly, it should not be surprising that the Positive Meaning subscale showed consistently stronger bivariate correlations with work and well-being variables. In fact, there was only one exception to this pattern. Both the MM Through Work and the GG subscale showed stronger relations with intrinsic work motivation. Yet, to capture the full span of MW, our literature review suggests that all three facets are necessary. Representing each dimension may be particularly important in applied work with individuals, helping identify the satisfactions and deficits specific to an individual person's work experience.

The usefulness of assessing MW was demonstrated by a set of regression analyses. Above and beyond known predictors of job satisfaction, days absent from work, and life satisfaction, the WAMI accounted for significant variance. In predicting job satisfaction, MW accounted for a similar amount of variance as withdrawal intentions and organizational commitment. In predicting days absent from work, MW was the only significant predictor. This result is particularly notable because it suggests the need to reevaluate our understanding of why people miss work. In our data, absenteeism was not related to whether or not people were satisfied with their jobs. Nor was it related to how committed they were to their organization. It was not even related to intentions to leave their employer. Instead, our analyses suggest that people absent themselves from work that holds no meaning for them. Although none of the work-related variables had relations with life satisfaction as large as meaning in life did, the fact that MW was related to a broad well-being indicator like life satisfaction above and beyond both meaning in life and job satisfaction strongly suggests the conceptual independence of MW. That is, MW is not simply some combination of meaning in life and job satisfaction. It is something more.

Implications for Research and Practice

The present findings suggest some obvious lines of inquiry for organizational and scholarly research. First, people engaged in MW appear to be more satisfied and committed to their work. Continued scholarly research is needed to ascertain the full range of organizational benefits of employing individuals who perceive their work as meaningful. For organizations interested in a MW force, research should pursue the question of whether MW arises because meaningful workers are attracted to some organizations, or whether organizations can foster MW among their employees. Second, it will be important to investigate how MW interacts with leadership. For example, do leaders who have a sense of meaning in their work inspire better followership (Sparks & Schenk, 2001)? Do people engaged in MW respond more effectively to leadership? One clear avenue of investigation entails examining the relation between MW and transformational or charismatic leadership (e.g., Burns, 1978; Judge & Piccolo, 2004). We hypothesize that the goals of transformational leaders would gain particular traction among people who feel their work is meaningful and those who place high importance on MW.

Additionally, results from this study and the associated instrument may be of use to career counselors. A client's felt meaning at work is likely an important predictor of how satisfied they will be with their current or future job. We recommended that counselors assess a client's work meaning

based on the stage of employment they are in, highlighting the current work environment for employed clients and conceptualizing what a future MW environment might look like for those unemployed or looking to change jobs. Indeed, the WAMI may be a simple, publically accessible tool that can assist counselors in understanding the meaning a client has in their work life. We suspect engaging in this process will help client's make a more clear decision on what types of work would offer them the greater level of meaning.

Limitations and Conclusion

In this study, we used a novel measure of MW in a sample drawn from one organization. Future research is necessary to continue establishing the validity of the WAMI in client samples and samples drawn from diverse organizational contexts. Although a wide range of occupations were represented in the sample we used, the present study used a sample from only one work environment, and these workers may not represent workers at all types of organizations. Efforts also should be made to establish validity evidence for the WAMI in samples of people seeking work, who are in job transitions, and who are contemplating entering the workforce for the first time (e.g., students, stay-at-home parents). Furthermore, limitations in our recruitment procedures resulted in a predictable, but lower-than-desired, response rate. It is possible that those who chose to participate were more interested than others in MW, resulting in selection bias. Such a bias could result in higher mean scores on the MW scales. At the same time, it is not clear that people more interested in MW would necessarily be happier or more committed to their work. If this was the case, then inflated correlations among MW and work-related and well-being variables could occur. However, previous research strongly converges with many of the findings presented here (e.g., Arnold et al., 2007; Wrzesniewski et al., 1997), suggesting that any potential sampling bias did not fundamentally alter the pattern of relations observed.

The present study adds to the growing body of research showing that MW appears important to workers' well-being, job satisfaction, and contentment with their organizations. People engaged in MW also seem to have characteristics that are desirable within organizations, namely less risk of turnover, greater commitment to the organization, and greater involvement in organizational citizenship behaviors. A multidimensional approach to MW holds promise for providing workers, counselors, and organizations with a way of understanding who has MW and who wants it. Furthermore, counselors, organizations, and researchers may be better able to understand how to cultivate MW experiences for clients and employees, and identify the potential individual and organizational benefits experienced when people are oriented to experiencing meaningfulness at work.

Declaration of Conflicting Interests

Funding

References

Allen, N. J., & Meyer, J. P. 1990. The measurement and antecedents of affective, continuance, and normative commitment. *Journal of Occupational Psychology*, *63*, 1–18.

Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The Work Preference Inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology*, *66*, 950–967.

Arbuckle, J. L. (2005). *AMOS 4.01* [Software]. Chicago, IL: Small Waters.

Arnold, K. A., Turner, N., Barling, J., Kelloway, E. K., & McKee, M. C. (2007). Transformational leadership and psychological well-being: The mediating role of meaningful work. *Journal of Occupational Health Psychology*, *12*, 193–203. doi:10.1037/1076-8998.12.3.193

Ashmos, D. P., & Duchon, D. (2000). Spirituality at work: A conceptualization and measure. *Journal of Management Inquiry*, *9*, 134–145.

Ashforth, B. E. (2001). *Role transitions in organizational life: An identity-based perspective*. Mahwah: Erlbaum.

Bellah, R. N., Madsen, R., Sullivan, W. M., Swidler, A., & Tipton, S. M. (1986). *Habits of the heart: Individualism and commitment in American life*. New York, NY: Harper & Row.

Blau, G. (1985). The measurement and prediction of career commitment. *Journal of Occupational Psychology*, *58*, 277–288.

Blau, G. (2000). Job, organizational, and professional context antecedents as predictors of intent for interrole work transitions. *Journal of Vocational Behavior*, *56*, 330–345. doi:10.1006/jvbe.1999.1718

Blustein, D. L. (2008). The role of work in psychological health and well-being: A conceptual, historical, and public policy perspective. *American Psychologist*, *63*, 228–240. doi:10.1037/0003-066X.63.4.228

Britt, T. W., Adler, A. B, & Bartone, P. T. (2001). Deriving benefits from stressful events: The role of engagement in meaningful work and hardiness. *Journal of Occupational Health Psychology*, *6*, 53–63. doi:10.1037/1076-8998.6.1.53

Britt, T. W., Dickinson, J. M., Moore, D. M., Castro, C. A., & Adler, A. B. (2007). Correlates and consequences of morale versus depression under stressful conditions. *Journal of Occupational Health Psychology*, *12*, 34–47. doi:10.1037/1076-8998.12.1.34

Chen, P. Y., & Spector, P. E. (1991). Negative affectivity as the underlying cause of correlations between stressors and strains. *Journal of Applied Psychology*, *76*, 398–407. doi:10.1037/0021-9010.76.3.398

Clark, L., Leedy, S., McDonald, L., Muller, B., Lamb, C., Mendez, T., Kim, S., & Schonwetter, R. (2007). Spirituality and job satisfaction among hospice interdisciplinary team members. *Journal of Palliative Medicine*, *10*, 1321–1328. doi:10.1089/jpm.2007.0035.

Derogatis, L. R. (1993). *BSI: Administration, scoring, and procedures for the Brief Symptom Inventory (3rd ed.)*. Minneapolis, MN: National Computer Systems.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life scale. *Journal of Personality Assessment*, *49*, 71–75.

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

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) [Special Issue]. *Journal of Career Assessment, 20*, 242–263.

Dik, B. J., Sargent, A. M., & Steger, M. F. (2008). Career development strivings: Assessing goals and motivation in career decision-making and planning. *Journal of Career Development*, *35*, 23–41. doi:10.1177/0894845308317934

Dik, B. J., & Steger, M. F. (2008). Randomized trial of a calling-infused career workshop incorporating counselor self-disclosure. *Journal of Vocational Behavior*, *73*, 203–211. doi:10.1016/j.jvb.2008.04.001

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

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment*, *7*, 286–299. doi:10.1037/1040-3590.7.3.286

Gaderman, A. M., & Zumbo, B. D. (2006). Investigating the intra-individual variability in trajectories of subjective well-being. *Social Indicators Research*, *81*, 1–33.

Grant, A. M. (2007). Relational job design and the motivation to make a prosocial difference. *Academy of Management Review*, *32*, 393–417.

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organization Behavior and Human Decision Processes*, *16*, 250–279.

Harpaz, I., & Fu, X. (2002). The structure of the meaning of work: A relative stability amidst change. *Human Relations*, *55*, 639–667. doi:10.1177/0018726702556002

Haslam, S. A., Powell, C., & Turner, J. C. (2000). Social identity, self-categorization, and work motivation: Rethinking the contribution of the group to positive and sustainable organizational outcomes. *Applied Psychology: An International Review*, *49*, 319–339.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55.

Jahoda, M. (1979). The impact of unemployment in the 1930s and 1970s. *Bulletin of the British Psychological Society*, *32*, 309–314.

Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology*, *89*, 755–768. doi:10.1037/0021-9010.89.5.755

Kamdron, T. (2005). Work motivation and job satisfaction of Estonian higher officials. *International Journal of Public Administration*, *28*, 1211–1240.

May, D. R., Gilson, R. L., & Harter, L.M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology*, *77*, 11–37. doi:10.1348/096317904322915892

Michaelson, C. (2005). "I want your shower time!": Drowning in work and the erosion of life. *Business and Professional Ethics Journal*, *24*, 7–26.

Mosier, C. I. (1951). Problems and designs of cross-validation. *Educational and Psychological Measurement*, *11*, 5–11.

Nord, W. R., Brief, A. P., Atieh, J. M., & Doherty, E. M. (1990). Studying meanings of work: The case of work values. In A. Brief & W. Nord (Eds.), *Meanings of occupational work: A collection of essays*. Lexington, MA: Lexington Books.

Oscós-Sánchez, M. A., Oscós-Flores, L. D., & Burge, S. K. (2008). The Teen Medical Academy: Using academic enhancement and instructional enrichment to address ethnic disparities in the American healthcare workforce. *Journal of Adolescent Health*, *42*, 284–293. doi:10.1016/j.jadohealth.2007.08.023

Piccolo, R. F., & Colquitt, J. A, (2006). Transformational leadership and job behaviors: The mediating role of core job characteristics. *Academy of Management Journal*, *49*, 327–340.

Pratt, M. G. (2000). The good, the bad, and the ambivalent: Managing identification among Amway distributors. *Administrative Science Quarterly, 45*, 456–493.

Pratt, M. G., & Ashforth, B. E. (2003). Fostering meaningfulness in working and in work. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 309–327). San Francisco, CA: Barrett-Koehler.

Roberson, L. (1990). Functions of work meanings in organizations: Work meanings and work motivation. In A. Brief & W. Nord (Eds.), *Meanings of occupational work: A collection of essays* (pp.107–134). Lexington, MA: Lexington Books.

Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior*, *30*, 91–127. doi:10.1016/j.riob.2010.09.001

Shamir, B. (1991). Meaning, self, and motivation in organizations. *Organization Studies*, *12*, 405–424.

Sparks, J. R., & Schenk, J. A. (2001). Explaining the effects of transformational leadership: An investigation of the effects of higher-order motives in multilevel marketing organizations. *Journal of Organizational Behavior*, *22*, 849–869. doi:10.1002/job.116

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: dimensions, measurement, and validation. *Academy of Management Journal*, *38*, 1442–1465.

Steger, M. F., & Dik, B. J. (2009). If one is searching for meaning in life, does meaning in work help? *Applied Psychology: Health and Well-Being*, *1*, 303–320.

Steger, M. F., & Dik, B. J. (2010). Work as meaning. In P. A. Linley, S. Harrington, & N. Page (Eds.), *Oxford handbook of positive psychology and work* (pp.131–142). Oxford, England: Oxford University Press.

Steger, M. F., Dik, B. J., & Shim, Y. (in press). Measuring satisfaction and meaning in work. In S. Lopez (Ed.), The oxford handbook of positive psychology assessment (2nd Ed.). Oxford, UK. Oxford University Press.

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*, 80–93. doi:10.1037/0022-0167.53.1.80

Šverko, B., & Vizek-Vidović, V. (1995). Studies of the meaning of work: Approaches, models, and some of the findings. In D. E. Super & B. Šverko (Eds.), *Life roles, values, and careers* (pp. 3–21). San Francisco, CA: Jossey-Bass.

Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: SAGE.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, *16*, 409–421. doi:10.1287/orsc.1050.0133

Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of Management*, *17*, 601–618.

Wrzesniewski, A. (2003). *Finding positive meaning in work*. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 296–308). San Francisco, CA: Barrett-Koehler.

Wrzesniewski, A., Dutton, J. E., & Debebe, G. (2003). Interpersonal sensemaking and the meaning of work. *Research in Organizational Behavior*, *25*, 93–135. doi:10.1016/S0191-3085(03)25003-6

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*, 21–33. doi:10.1006/jrpe.1997.2162

Yu, Chong Ho (2003). Resampling methods: concepts, applications, and justification. *Practical Assessment, Research & Evaluation*, *8.* Retrieved May 13, 2008, from http://PAREonline.net/getvn.asp?v=8&n=19