WORK CENTRALITY: A META-ANALYSIS OF THE NOMOLOGICAL NETWORK

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A Thesis

Submitted to the Graduate College of Bowling Green State University in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

August 2012

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ABSTRACT

Work centrality is the belief regarding the value and importance of work in a person’s life. This manuscript provides the results of a quantitative review of the antecedents and consequences of work centrality. An analysis of 95 independent samples, yielding 343 correlations, indicated that work centrality is strongly related to several personality and work related variables such as protestant work ethic ($\rho = .41$), organizational commitment ($\rho = .42$), intention to quit ($\rho = -.38$) and job satisfaction ($\rho = .26$). Moderator analysis revealed troubling findings regarding one commonly-used measure of work centrality. These concerns are addressed and recommendations are offered for future research.
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INTRODUCTION

The concept of “work centrality” refers generally to the degree of importance work plays in one’s life (Paullay, Alliger, & Stone-Romero, 1994). People with high work centrality report that they would continue to work after becoming eligible for retirement, and would continue to work even if their financial situation would allow them to live comfortably without working (Arvey, Harpaz, & Liao, 2004; Miller, Woehr, & Hudspeth, 2001; Meaning Of Working (MOW), 1987; Mannheim, 1975). Work centrality has been viewed as an important aspect of work ethic (Miller et al., 2001), and as central to understanding work meaningfulness (MOW, 1987). Work centrality also relates positively with work satisfaction and with organizational and occupational commitment (Mannheim, 1993; Schmidt & Lee, 2008; Herrbach, Mignonac, Vandenberghe, & Negrini, 2009).

Although a great deal of time and effort has been dedicated to studying work centrality, this research has been plagued with inconsistent definitions and difficulty distinguishing among related constructs (e.g., Lawler and Hall, 1970; Morrow, 1983). Thus, many studies have been aimed at redefining and more precisely measuring work centrality as well as other work-commitment related constructs such as protestant work ethic, intrinsic motivation, and job involvement (e.g., Blau, 1985; Kanungo, 1982; Lawler & Hall, 1970; Paullay et al., 1994). Nevertheless, studies continue to use the constructs interchangeably. It is not uncommon, for example, for research to measure job involvement as a proxy for work centrality (e.g., Ng, Eby, Sorensen, & Feldman, 20051).

1 Meta-analytic work by Ng et al. (2005) highlights the lack of clarity in work centrality. They purport to include work centrality in their meta-analysis but parenthetically note that they are
Research focused on work centrality has not been statistically integrated. Meta-analyses can assess population-level relations among variables in a nomological network relating work centrality to its antecedents (e.g., age, education) and consequences (e.g., hours worked, organizational commitment). The present study aims to achieve a clearer picture of the work centrality construct by meta-analytically examining different measures of work centrality, and their relations with different antecedents and outcomes.

**Background**

Interest in work centrality originated from Max Weber’s book *The Protestant ethic and the spirit of capitalism* (1930). Weber described work ethic, as well as the general ethic of the protestant faith, which suggests that work is an end in and of itself and people should avoid leisurely activities as they would avoid sin. The protestant work ethic was originally used to explain how the attitudes of a large group of people affected the global economy; more recently psychologists have been studying the concept on a more individualized basis (Furnham, 1990; Miller et al, 2001). McClelland, Atkinson, Clark, and Lowell, (1953) shifted the focus of the protestant work ethic to the individual instead of a group and proposed “need for achievement” as an outcome of the protestant work ethic and an antecedent to economic stimulation. Other constructs that characterized the dispositional approach to protestant work ethic included authoritarianism, belief in a just world, conservatism, postponement of gratification, social values, entrepreneurship, and attitudes toward leisure (see Furnham, 1990, for a review).

talking about job involvement. It is explicitly noted in their study that “Studies measuring work centrality used self-report measures of job involvement.” (p. 380).
Several protestant work ethic scales have been created for various reasons; notable among these scales are Mirels and Garrett’s (1971) protestant ethic scale and Blood’s (1969) pro-protestant ethic scale. These scales included items such as “hard work makes a man a better person,” “if one works hard enough he is likely to make a good life for himself,” and “a distaste for hard work usually reflects a weakness of character.” In contrasting the protestant work ethic with job satisfaction, Blood (1969) concluded that work values precede and influence job satisfaction rather than the other way around. Many other scales have since been designed but the association with the protestant faith has waned in favor of conceptualizing work ethic in a secular manner (Miller et al., 2001).

Dubin (1956) shifted the focus of study from work ethic to perceptions of “central life interests.” He created 40 items aimed at determining the relative importance of the workplace compared with other areas of one’s life such as leisure and family. In other words, his measure focused on where people wanted to carry out activities and where people focused their attention. People were classified as job oriented or non-job oriented based on how they responded to the items. This work was an attempt to assess the importance that work and the workplace played in people’s lives. Note that the central life interests questionnaire was designed to determine whether one’s job and workplace were central life interests relative to other aspects of one’s life; it was not designed to investigate beliefs or attitudes regarding the importance of working in general.

Lodahl and Kejner (1965) drew on Dubin’s work, as well as past research on ego-involvement (Lewis, 1944; Wickert, 1951), in developing their influential measure of job involvement. Researchers criticized their approach, however, for confounding attitudes about job with attitudes about work (Kangungo, 1982). For example, some items focused on engagement
in one’s specific job (e.g., “I live, eat and breathe my job”) while other items focused on work in general (e.g., “I would probably keep working even if I didn’t need the money”). Furthermore, Kanungo (1982) pointed out that some of the items in Lodahl and Kejner’s (1965) scale contained the word job while other items contained the word work; people may not view these as the same things. She drew a distinction between work involvement and job involvement by redefining the latter as psychological identification with one’s job and not with work in general. In an attempt to further clarify the ambiguities surrounding job involvement, work ethic, and work centrality, Paullay et al. (1994) conducted a confirmatory factor analysis. Their results supported the distinction between the constructs, showing that work centrality is a meaningful, distinct construct.

**Work centrality**

Work involvement, work-role centrality, and work centrality are all terms used to describe a phenomenon in which a person places high life importance on the activity of working. Mannheim (1975) defined work centrality as:

…the relative dominance of work-related contents in the individual’s mental processes, as reflected in responses to questions concerning the degree of concern, knowledge, and interest invested in the work role relative to other activities and in the individual’s emphasis on work related sub-identities (p. 81).

She drew mainly from the work of Dubin (1956) and Lodahl and Kejner (1965) to develop eight items that were intended to measure interests, concern, ego-identification, and time allocation as related to work. The first seven items asked respondents to select the description of the person they resemble the most. For example:

Mr. A., who is a man who is really not much interested in anything.
Mr. B., who is a man who is mainly interested in things which he does after working hours, but does not find any interest in his work.

Mr. C., who is interested in his family, his work and in other affairs, more or less equally.

Mr. D., who is mainly interested in his work and the activities connected with it, and other things do not interest him particularly.

Endorsement of Mr. D would indicate the highest levels of work centrality while Mr. A and Mr. B indicate the lowest levels of work centrality.

Warr et al. (1979) created an index of work involvement. Among the six items included in their scale is a question in which the respondent is asked if he or she would continue to work after winning a large amount of money. Morse and Weiss (1955) first posed the question to American workers, “If by some chance you inherited enough money to live comfortably without working, do you think that you would work anyway or not?” (p. 191). Variations of this question have appeared frequently in the work centrality literature (e.g., Kaplan & Tausky, 1974; Vecchio, 1980; Warr et al., 1979; MOW, 1987). It has been used to examine people’s attitudes toward work cross-culturally, (Harpaz, 1989; MOW, 1987; Ruiz-Quintanilla & Wilpert, 1991; Mannheim & Rein, 1981) as well as temporally (Vecchio, 1989; Highhouse, Zickar, & Yankelevich, 2010), in order to study reasons to work beyond economic and financial rewards. The Meaning of Working (MOW;1987) research team studied the meaning that working holds for individuals in industrialized nations. They explain that working may be important to people for different reasons; some may work for economic reasons while others may work for the intrinsic rewards (e.g., sense of identity, satisfaction of having contributed) associated with
working. Over a period of six years (1978-1984), 14 countries were surveyed to better understand the meaning of work both between and within cultures.

The MOW research team used two questions to measure the relative and absolute value of work centrality, as well as a question regarding a person’s desire to continue working when economic motivation is removed. The first question asks participants to assign 100 points to five different areas of their life including leisure, community, work, religion, and family. This allowed the team to investigate work as it related to other areas of life, and to rank each area of life in an ordinal fashion. The second question asked participants to rank from 1 to 7 how important and significant working is to their total life. Anchoring statements ranged from 1 one of the least important things in my life to 7 one of the most important things in my life (MOW, 1987).

As shown in Table 1, work centrality has been studied under various construct labels. Nevertheless, each definition includes reference to beliefs about the importance or value of work in one’s life. One of the purposes of the present study is to examine whether the different scales designed to measure work centrality behave similarly. That is, meta-analysis allows for me to examine whether the type of work centrality measure moderates relations with other constructs. Another purpose of this study was to meta-analytically examine the nomological network surrounding work centrality. Below, I discuss hypothesized antecedents and consequences of work centrality.

**Antecedents of work centrality**

Researchers have discussed various suspected antecedents of work centrality. The most common have been age, gender, education, occupation, seniority, job rewards, and employment
status. I will consider antecedents and consequences that have been (a) included in many studies, and (b) make logical sense in the nomological network.

**Sex.** Lorence (1987) presented two theoretical models for explaining the relation between work centrality and sex (i.e., male vs. female). The “gender model” suggests that men take on the role of career builder and provider for the family economically, while women are traditionally raised to accept more family-centered roles. Thus, men tend to invest relatively more resources in developing their careers and as a result their identity as a worker becomes more prevalent while women tend to allocate their resources to family building, and view their role in the workplace as a less important part of themselves. The “job model,” however, suggests the unequal nature of the work environment causes women to value work less than men because they do not receive the same valued outcomes. Women still earn less than their male counterparts and often find themselves in less rewarding and motivating jobs (Gould and Werbel, 1983).

Research has provided mixed results with respect to sex and work centrality. Studies that have found no sex differences in work centrality, such as Cohrs et al, (2006) and Schmidt and Lee (2008), have used samples of professionals and people over 45 years old respectively. Other studies have found that men, in general, report higher levels of work centrality (Mannheim et al., 1997; Mannheim, 1983; Harpaz & Fu, 1997). I would expect men to exhibit higher levels of self-report work centrality than females.

**Hypothesis 1:** Males will report higher work centrality than females.

**Age.** As people enter the middle of their lives they will have had more time in the work force allowing for work to become a stronger part of their identities. Specifically, the financial need hypothesis suggests that people in the middle of their lives often have responsibilities requiring their financial stability which contributes significantly to the importance of working
Because of the amount of time devoted to career building and development, as well as the need to provide financial stability, people in the middle to late stages of their lives should exhibit greater work centrality. In general, research has been suggestive of a positive relation between age and work centrality (Mannheim et al., 1997; Arvey et al., 2004; Schmidt & Lee, 2008).

**Hypothesis 2:** Age will be positively related to self-reported work centrality

**Education.** Education can be thought of as a proxy for the time and effort devoted toward furthering one’s self, as well as the expectations concerning future work (Mannheim, 1975). Many people invest their time in preparing for work by going through training programs or seeking higher education. Someone who spends the time to become a veterinarian, for example, may be someone who values work beyond economic incentives. Such a person seeks to choose a career path that aligns with his or her values or interests. Thus, this person may be more likely to identify with working not only because of the career investment, but also because choice of work reflects a part of one’s persona. Goldman (1973) provided evidence that suggests that people who are upwardly anchored (i.e. those who strive to advance) are more likely to be committed to their work. Thus, the attainment of higher levels of education should relate to identification with work.

**Hypothesis 3:** Education will be positively related to self-reported work centrality.

**Consequences of work centrality**

**Job satisfaction.** Smith, Kendall, and Hulin (1969) defined job satisfaction as, “the feelings a worker has about his job” (p. 6). Job satisfaction is a psychological reaction to a person’s job environment and situation. However, research has found consistent levels of job satisfaction even when employer and situations change, suggesting that individual differences
people bring into their work situations also play a role in their job satisfaction (Staw & Ross, 1985). Specifically, neuroticism, conscientiousness, and extroversion have been shown to correlate with job satisfaction (Judge, Heller, & Mount, 2002) and it has been suggested that positive and negative affect may also play an important role (Judge & Larsen, 2001). Although work centrality is generally concerned with the meaning of work regardless of the satisfaction derived, there is still a theoretical link between the two constructs. The more involved that people become in their work, the more their self-image is associated with work. As people apply themselves and thus become more ego-involved in their work, it is likely that they will derive satisfaction out of the completion of work tasks (Vroom, 1962). Furthermore, a role that is more rewarding or satisfying will assume greater prominence in one’s hierarchy of identities further reinforcing the link between job satisfaction and work centrality (Mortimer & Lorence, 1989). Researchers have generally found support for small to medium correlations between job satisfaction and work centrality. Although there is some debate about the directionality of the relation (see Mannheim, Baruch, and Tal, 1997) job satisfaction is included as a consequence under the assumption that the involved worker will derive more satisfaction out of his or her work than the uninvolved worker.

**Hypothesis 4:** Job satisfaction will be positively related to self-reported work centrality.

**Hours worked.** Those who view work as an important part of their lives (i.e., those who score high on self-report work centrality scales) should be more likely to put in long hours at work. This could mean finding extra work to complete, or working over-time (Snir & Harpaz, 2002). Because they believe that work is an important part of their lives, they may be more involved in work processes and interested in seeing them to completion. Research by Martin and Hafer (1995) found that full-time workers had higher levels of involvement than part-time
workers. The argument that follows from this finding is that people will invest more time in work when they view their work as an important part of their self-image. It may also be the case that people self-select into part-time jobs so that they can have time for other non-work related activities (Diefendorff, Brown, Kamin & Lord, 2002). Thus, those who believe that work is an important part of their life and identity should be more likely to invest more time working while those who do not highly value work should keep seeking out other activities and keep the number of hours worked to a minimum.

Hypothesis 5: Self-reported work centrality will be positively related to hours worked per week.

Organizational commitment. Organizational commitment has been conceptualized as a psychological state that describes the relationship between a worker and the organization, and can influence the choice to continue working for said organization (Meyer, Allen, & Smith, 1993). A person who values work as an important part of life should be more likely to value an organization since it offers a venue to express an interest in working. Work-role attachment theory suggests that people who are committed to work should also be committed to the organization that employs them (Carter & Cook, 1995; Adams, Prescher, Beehr, & Lepisto, 2002). Those who highly value work should be inclined to develop an affective relation with the organization that employs them and thus develop a sense of commitment. For these reasons Mannheim et al. (1997) included organizational commitment as a consequence in their model of work centrality. These findings are often applied toward people’s intentions to quit or retire, and most research has found a positive relations between work centrality and organizational commitment (Adams, et al., 2002; Schmidt & Lee, 2008; Mannheim, et al., 1997)

Hypothesis 6: Self-reported work centrality will be positively related to organizational commitment.
**Job Involvement.** Paullay et al. (1994) suggested that work centrality should remain relatively constant across different work situations. Work centrality, therefore, should lead to job involvement because it exists independent of a particular job. That is, work centrality is a normative belief focused on the meaning of work in general that develops and exists independent of a particular job situation. Job involvement may fluctuate contemporaneously as job situations change. Thus, when someone begins a new job it should take time to develop involvement in that job, whereas they already have beliefs about the importance of work in general. Higher levels of work centrality should lead to greater involvement in a particular job because if someone believes that work is an important part of life they will be more likely to believe that their particular job is also important. On the other hand, if someone does not value work, they will probably also not value their job beyond economic gains. Thus, low work centrality would contribute to lower levels of job involvement. Since Kanungo (1982) made the distinction between work involvement and job involvement, nearly all research has demonstrated a moderate positive relation between work centrality and job involvement (e.g. Paulley et al., 1994; Diefendorff et al. 2002).

*Hypothesis 7:* Job involvement will be positively related to self-reported work centrality.
METHOD

Collection of studies

I performed a comprehensive and systematic search of articles published in 2011 or earlier that included a measure of work centrality, work-role centrality, or work involvement. Based upon Kanungo (1982) a specific distinction was drawn between job involvement and work involvement. The psycINFO database was searched using the keywords “work centrality,” “work-role centrality,” “work involvement,” “work meaningfulness,” “work commitment,” “work identification,” and “meaning of work.” These keywords were also entered into ProQuest Dissertations and Thesis database to identify unpublished works. I further collected studies cited in previous reviews and relevant studies concerning work centrality. Specifically I searched the Social Science Citation Index (1966-2011) for any studies that cited Kanungo, (1982), Paullay et al. (1994), Mannheim, (1975), or Warr et al. (1979). Finally, I contacted researchers who have published in the area of work centrality as well as sent emails to listserves such as RMNET and OBNET.

This method identified over 2000 potential studies. In order for a study to be included in the analysis it needed to meet the following criteria: First, studies needed to use one of the predetermined measures of work centrality (e.g. Paullay et al., Kanungo, Mannheim, etc). Second, the studies needed to report at least one relationship between work centrality and a variable of interest (e.g. job satisfaction). Of the over 2000 potential studies, 206 measured work centrality using one of the predetermined measures. Next these studies were examined to determine their eligibility. By far, the most common reason for excluding a study was because the study did not report relations among variables of interest for this study; much of the research surrounding work centrality is cross-cultural and thus report mean differences between groups.
(e.g. work centrality of people in Japan or France). The resulting database was comprised of 78 articles with 95 independent samples yielding 354 correlations. Although several researchers offered articles for inclusion in the analysis, only two studies were identified that had not been published. Variables needed a minimum of five reported relationships to be included in the analysis. Although some have proposed a minimum of two studies (Valentine, Pigott, & Rothstein, 2010), five was selected conservatively to increase the reliability of ρ.

Meta-Analytic Procedure

The analysis was conducted according to the procedures outlined in Hunter and Schmidt (2004). The product-moment correlation coefficient (r) was used as the effect size for studies that were included. All studies reporting relations between work centrality and at least one of the variables of interest was considered for inclusion. Studies needed to provide sample size and correlations (or sufficient information to compute a correlation) to be included in the study. I coded variables on sample size, effect size and measurement reliability. I corrected for unreliability in both the predictor and criterion by following recommendations by Hunter and Schmidt (2004) in creating artifact distributions. No corrections were made for range restriction due to insufficient information provided by coded articles. When multiple effects were reported for a variable they were combined into a single estimate that takes into account the correlation among the measures. Studies that reported multiple independent samples were coded separately and treated as independent samples. Some studies reported multiple effect sizes for a particular relationship. This often occurred when the study had more than one time point. In such instances, the effect sizes were combined by computer composite correlations (Hunter & Schmidt, 2004).

Moderators
I conducted a moderator analyses to identify if different measures of work centrality were relating to the nomological network in the same way. Demonstrating that different measures do not differ in how they relate to the nomological network provides evidence that the different scales are measuring work centrality in similar ways. However, if scales relate to variables of interest in different ways this would be evidence that the scales are operating in different manners or covering different domains. Moderator analysis was conducted by distinguishing studies based upon the measure of work centrality used. Studies were coded based upon the measures of work centrality outlined in Table 1. Following the recommendations of Cortina (2003) and previous meta-analyses (e.g. Christian, Garza, & Slaughter, 2011) effect sizes were calculated for each scale of work centrality. 95% confidence intervals were compared between different measures of work centrality to identify if the measure of work centrality moderated the relationship between work centrality and the variable of interest.
RESULTS

Table 2 displays the number of effect sizes included in the analysis (k), total sample size across studies (N), sample-weighted mean correlations (mean r), estimated true mean correlations (ρ), estimated standard deviations for ρ (SDρ), the percentage of variance attributable to sampling error (% variance SE), the percentage of variance due to artifacts (% variance artifacts), 95% confidence intervals (95% CI), and 95% credibility intervals. The confidence intervals use the standard error of the sample-weighted mean to estimate the amount of sampling error present in the sample-weighted mean, and the credibility intervals use the SDρ to aid in the interpretation of potential moderators (Schmidt & Hunter, 2004; Whitener, 1990). Cohen’s (1988) conventions of .1, .3, and .5 are used in interpreting effect sizes as small, medium, and large respectively.

Antecedents

The first three hypotheses involve the relationship between expected antecedents of work centrality. Hypothesis 1 is supported; work centrality and sex are negatively correlated (ρ = -.07) suggesting that men report greater levels of work centrality. Hypothesis 2 stated that work centrality would be positively correlated with age which was supported (ρ = .11). Hypothesis three predicted that work centrality would be positively related with education, and the data support this assertion (ρ = .07). Overall, meta-analysis of antecedents suggested that males report greater work centrality, older report higher work centrality than younger, and people with more education report greater work centrality. Both relations, however, were small in magnitude.

Consequences

Hypotheses 4, 5, 6, and 7 predicted positive relationships between job satisfaction, hours worked, organizational commitment, and job involvement. Of the consequences, work centrality
is positively correlated with job satisfaction ($\rho = .25$) and hours worked ($\rho = .19$). A medium-large correlation exists between work centrality and organizational commitment ($\rho = .39$) supporting Hypothesis 6. Work centrality has the strongest relationship with job involvement ($\rho = .60$) supporting Hypothesis 7. Overall, meta-analysis of consequences suggested that work centrality is a meaningful predictor of many important job-related outcomes.

**Other Variables**

While coding studies, several other variables were identified and added to the analyses. These include demographic variables (e.g. Income, dependents), personality variables (e.g. conscientiousness, agreeableness), organizational variables (e.g. organizational citizenship behaviors (OCB), occupational commitment), beliefs and attitudes (e.g. life satisfaction, leisure commitment) and health/well-being variables (psychological well-being, health status).

The demographic variables include marital status and dependents. The correlation with marital status is non-significant ($\rho = .03$), as the confidence interval includes zero. Work centrality is not significantly correlated with number of dependants ($\rho = -.05$) as the confidence interval includes zero.

Personality variables include conscientiousness, extraversion, emotional stability, agreeableness, and openness to experience. Conscientiousness has a medium relationship with work centrality ($\rho = .33$). The correlations for agreeableness and openness to experience reveal no significant relationship ($\rho = .00$) and ($\rho = .02$) respectively with both confidence intervals containing zero. Extraversion ($\rho = .06$) and emotional stability ($\rho = -.02$) also showed very weak, non-significant correlations with work centrality. Although the confidence intervals for emotional stability do not include zero, this finding is suspect.
Organizational variables include tenure, income, OCB, occupational commitment, performance, intentions to quit, and work interfering with family. Different types of tenure such as occupational and job tenure are collapsed into one variable; work centrality is positively correlated with tenure ($\rho = .06$) OCB’s ($\rho = .18$) and income ($\rho = .23$). Work centrality also positively correlates with occupational commitment ($\rho = .40$). Work centrality shows a small positive correlation with performance ($\rho = .11$). As would be expected, work centrality is negatively correlated with intentions to quit ($\rho = -.30$) and positively correlated with work interfering with family ($\rho = .09$).

Beliefs and attitudes include leisure commitment, protestant work ethic, and life satisfaction. Work centrality has a strong negative correlation with leisure commitment ($\rho = -.57$) and a strong positive correlation with protestant work ethic ($\rho = .53$). Although these relations are relatively strong, they suggest that work centrality is not the same thing as lack of leisure commitment or work ethic. Work centrality is positively correlated with life satisfaction ($\rho = .14$).

Other variables include psychological well-being and health status. Psychological well-being is a combination of several variables such as stress, depression, and anxiety which is positively correlated with work centrality ($\rho = .10$) with a positive correlation indicating better well-being. Work centrality is not significantly correlated with Health status ($\rho = -.04$).

**Moderator Analysis**

Table 3 displays the results of the moderator analysis. Because moderator analysis requires a greater number of studies, only variables with large $k$’s were analyzed. More specifically, in order to be included in the moderator analysis a variable needed to have at least five studies to contribute to each group. For example, a total of 36 studies examined the
relationship between job satisfaction and work centrality. Of these, eight used Kanungo’s measure of work centrality, and 28 used either a combination of scales, a modified scale, or a different scale all together (e.g. MOW, Paullay et al.,). Consistent with previous meta-analyses (e.g. Christian, Garza, & Slaughter, 2011) confidence intervals are examined for overlap. Those intervals that do overlap suggest that there is no difference between correlations and that no moderator is present (Finkelstein, Burke, & Raju, 1995). 95% confidence intervals overlap for age, sex, tenure, intentions to quit, marital status, income, job satisfaction and organizational commitment suggesting that the measure used does not moderate these relationships. However, of significant concern is the finding that the 95% confidence intervals for job involvement, protestant work ethic and psychological well-being do not overlap for Kanungo’s (1982) measure of work involvement as compared with the other measures. Kanungo’s (1982) measure correlates with job involvement ($\rho = .76$) more strongly than the other measures of work centrality ($\rho = .41$). This is problematic given that Kanungo specifically attempted to distinguish between the two constructs. Similarly, Kanungo’s (1982) measure correlated more strongly with the protestant work ethic ($\rho = .64$) than the other measures of work centrality ($\rho = .41$). Because Kanungo’s (1982) measure of work involvement relates more strongly with job involvement and the protestant work ethic than the other measures of work centrality, it’s utility can be questioned. Studies that reported using Kanungo’s (1982) measure of work involvement were removed from the analysis (see Table 4 and Figure 1).

**Publication bias**

Publication bias is always a concern when conducting meta-analyses. Studies that do not find significant results may be published less often or not at all. This bias can lead to a non-representative database which overestimates a true effect (Duval, & Tweedie, 2000). Following
the recommendations of Sterne and Egger (2001) funnel plots were created to investigate the presence of publication bias. After careful visual inspection of each relationship, it was determined that no meaningful publication bias is present in the data. This is not surprising given the nature of the studies included in this meta-analysis. Most studies included a variety of measures examining many different relationships and reported correlation matrices. Thus, null results on any particular measurement should not inhibit the chances of a study being published.
DISCUSSION

This study was the first to fully examine the antecedents and consequences of work centrality. Other meta-analyses have included work centrality as a variable (e.g. McKee-Ryan, Song, Wanberg, & Kinicki, 2005; Cooper-Hakim & Viswesvaran, 2005; Michel, Mitchelson, Pichler, & Cullen, 2010) but none have fully examined its nomological network. Additionally, these meta-analyses did not distinguish work centrality from related constructs like job involvement or organizational commitment. This study offers a comprehensive examination of the antecedents and consequences of work centrality.

A moderator analysis was employed to investigate whether the selected scales for work centrality related to the nomological network in similar ways. If the scale used moderated the relationship between work centrality and other variables, this would be evidence that the scales were not operating in the same manner. Of great concern is the finding that Kanungo’s (1982) measure of work involvement relates to job involvement and the protestant work ethic more strongly than the other measures of work centrality. Specifically, the relationship between work involvement as measure by Kanungo (1982) and job involvement was approaching levels often considered when discussing reliability. When so much of the literature surrounding job involvement and work centrality has called for distinction between the two variables, it is troubling to find that Kanungo’s measures correlate so strongly. Of further concern is the finding that Kanungo’s measure also correlates with the protestant work ethic more strongly than the other measures of work centrality, another construct that many investigators have argued as independent of job involvement and work centrality (Paullay, et al., 1994). Because of this finding Kanungo’s measure was removed from the meta-analysis and data are presented on the remaining measures of work centrality.
Several of the items that Kanungo (1982) developed are worded very similarly across the measures of work and job involvement. For example, one of the job involvement items is “The most important things that happen to me involve my present job”, and one of the work involvement items is “The most important things that happen in life involve work”. Another example of a job involvement item is “Most of my personal life goals are job-oriented” and a related work involvement item is “In my view, an individual’s personal life goals should be work-oriented.” While conceptually a clear distinction can be drawn by those who understand the differences between job involvement and work centrality, the similarity of several of the items may lead to inflated correlations between job involvement and work involvement as measured by Kanungo’s (1982) measures. Indeed, items will inherently need to be somewhat similar for related constructs; however, the other measures of work centrality do not suffer from items that are so similarly worded. For example, Mannheim (1975) and the MOW research team did not develop measures of job involvement, and thus studies that employ these measures of work centrality are not plagued by similarities in item wording. Studies that use Mannheim’s or MOW’s measures of work centrality must find job involvement scales that were developed independently and thus are less likely to have inflated correlations due to similarity in item wording. Paullay et al. (1994) developed measures of work centrality and job involvement, but they were specifically marking the distinctions between job involvement and work centrality and thus their scales do not appear to suffer from the same problems as Kanungo’s (1982) measure. The ultimate concern would be that different relationships between the work centrality measures and other constructs would imply that the measures of work centrality are not operating similarly. Because the relationships between job involvement and the protestant work ethic were significantly different in the moderator analysis for different measures, the author recommends
not using Kanungo’s work involvement scale. The rest of the discussion will not include Kanungo’s measure of work involvement.

Of the antecedents, all hypotheses were supported, suggesting that men report higher levels of work centrality as do older people and those with higher levels of education. Theorists have proposed several potential explanations for men exhibiting higher levels of work centrality (Lorenz, 1987). Women may be socialized into life roles that are centered on their families while men focus on their careers. It may also be the case that women are faced with a male dominated work environment and thus find themselves in less satisfying and financially rewarding jobs (Gould and Werbel, 1983). The relationship between sex and work centrality may be stronger in a general population than these findings would suggest. A majority of studies included in the analysis were based on samples of working adults. Women who would report low levels work centrality may self-select themselves out of working environments and thus be underrepresented in working samples. However, some studies included in the analysis found that women reported higher levels of work centrality than men, which suggests that there may be important moderating or situational variables that encourage women to value work.

The positive relationship between education and work centrality was also not surprising. Education level often reflects the amount of time invested toward a person’s career and their beliefs surrounding the importance of work (Mannheim, 1975). Someone who invests 10 years of their life into advanced degrees should be more likely to be invested and involved in their work than someone who did not invest the time and effort to pursue a particular career path. One possible explanation for the small relationship is the homogeneity of participants in each individual study. Many of the studies included in the analysis were based on a particular working sample such as nurses, high-tech professionals or teachers. These groups will have very similar
levels of education and thus these studies might not fully capture the relationship between different levels of education and the importance of work. Examination of the small number of studies that reported negative relationships between education and work centrality reveals that other factors may moderate the relationship. For example, studies that use samples of blue collar jobs may in fact display negative relationships between work centrality and education (e.g. Baba & Jamal, 1976). People with advanced degrees may be dissatisfied with their jobs if their educational achievements are not put to good use. Thus, those with advanced degrees that find themselves in jobs that don’t take advantage of their education may report lower levels of work centrality. Another potential moderator may be employment status. When studying an unemployed population, Isaksson et al. (2004) found negative relationships between education and work centrality. Again, it may be the case that those with advanced degrees find more frustration with their job situation when it does not reflect their higher level of education.

It has been hypothesized that age may have a curvilinear relationship with work centrality (Mannheim, 1975). This analysis supports the hypothesis that work centrality is positively related to age. However, these findings are far from definitive. Although a positive relationship was found, more research is needed to investigate the possibility for a curvilinear relationship. Younger people may not have had enough time to fully invest themselves in their work while older people, those approaching retirement, may begin disengaging from work to prepare for post-work life. While this explanation makes intuitive sense, it has yet to be supported empirically.

All of the hypotheses regarding consequences of work centrality were supported. High work centrality relates to higher job satisfaction, more hours worked, greater organizational commitment, and higher levels of job involvement. Of particular interest is the relationship
between job involvement and work centrality. The literature has been fraught with mislabeling and misunderstanding of the conceptual differences between job involvement and work centrality. Starting with Kanungo’s (1982) measures of job involvement and work involvement, researchers have sought to distinguish the two constructs. This analysis provides further evidence for the distinction. Across 11 studies, a medium-large relationship emerged, and even after correcting for measurement error, the correlation between these two constructs is small enough to suggest that they are measuring separate domains. While certainly related, job involvement and work centrality have consistently been demonstrated to be independent constructs.

Several additional variables were identified during the coding process and included in the analyses. The organizational related variables were tenure, income, OCB, occupational commitment, performance, intentions to quit, and work interfering with family. These may have been the most important additional findings of the study. Work centrality related positively to tenure, OCB, income occupational commitment, conscientiousness and performance while relating negatively with intentions to quit. When considered in tandem with the positive relations of work centrality with job satisfaction, job involvement, and organizational commitment the importance of work centrality becomes clear. People who value work as an important aspect of their lives enjoy their work more, stay with organizations longer, contribute above and beyond their job descriptions, make more money, and exhibit less negative psychological symptoms than those who do not value work as an important aspect of their lives. Furthermore, people with high levels of work centrality also report higher levels of life satisfaction and perform their jobs better than those with low work centrality.

The benefits of greater work centrality are clear, but there is another side to the story. Higher levels of work centrality are positively related with the number of hours worked as well
as work interfering with family. People who highly value work spend more time at work, and subsequently they find that work gets in the way of their family life. They are also less committed to leisure activities outside of their working life. While high work centrality clearly has positive outcomes regarding organizational settings, there seems to be a tradeoff. Being highly involved in work leads to a happy, committed, and strong performing worker, but it can also impact other aspects of one’s life such as family and leisure time.

Several other variables were also identified in which no relationship was found. Marital status, health status, agreeableness, openness to experience, and number of dependants all showed no relationship with work centrality. The lack of relationship between marital status, number of dependants and work centrality is interesting. It seems likely that a single person would find work to be a larger part of their life, thus resulting in higher work centrality. However, it may be that they wish to be in a committed relationship and thus spend more of their time and resources toward finding a partner rather than investing it in work. Likewise, the number of dependants does not vary with work centrality. It could be that the addition of children or aging parents to a home both increases a person’s desire to spend time with family but also increases the importance of a stable income. In any case, the null results for marital status and number of dependants suggest that non-work environments may not play a significant role in a person’s beliefs regarding the value of work in their life.

**Contributions and limitations of current study**

This study contributes to our knowledge of the work environment in several ways. First, it distinguishes between work centrality and job involvement, a point that has been missed despite the vast research conducted in the area, including meta-analyses. This study provides further evidence for treating job involvement and work centrality as two separate and
independent constructs by demonstrating that even though their relationship is quite strong they are distinguishable. Had the relationship between job involvement and work centrality been above .7, there would be cause for concern that people are not sensitive to the differences in the constructs. However, the findings suggest that while highly correlated, people are able to distinguish between the two constructs. Second, this is the first study that has sought to identify and describe the nomological network surrounding work centrality. Although work centrality has been included in previous meta-analyses, none have focused specifically on work centrality while distinguishing it from other related constructs. Finally, this study provides a detailed review of the literature surrounding work centrality and identifies several scales that have been used in previous research. This study demonstrates that these scales do not differ in how they relate to the nomological network, suggesting that they indeed are all measuring the same construct. Previous research in the area has not addressed the similarities or differences found in these scales.

Although this study advances our knowledge of work centrality, it regrettably has several limitations. A large portion of the research that has been conducted examining work centrality has been cross-cultural in nature (e.g. Westwood & Lok, 2003; Harpaz, Hinig, & Coetsier, 2002; Harpaz & Fu, 1997) and does not lend itself well to meta-analysis; much of the cross-cultural research has examined differences in work centrality across different cultures and has not investigated work centrality’s relationships with other psychological variables. In other words, much of the cross-cultural research report work centrality scores for particular groups (i.e. different countries) and make little attempt to associate these values with other psychological variables such as job satisfaction. Thus, there is a significant amount of knowledge that cross-cultural research has established regarding work centrality that is not included in this analysis.
Another limitation of this study is due to its specificity. Other similar meta-analyses have cast a broad net when defining variables and searching for studies for inclusion. This study took a very narrow and specific view of work centrality that limited the number of studies that could be included. The result is a meta-analysis with fewer studies included, but a more precise understanding of the construct of interest, work centrality. Because only those measures that specifically measured work centrality were included many variables did not have large enough \( k' \)'s to be analyzed. Additionally, further moderator analyses could not be conducted because of the limited number of studies included. However, this trade-off allows for greater confidence in the relationships included in the analysis because of the discerning selection of work centrality scales. Other similar scales could have been included in a meta analysis such as the career salience scale (Greenhaus, 1971), the work environment scale (Moos, 1971; Babin & Boles, 1996), the work involvement sub-scale of the workaholism triad (Spence & Robins, 1992) or the work involvement sub-scale of the career attitudes and strategies inventory (Holland & Gottfredson, 1994). These scales were omitted from the analysis because investigation of the measures revealed that they shared very few common items, did not distinguish between job involvement and work centrality and/or did not appear to measure the same domain of work centrality as the included measures. Future meta-analyses could investigate the differences and similarities of these related, yet distinct constructs.

**Future research**

A large amount of work has been directed toward work centrality and many of its relationships have been well studied. However, there are several questions that have yet to be answered. Future research should investigate how work centrality changes over the life-span. A curvilinear relationship has been hypothesized but has yet to be tested empirically. Research in
this area can shed light upon decisions made regarding when to begin a career and when to retire. Can someone’s work centrality be influenced by an organization? For example, if a company wants to encourage some of its older workers to retire, does encouraging these workers to take part in non-work activities influence the value they place on work? Do young people have lower work centrality because they have not begun a career yet or because they are so involved in activities outside of work? The relationship with education also needs further examination: Is the small positive correlation found in this study due to range restriction or does it accurately reflect the relationship between education and work centrality. Does a person value work more if the work requires more training such as advanced degrees or do people who already value work seek out jobs that require further education?

In addition to investigating specific relationships in more detail, future research should focus on the interplay between work centrality and family life. Must family and work be opposed or can someone highly value both? Future research should be directed toward understanding when high work centrality can negatively impact other areas of one’s life by examining work interfering with family and family interfering with work. Researchers have begun to uncover these relationships, but further investigation is required to fully understand the potential negative consequences of placing a great deal of importance on work.

Conclusions

Work centrality is an important psychological construct that can influence a variety of work related outcomes as well as impact a person’s life beyond work. This study has accumulated and statistically combined the research on work centrality and furthered our understanding of its nomological network. People who value work as an important part of their lives are committed to their organizations and occupations, remain with their organizations
longer, make more money, experience less psychological symptoms, and are more satisfied with their jobs and life overall. They also experience more problems with work interfering with other aspects of their life, work longer hours, and commit themselves less to activities outside of their work environment. There has been confusion in the literature about the distinctions between work centrality and job involvement. It is recommended that future researchers choose a scale other than Kanungo’s (1982) measure of work involvement. This recommendation is based on the results of this meta-analysis that suggest that Kanungo’s (1982) measure of work involvement does not adequately distinguish between work centrality, job involvement, and the protestant work ethic. Hopefully, this study illuminates these issues and provides groundwork for future research on work centrality.
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<table>
<thead>
<tr>
<th>Construct Label</th>
<th>Operational Definition</th>
<th>Source</th>
</tr>
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</table>
| Work Involvement                | A normative belief about the value of work in one’s life  
The degree to which a person wants to be engaged in work                                                                                                                                                      | Kanungo, (1982) p.342         |
|                                 |                                                                                                                                                                                                                       | Warr, Cook, & Wall, (1979) p.133 |
| Work-Role Centrality            | The relative dominance of work-related contents in the individual’s mental processes, as reflected in responses to questions concerning the degree of concern, knowledge, and interest invested in the work role, relative to other activities | Mannheim, (1975) p.81         |
| Work Centrality                 | A general belief about the value of working in one’s life  
The degree of general importance that working has in the life of an individual at any given point in time  
The beliefs that individuals have regarding the degree of importance that work plays in their lives                                                                 | MOW, (1987) p.17              |
|                                 |                                                                                                                                                                                                                       | MOW, (1987) p.81              |
|                                 |                                                                                                                                                                                                                       | Paullay et al. (1994) p.225    |
| Centrality of Work              | Belief in work for work’s sake and the importance of work                                                                                                                                                            | Miller, Woehr, & Hudspeth, (2001) p.14 |
Table 2
Meta-Analytic Correlations for Antecedents and Outcomes of Work Centrality

<table>
<thead>
<tr>
<th>Correlation</th>
<th>K</th>
<th>N</th>
<th>Sample-weighted mean r</th>
<th>p</th>
<th>SDp</th>
<th>% variance SE</th>
<th>% variance artifacts</th>
<th>95% CI</th>
<th>95% Credibility Interval</th>
</tr>
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<td>.09</td>
<td>.11</td>
<td>.07</td>
<td>37.56</td>
<td>1.40</td>
<td>.09:.13</td>
<td>-.03:.25</td>
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<td>-.06</td>
<td>-.07</td>
<td>.08</td>
<td>29.43</td>
<td>.49</td>
<td>-.10:.04</td>
<td>-.24:.09</td>
</tr>
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<td>.06</td>
<td>.07</td>
<td>.06</td>
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<td>1.10</td>
<td>.04:.09</td>
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</tr>
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<td>.05</td>
<td>.06</td>
<td>.06</td>
<td>50.39</td>
<td>.44</td>
<td>.02:.09</td>
<td>-.06:.17</td>
</tr>
<tr>
<td>Job Involvement</td>
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<td>9529</td>
<td>.46</td>
<td>.60</td>
<td>.17</td>
<td>7.13</td>
<td>38.60</td>
<td>.50:.69</td>
<td>.26:.93</td>
</tr>
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<td>Conscientiousness</td>
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<td>4509</td>
<td>.26</td>
<td>.33</td>
<td>.12</td>
<td>18.42</td>
<td>12.26</td>
<td>.25:.41</td>
<td>.10:.56</td>
</tr>
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<td>Marital Status</td>
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<td>5534</td>
<td>.03</td>
<td>.03</td>
<td>.11</td>
<td>26.54</td>
<td>.07</td>
<td>-.02:.09</td>
<td>-.18:.25</td>
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<tr>
<td>Income</td>
<td>11</td>
<td>4315</td>
<td>.19</td>
<td>.23</td>
<td>.12</td>
<td>19.76</td>
<td>2.87</td>
<td>.16:.30</td>
<td>-.00:.45</td>
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<td>OCB</td>
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<td>2871</td>
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<td>.18</td>
<td>.06</td>
<td>42.69</td>
<td>6.91</td>
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<td>.06:.31</td>
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<td>Openness</td>
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<td>.02</td>
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<td>.07</td>
<td>-.04:.07</td>
<td>-.12:.15</td>
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<td>.00</td>
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<td>.00</td>
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<td>Extraversion</td>
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<td>.05</td>
<td>.06</td>
<td>.16</td>
<td>8.68</td>
<td>.14</td>
<td>-.08:.20</td>
<td>-.26:.38</td>
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<tr>
<td>Emotional Stability</td>
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<td>-.02</td>
<td>.01</td>
<td>97.18</td>
<td>.17</td>
<td>-.02:.01</td>
<td>-.03:.00</td>
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<td>Organizational Commitment</td>
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<td>7626</td>
<td>.31</td>
<td>.39</td>
<td>.04</td>
<td>30.58</td>
<td>59.98</td>
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<td>.32:.47</td>
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<td>Occupational Commitment</td>
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<td>.31</td>
<td>.40</td>
<td>.04</td>
<td>50.14</td>
<td>30.94</td>
<td>.36:.44</td>
<td>.33:.47</td>
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<td>Health Status</td>
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<td>-.04</td>
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<td>.29</td>
<td>-.08:.01</td>
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<tr>
<td>Job Satisfaction</td>
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<td>17327</td>
<td>.20</td>
<td>.25</td>
<td>.16</td>
<td>10.62</td>
<td>9.66</td>
<td>.20:.31</td>
<td>-.06:.56</td>
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<tr>
<td>Intentions to Quit</td>
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<td>3339</td>
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<td>-.30</td>
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<td>17.53</td>
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<tr>
<td>Leisure</td>
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<td>2663</td>
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<td>-.57</td>
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<td>92.94</td>
<td>100</td>
<td>-.58:.55</td>
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<tr>
<td>Work Interfering with Family</td>
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<td>3165</td>
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<td>1.11</td>
<td>.02:.16</td>
<td>-.15:.33</td>
</tr>
<tr>
<td>Hours Worked</td>
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<td>.16</td>
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<td>.36</td>
<td>.53</td>
<td>0</td>
<td>39.35</td>
<td>100</td>
<td>.46:.59</td>
<td>.53:.53</td>
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<td>54.40</td>
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<td>Dependents</td>
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<td>.10</td>
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<td>32.30</td>
<td>.14</td>
<td>-.12:.03</td>
<td>-.24:.15</td>
</tr>
</tbody>
</table>

Note. K = the number of studies providing information included in the analysis; N = sum of the sample sizes of studies providing information included in the analysis; p = mean correlation corrected for predictor and criterion reliability; % Variance SE = % variance due to standard error; % variance artifacts = % of variance attributable to artifacts; 95% CI = confidence intervals. Sex was coded such that negative correlations represent higher levels for males; Marital Status was coded such that negative correlations represent higher levels for those who are married; Health Status was coded such that positive correlations indicate better health; Psychological Well-being was coded such that positive correlations indicate better psychological well-being.
### Table 3
**Moderator Analysis**

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Sample-weighted mean</th>
<th>N</th>
<th>k</th>
<th>SDp</th>
<th>% Variance SE</th>
<th>% Variance artifacts</th>
<th>95% CI</th>
<th>95% Credibility interval</th>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Kanungo (1982)</td>
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<td>30.17</td>
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<td>.91:.14</td>
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<td><strong>Sex</strong></td>
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<td></td>
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<td>63.00</td>
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Note. $k =$ the number of studies providing information included in the analysis; $N =$ sum of the sample sizes of studies providing information included in the analysis; $\rho =$ mean correlation corrected for predictor and criterion reliability; % Variance SE = % variance due to standard error; % variance artifacts = % of variance attributable to artifacts; 95%CI = confidence intervals.
### Table 4

**Meta-Analytic Correlations for Antecedents and Outcomes of Work Centrality without Kanungo (1982)**

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<th>SDp</th>
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<th>SE</th>
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Note.  
- $K$ = the number of studies providing information included in the analysis;  
- $N$ = sum of the sample sizes of studies providing information included in the analysis;  
- $\rho$ = mean correlation corrected for predictor and criterion reliability;  
- % Variance SE = % variance due to standard error;  
- % variance artifacts = % of variance attributable to artifacts;  
- 95% CI = confidence intervals.  
Sex was coded such that negative correlations represent higher levels for males;  
Marital Status was coded such that negative correlations represent higher levels for those who are married;  
Health Status was coded such that positive correlations indicate better health;  
Psychological Well-being was coded such that positive correlations indicate better psychological well-being.
Figure 1:

Nomological network of work centrality

Note. Values do not include studies that used Kanungo’s (1982) measure of work involvement. See table 4.