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The Role of Psychological States in Predicting Work Engagement: A Test of Kahn's Model

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THE ROLE OF PSYCHOLOGICAL STATES IN PREDICTING WORK
ENGAGEMENT: A TEST OF KAHN'S MODEL

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ABSTRACT

THE ROLE OF PSYCHOLOGICAL STATES IN PREDICTING WORK
ENGAGEMENT: A TEST OF KAHN'S MODEL

by Taylor N. Gatti

Researchers have consistently found engagement to be linked to positive individual and organizational outcomes such as job satisfaction, job performance, customer satisfaction, and productivity. Although task characteristics, transformational leadership, and core self-evaluations have been found to be important determinants of engagement, the mechanisms of why they are related to engagement are not well understood. Kahn (1990) argues that individuals become engaged through three psychological states: meaningfulness, safety, and availability. Using Kahn's theory, the present study was conducted to test whether task characteristics, transformational leadership, and core self-evaluations were related to engagement through its respective psychological state. Data were collected from 114 full time and part time employees from various companies. Overall, psychological meaningfulness was found to mediate the relationship between each of the predictor variables and work engagement. These findings suggest that having a job that provides autonomy, task significance, task identity, skill variety, and feedback, having supervisors who motivate and inspire employees, and having a greater sense of self-esteem and self-efficacy, all make employees feel worthwhile and valued, which then impacts feelings of engagement. Organizations should strive to provide employees with an opportunity to use a variety of skills and autonomy, as well as train supervisors to display more transformational leadership characteristics.

ACKNOWLEDGEMENTS

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Introduction

For organizations to be competitive and innovative, employees need to be satisfied and committed to their organizations, and display extra-role behaviors (Kruse, 2012). One way to achieve this is through improving employee engagement. Work engagement has been a growing topic of interest due to its positive link to various individual and organizational outcomes. For example, engagement has been positively related to individual outcomes such as job satisfaction, organizational commitment, job performance, and organizational citizenship behaviors, and negatively related to turnover intentions (Rich, LePine, & Crawford, 2010; Saks, 2006). Additionally, engagement has been positively related to organizational outcomes such as customer satisfaction, productivity, profitability, and safety (Harter, Schmidt, & Hayes, 2002). These positive outcomes have led researchers and organizations to seek ways to enhance work engagement. A considerable amount of research has been conducted to identify factors that predict engagement, such as task characteristics, transformational leadership, and core self-evaluations (e.g. Bakker, Albrecht, & Leiter, 2011; Rich et al.); however, less attention has been paid to understanding the underlying process of the relationships between these factors and engagement.

Kahn (1990) has developed a model of engagement that describes engagement as occurring through the experience of three psychological states (meaningfulness, safety, and availability) and delineated conditions that predict these three psychological states. Kahn argued that among others, task characteristics are related to psychological meaningfulness, transformational leadership is related to psychological safety, and core-

self-evaluations are related to psychological availability, and that these conditions are related to engagement through these three psychological states. Thus, the purpose of the present study was to examine whether task characteristics, transformational leadership, and core self-evaluations are related to engagement through its respective psychological state.

Further exploration of these relations can provide managers and employers with better information on the leverage points for employee engagement and ways to improve engagement or enhance work experiences. The following sections discuss the conceptualization of work engagement, Kahn's model of engagement, antecedents of work engagement identified by previous research, and the hypotheses tested in this study.

Conceptualization of Work Engagement

Kahn (1990) introduced the concept of engagement when he conducted an ethnographic study to identify psychological states associated with personal engagement and disengagement by interviewing summer camp counselors and members of an architect company. He defined personal engagement as "the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances" (p. 694). When engaged, individuals are investing their hands, head, and heart in their performance (Rich et al., 2010). In contrast, personal disengagement refers to "the uncoupling of selves from work roles; in disengagement, people withdraw and defend themselves physically, cognitively, or emotionally during role performances" (Kahn, p. 694).

Kahn argues that when individuals are engaged,

> "People become physically involved in tasks, whether alone or with
> others, cognitively vigilant, and emphatically connected to others in the
> service of the work they are doing in ways that display what they think
> and feel, their creativity, their beliefs and values, and their personal
> connections to others" (p. 700).

For example, a scuba diving instructor in the summer camp who experienced moments of

engagement engaged his self physically by vigilantly checking equipment and leading the

dive, cognitively by remaining aware of other divers, weather, and marine life, and

emotionally by empathizing with the fear and excitement felt by new divers (Kahn, 1990).

In this example, the scuba diving instructor fully invested all his energies into his work

role to feel engaged.

Since Kahn's conceptualization of engagement, more names and definitions for

the construct have emerged in the literature. Researchers have argued over the name of

the construct, debating among employee engagement, job engagement, and work

engagement (Rich et al., 2010; Schaufeli & Salanova, 2011). Most of the studies linking

engagement to both individual and organizational outcomes have examined engagement

in terms of work engagement as defined by Schaufeli, Salanova, Gonzalez-Roma, and

Bakker (2002).

Schaufeli et al. defined work engagement as "a positive, fulfilling, work-related

state of mind that is characterized by vigor, dedication, and absorption" (p. 74). Vigor is

characterized as having high levels of energy and mental resilience, and a willingness to

invest effort in one's job while not being easily fatigued. Dedication refers to being

strongly involved in one's work while experiencing feelings of enthusiasm and

significance, and a sense of pride and inspiration. Absorption is the pleasant state of total immersion in one's work, which is characterized by time passing quickly and being unable to detach oneself from the job (Schaufeli et al.).

Despite the popularity of Schaufeli et al.'s (2002) conceptualization of work engagement, concerns have been raised about it. Specifically, several researchers (e.g., Christian, Garza, & Slaughter, 2011; Newman & Harrison, 2008; Saks, 2008) have argued that Schaufeli et al.'s definition of engagement is not distinct from the constructs of job burnout, job satisfaction, and organizational commitment. Christian et al. and others have further argued that scales built on Schaufeli et al.'s definition of engagement actually measure job burnout, job satisfaction, and organizational commitment. In addition to the problem in its definition, another concern about Schaufeli et al.'s conceptualization of engagement is that it does not provide an underlying process for how engagement develops. However, Kahn's model describes the underlying process of why certain conditions lead to engagement. The following sections discuss Kahn's model of engagement and previous research related to Kahn's model.

Kahn's Model of Engagement and Research Findings

Kahn (1990) has stated that a person's degree of engagement and disengagement is a function of the experience of three psychological states: meaningfulness, safety, and availability. However, very few studies have tested the ability of Kahn's three psychological states to mediate the relationship between different predictors of engagement and engagement. An exception to this is a study by May, Gilson and Harter (2004). The following sections discuss the findings of May et al.'s study as it pertains to

each psychological state. The present study expanded on some of the antecedents included in May et al.'s test of Kahn's model, as well as examined antecedents of work engagement not included in their study to further explore their relations with these psychological states and engagement.

Psychological meaningfulness. Kahn (1990) defined psychological meaningfulness as a "feeling that one is receiving a return on investments of one's self in a currency of physical, cognitive, or emotional energy" (p. 703). Individuals experience meaningfulness when they feel worthwhile, valuable, and useful and when they are not being taken for granted. They feel they can give to others and their work roles and receive benefits from the work they contribute. When employees feel as if their contributions are meaningful, they are more likely to continue to make contributions in the workplace by exerting extra work behavior in the future.

Because psychological meaningfulness can make employees feel valuable at work, it is important to examine what contributes to psychological meaningfulness. Psychological meaningfulness is believed to be influenced by work elements that create incentives or disincentives for investments of one's self (Kahn, 1990). Three factors generally influence psychological meaningfulness: task characteristics, role characteristics, or work interactions. The present study focused on the relationship between task characteristics and psychological meaningfulness.

Task characteristics include varying degrees of challenges, variety, creativity, autonomy, and delineation of procedures and goals. People feel a greater sense of meaningfulness if their work tasks vary in their nature and are not repetitive, offer

challenges, provide clear roles, and enable an appropriate level of control in making work decisions.

Research has shown that task characteristics are related to engagement (e.g., Bakker, Albrecht, & Leiter, 2011; Christian et al., 2011; Saks, 2006). However, these studies did not examine whether task characteristics were related to work engagement through psychological meaningfulness. An exception to this is the study by May et al. (2004). They examined the relationship between five task characteristics and psychological meaningfulness: skill variety, task identity, task significance, autonomy, and feedback. Skill variety is the degree to which a job requires a variety of different activities in carrying out the work and involves the use of different skills and talent. Task identity is the degree to which the job requires the completion of an entire, identifiable piece of work that requires the person to be involved with the task from beginning to end. Task significance is the degree to which the job has an impact on the lives or work of other people either in the organization or in the external environment. Autonomy is the degree to which the job provides freedom, independence, and discretion. Finally, feedback is the degree to which the completion of work activities provides direct and clear information about the effectiveness of a person's performance (Hackman & Oldham, 1976).

May et al. (2004) found that psychological meaningfulness fully mediated the relationship between task characteristics and engagement. More specifically, the more one's job provided an opportunity to use a variety of skills, be involved with a task from beginning to end, have an impact on the lives or work of other people, and provide

freedom, independence, and feedback on the effectiveness of work done, the more he or she felt psychologically meaningful, which in turn resulted in more engagement.

Although May et al. (2004) showed support for Kahn's model, their study was limited in that the participants of the study held similar administrative and management roles within an insurance firm. This limited sample might hinder the ability to generalize their results across different job roles. Therefore, the present study explored the determinants of psychological meaningfulness by examining task characteristics in multiple role contexts and tested the following hypothesis.

Hypothesis 1: Psychological meaningfulness will mediate the relationship between task characteristics and engagement.

Psychological safety. Psychological safety is defined as "feeling able to show and employ one's self without fear of negative consequences to self-image, status, or career" (Kahn, 1990, p. 708). Individuals experience psychological safety when they feel they can express their true selves at work without fear of negative consequences. In these experiences, individuals feel situations are trustworthy, secure, and predictable. Psychological safety is influenced by social systems that create situations that are predictable, consistent, and nonthreatening. Four aspects of social systems likely to influence psychological safety are interpersonal relationships, group and intergroup dynamics, organizational norms, and management style and process (Kahn). The present study focused on the relationship between management style and process and psychological safety.

Management style and process includes leader behaviors that show more or less support, resilience, consistency, trust, and competency. Previous research has shown that management style predicts feelings of engagement among employees (Bakker et al., 2011). One type of management style is transformational leadership. Transformational leadership is defined as leaders who incentivize their employees to become involved in achieving organizational outcomes (Burch & Guarana, 2014). Transformational leaders intend to inspire and motivate their subordinates, show individualized concerns for them, and make them feel comfortable in the work environment. Bakker et al. proposed that because transformational leaders provide employees with support, inspiration, and coaching, employees feel a sense of trust with their supervisor and are more likely to feel psychologically safe in that they can express themselves without a fear of negative consequences. Burch and Guarana studied the relationship between transformational leadership and engagement among employees of a multinational technology firm located in Brazil and found that transformational leadership was positively related to engagement.

Supervisor relations have been studied in a broader sense in relation to psychological states, without a focus on a specific leadership style such as transformational leadership. May et al. (2004) examined supervisor relations through five behaviors linked to employees' perceptions of managerial trustworthiness (behavioral consistency, behavioral integrity, sharing and delegation of control, communication, and demonstration of concern). They found that supervisor relations were positively related to psychological safety, but psychological safety did not mediate the relationship between supervisor relations and engagement. Of the three determinants

of psychological safety they tested (supervisor relations, co-worker relations, and co-worker norms), supervisor relations had the strongest relationship with psychological safety. These results indicate that supervisors play an important role in the subordinates' experience of psychological safety. Consequently, leadership styles that emphasize trust and inspire and motivate employees are likely to lead employees to feel safe in expressing themselves without the fear of negative consequences in the workplace. The present study examined transformational leadership as a type of influence on psychological safety and the following hypothesis was tested:

> *Hypothesis 2:* Psychological safety will mediate the relationship between transformational leadership and engagement.

Psychological availability. Psychological availability is the "sense of having the physical, emotional, or psychological resources to personally engage at a particular moment" (Kahn, 1990, p. 714). Individuals who experience psychological availability have the ability to control and devote their physical, intellectual, and emotional energies towards their role performances. Psychological availability is the extent to which individuals can engage themselves in their work in spite of distractions that may exist in their social systems. These distractions can reduce the employees' abilities to devote themselves fully to their work roles, ultimately limiting their psychological availability, which in turn decreases work engagement.

Four factors generally influence psychological availability negatively in that they distract employees from their work, preventing them from fully investing themselves physically, cognitively, and emotionally. They are a lack of physical energies and

emotional energies, insecurity, and outside life (Kahn). The present study focused on the relationship between insecurity and psychological availability. Insecurity is the level of confidence individuals have regarding their own abilities and status. For individuals to be able to express themselves at work, they must first feel secure with themselves.

In a study of 245 firefighters and their supervisors, Rich et al. (2010) measured feelings of insecurity through the concept of core self-evaluations. Core self-evaluations, comprised of self-esteem, self-efficacy, neuroticism, and locus of control, are an individual's appraisal of his or her own worthiness, effectiveness, and capability as a person (Judge, Erez, Bono, & Thoresen, 2003). Rich et al. found a positive relationship between core self-evaluations and engagement, such that those who felt a sense of worthiness, effectiveness, and capability as a person were more likely to feel engaged in their work performance. Rich et al. believed core self-evaluations were related to work engagement because of its relation to levels of insecurity as a type of influence of psychological availability. However, they did not explicitly examine the relationship between core self-evaluations and psychological availability.

When May et al. (2004) studied Kahn's model, one of the determinants of psychological availability they examined was self-consciousness as a measure of insecurity. Although they did not find a significant relationship between self-consciousness and psychological availability, they found a direct and positive relationship between self-consciousness and engagement. They suggested that feelings of insecurity would have a significant impact on feelings of availability only when feelings of insecurity were high. They suggest that it might be worthwhile for future

research to explore work role security, and feelings of competence in one's work role and fit with the organization as an expansion to their self-consciousness research with engagement. Thus, the present study examined the relationship between core self-evaluations, as a measurement of feelings of insecurity and psychological availability. The following hypothesis was tested:

> *Hypothesis 3:* Psychological availability will mediate the relationship between core self-evaluations and engagement.

Method

Participants

A total of 129 individuals participated in the study. However, 15 participants were eliminated from analysis due to a large number of unanswered questions in their responses. Thus, the final sample consisted of 114 participants. Table 1 reports the demographic information of participants. Of these participants, 62 (54.4%) were women and 48 (42.1%) were men, with four declining to identify their gender. Participants' ages ranged from 20 to 65 with an average of 39.51 years old ($SD = 13.43$).

Half of the participants identified themselves as White or Caucasian, followed by Asian (31.5%), other (9.3%), Hispanic or Latino (6.5%) and Black or African American (2.8%). The majority of participants worked as full-time employees (80.2%). Over half of the participants (56.5%) reported that they have been with their current company for less than five years. Additionally, most participants (56.8%) worked as individual contributors at their company, followed by being a manager or supervisor (19.8%) or an officer or director (9%).

Procedure

The survey was administered online, with a link to the survey sent to members of the researcher's professional network through email and social media networks such as Facebook and LinkedIn. The survey link was sent with an invitation to complete a survey on work engagement and informed recipients that it would take less than 20 minutes to complete. Additionally, participants were informed that their participation was voluntary and that all responses would be kept confidential.

Table 1

Participant Characteristics (N = 114)

Variable	*n*	%
Gender		
Men	48	43.6
Women	62	56.4
Ethnicity		
Asian	34	31.5
Black/African American	3	2.8
Hispanic/Latino	7	6.5
White/Caucasian	54	50.0
Other	10	9.3
Employee Type		
Full Time	89	80.2
Part Time	12	10.8
Intern	5	4.5
Contractor	5	4.5
Length of Employment		
0 – 5 years	61	56.5
6 – 10 years	15	13.9
11 -15 years	11	10.2
16 – 20 years	7	6.5
21+ years	14	13.0
Role Type		
Individual Contributor	63	56.8
Manager/Supervisor	22	19.8
Officer/Director	10	9.0
Other	16	14.4

Participants who volunteered to take the survey clicked on the survey link provided in the email or the social media post. The link directed participants to a consent form in which they were informed that the survey was intended to measure feelings of work engagement and examine mechanisms that promote feelings of work engagement. Participants were told that completion of the survey was voluntary, that they could withdraw at any time, and that their responses were kept confidential. Additionally, participants were provided with contact information if they had any questions or concerns about the survey.

At the bottom of the consent form, participants were asked to select "I consent" or "I do not consent" to agree to participate. Participants who selected "I do not consent" were directed to the final screen of the survey, thanking them for their time. Participants who selected "I consent" were directed to the next page of the survey, where the survey items began. Participants answered questions on work engagement, the three psychological states of meaningfulness, safety, and availability, core self-evaluations, transformational leadership characteristics, task characteristics, and demographics.

Measures

All scales used a 5-point Likert format [1 (*Strongly Disagree*) to 5 (*Strongly Agree*)] unless otherwise noted. All items are located in the Appendix.

Task characteristics. Task characteristics were measured using five items from the Job Diagnostic Survey, developed by Hackman and Oldham (1976). The items represented five aspects of one's job: skill variety, task identity, task significance, autonomy, and feedback from the job itself. Each of the five aspects was measured with

one item. All items used a 5-point Likert format with end points labeled specifically for each item. Examples of items include "How much variety is there in your job? That is, to what extent does your job require you to do many different things at work, using a variety of your skills and talents?" with 1 (*Very little; the job requires me to do the same routine things over and over again)* to 5 (*Very much; the job requires me to do many different things, using a number of different skills and talents)* and "In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?" with 1 (*Not very significant; the outcomes of my work are not likely to have important effects on other people*) to 5 (*Highly significant; the outcomes of my work can affect other people in very important ways*). Items were averaged to create a composite score. Higher scores indicated that participants' jobs included more autonomy, feedback, task variety, task significance, and skill variety. Cronbach's alpha was .68, indicating reasonable reliability.

Transformational leadership. Transformational leadership was measured with 20 items developed by Podsakoff, MacKenzie, Moorman, and Fetter (1990). The items represented six key behaviors associated with transformational leaders: identifying and articulating a vision, providing an appropriate model, fostering the acceptance of group goals, expecting high performance, providing individualized support, and stimulating intellectually. Participants indicated the degree to which their supervisors exhibited each of these behaviors. Examples of items include "Has a clear understanding of where we are going" and "Paints an interesting picture of the future for our group." Items were averaged to create a composite score. Higher scores indicated that participants perceived

their supervisors as having more transformational leadership characteristics. Cronbach's alpha was .95, indicating high reliability.

Core self-evaluations. Core self-evaluations were measured with 12 items developed by Judge et al. (2003). The items represented four specific core traits: self-esteem, generalized self-efficacy, neuroticism, and locus of control. Examples of items include "I am confident I get the success I deserve in life" and "When I try, I generally succeed." Items were averaged to create a composite score. Higher scores indicated that participants felt a greater sense of worthiness, effectiveness, and capability as a person. Cronbach's alpha was .84, indicating high reliability.

Psychological meaningfulness. Psychological meaningfulness was measured with three items developed by May et al. (2004). The items measured the degree to which individuals found meaning in their work-related activities. Examples of items include "The work I do on this job is very important to me" and "The work I do on this job is worthwhile." Items were averaged to create a composite score. Higher scores indicated participants experienced more meaning in their work activities. Cronbach's alpha was .89, indicating high reliability.

Psychological safety. Psychological safety was measured with three items developed by May et al. (2004). The items measured the degree to which individuals felt comfortable to be themselves and expressed their opinions at work or whether there was a threatening environment at work. Examples of items include "I'm not afraid to be myself at work" and "There is a threatening environment at work." Items were averaged to

create a composite score. Higher scores indicated that participants felt safer to be themselves at work. Cronbach's alpha was .54, indicating low reliability.

Psychological availability. Psychological availability was measured with three items developed by May et al. (2004). The items measured the confidence individuals had regarding their ability to be cognitively, physically, and emotionally available at work. Examples of items include "I am confident in my ability to think clearly at work" and "I am confident that I can handle the physical demands at work." Items were averaged to create a composite score. Higher scores indicated that participants felt more confident in their ability to be available at work. Cronbach's alpha was .66, indicating somewhat low reliability.

Work engagement. Work engagement was measured with ten items developed by May et al. (2004). The items represented three components of psychological engagement outlined by Kahn (1990): cognitive, emotional, and physical engagement. Examples of items include "Performing my job is so absorbing that I forget about everything else" and "I get excited when I perform well on my job." Items were averaged to create a composite score. Higher scores indicated that participants felt more engaged at work. Cronbach's alpha was .74, indicating high reliability.

Results

Descriptive Statistics

Means, standard deviations, Cronbach's alphas, and correlations for the measured variables are presented in Table 2. As can be seen, the means ranged from 3.55 to 4.10, and the standard deviations ranged from .50 to .77. Participants, on average, agreed that their jobs provided task characteristics (e.g., task significance, task identity, autonomy) ($M = 3.87$, $SD = .77$), that their supervisors somewhat showed transformational leadership characteristics ($M = 3.55$, $SD = .74$), and that they felt a good sense of worthiness, effectiveness, and capability as a person ($M = 3.60$, $SD = .52$). Additionally, participants experienced meaningfulness from their jobs ($M = 3.89$, $SD = .77$), felt psychologically safe at the workplace ($M = 3.92$, $SD = .70$) and psychologically available to devote themselves fully to their work ($M = 4.10$, $SD = .56$). Participants reported that they were moderately engaged with their work ($M = 3.62$, $SD = .50$).

Pearson Correlations

Task characteristics, transformational leadership, and core self-evaluations were predicted to be related to psychological meaningfulness, psychological safety, and psychological availability, respectively. As predicted, although each predictor was related to each of the psychological states to varying degrees, each predictor was strongly correlated to its respective psychological condition. For example, task characteristics were most strongly related to psychological meaningfulness ($r = .47$, $p < .001$), in that the more task characteristics participants experienced, the more meaningful they felt their work was. Likewise, transformational leadership was most strongly related to

psychological safety ($r = .38$, $p < .001$), in that the more transformational leadership characteristics that participants believed that their supervisors displayed, the safer participants felt to be themselves at work. Core self-evaluations were most strongly related to psychological availability ($r = .52$, $p < .001$), in that the more worthy, effective, and capable participants felt, the more they felt capable to devote themselves fully to their work.

Task characteristics ($r = .49$, $p < .001$), transformational leadership ($r = .33$, $p < .001$), and core self-evaluations ($r = .21$, $p < .05$) were positively related to work engagement. In other words, the more task characteristics participants reported their jobs had, the more transformational leadership behaviors they believed their supervisors displayed, and the more worthy, effective, and capable participants felt about themselves, the more engaged they were. Task characteristics were not related to either transformational leadership ($r = .15$, $p > .05$) or core self-evaluations ($r = .15$, $p > .05$), but transformational leadership was weakly related to core self-evaluations ($r = .20$, $p < .05$). This indicates that the predictor variables measured three distinct aspects of a participant's work life.

Psychological meaningfulness ($r = .54$, $p < .001$) and psychological safety ($r = .21$, $p < .05$) were positively related to work engagement in that the more meaningful participants felt their work was and the safer they felt to be themselves, the more engaged they were. However, psychological availability was not related to work engagement ($r = .07$, $p > .05$), thus indicating the degree to which participants felt they could devote

themselves to their work physically, cognitively, and emotionally did not relate to how

engaged they felt at work.

Psychological safety was related to both psychological meaningfulness ($r = .27$, p

$< .01$) and psychological availability ($r = .35$, $p < .001$), but psychological

meaningfulness was not related to psychological availability ($r = .03$, $p > .05$). This

indicates that participants who felt safer to be themselves at work also felt that their work

was more meaningful and that they were more capable of devoting themselves fully to

their work.

Table 2

Means, Standard Deviations, Pearson Correlations, and Cronbach's Alphas (N = 110)

	M	SD	1	2	3	4	5	6	7
1. Task characteristics	3.87	.77	(.68)						
2. Transformational leadership	3.55	.74	.15	(.95)					
3. Core self-evaluations	3.60	.52	.15	.20*	(.84)				
4. Psychological meaningfulness	3.89	.77	.47***	.20*	.24*	(.89)			
5. Psychological safety	3.92	.70	.22*	.38***	.37***	.27**	(.54)		
6. Psychological availability	4.10	.56	-.04	.22*	.52***	.03	.35***	(.66)	
7. Work engagement	3.62	.50	.49***	.33***	.21*	.54***	.21*	.07	(.74)

Note. * p < .05, ** p < .01, *** p < .001.

Test of Hypotheses

To test each hypothesis, a simple mediation analysis was conducted using MEDIATE macro from Hayes and Preacher (2014). Most relevant to a mediation hypothesis is the estimate of the indirect effect of a predictor on an outcome through a mediator. An indirect effect is quantified as a product of the regression coefficient estimating the mediator from the predictor (path *a*) and the regression coefficient estimating the outcome from the mediator controlling for the predictor (path *b*). Bootstrapping was used to calculate a 95% bias-corrected confidence interval (CI) to assess the significance of an indirect effect as it has better performance and statistical power compared to other mediation approaches (e.g., Sobel test, the Baron and Kenny method) (Quiñones, Van den Broeck, & De Witte, 2013). A bias-corrected bootstrap CI that does not include zero provides evidence that the indirect effect is significant. Based on Hayes and Preacher's (2014) recommendation, the bootstrap estimates were based on 10,000 bootstrap samples. One important assumption in the mediation analysis is that there is no interaction between the predictor and the mediator, implying that the effect of the mediator on the outcome variable does not depend on the predictor variables (Quiñones et al.). MEDIATE tests this assumption using homogeneity of regression analysis, with a non-significant *p* value indicating no interaction between a predictor variable and a mediator. If one obtains a significant *p* value, the mediation analysis should not be conducted.

Hypothesis 1 stated that psychological meaningfulness mediates the relationship between task characteristics and work engagement. Results of the homogeneity of

regression test indicated that the effect of psychological meaningfulness on work engagement did not depend on task characteristics [$F(1, 106) = 1.81, p = .18$]. Table 3 presents the unstandardized regression coefficients, standard errors, and t values. Results were consistent with the prediction that task characteristics was related to engagement ($b = .32, t = 5.87, p < .001$) (path c in Figure 1) such that those who reported more task characteristics felt more engaged with their work. Task characteristics explained 24% of the variance in engagement [$R^2 = .24, F(1, 108) = 34.46, p < .001$]. Task characteristics predicted psychological meaningfulness ($b = .47, t = 5.57, p < .001$) (path a in Figure 1) such that those who reported more task characteristics felt more worthwhile and valuable. Psychological meaningfulness also predicted engagement ($b = .26, t = 4.49, p < .001$) after controlling for task characteristics (path b in Figure 1) and task characteristics predicted engagement after controlling for psychological meaningfulness ($b = .20, t = 3.49, p < .001$) (path c' in Figure 1). Task characteristics and psychological meaningfulness together explained 36% of the variance in engagement [$R^2 = .36, F(2, 107) = 30.37, p < .001$].

With respect to the significance of the indirect effect, the bias-corrected 95% CI did not include zero (point estimate = .12, BC95% CI = .06 to .20). This indicates that task characteristics were related to engagement through psychological meaningfulness, such that those who had more task characteristics felt more psychologically meaningful, which led them to be more engaged. Thus, Hypothesis 1 was supported, but task characteristics were still directly related to engagement.

Table 3

Results of Mediation Analysis for Engagement Using Psychological Meaningfulness as a Mediator (N = 110)

	b	SE	t
Direct effects			
Task characteristics → engagement	.32	.06	5.87***
Task characteristics → psychological meaningfulness	.47	.08	5.57***
Psychological meaningfulness → engagement (controlling for task characteristics)	.26	.06	4.49***
Task characteristics → engagement (controlling for psychological meaningfulness)	.20	.06	3.49***

	b	SE	LL 95% CI	UL 95% CI
Indirect effect				
Task characteristics → psychological meaningfulness → engagement	.12	.03	.06	.20

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.
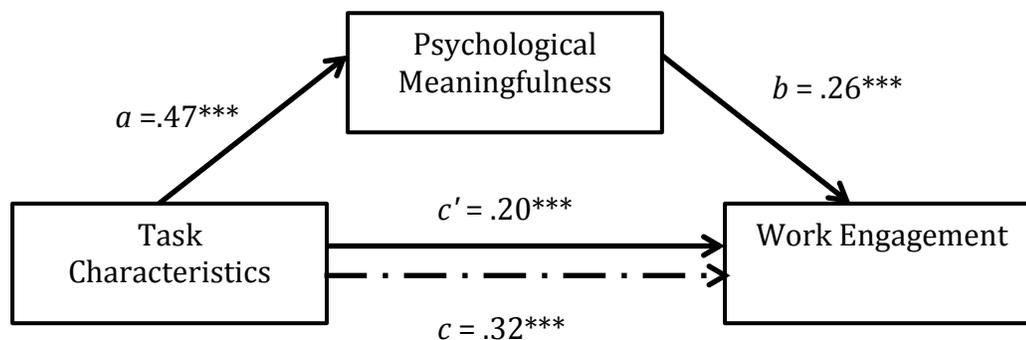
Figure 1. Mediation analysis of psychological meaningfulness in the relationship between task characteristics and engagement (N = 110).

Hypothesis 2 stated that psychological safety mediates the relationship between transformational leadership and work engagement. Results of the homogeneity of regression test indicated that the effect of psychological safety on work engagement did not depend on transformational leadership [$F(1, 109) = 1.43$, $p = .23$]. Table 4 presents

the unstandardized regression coefficients, standard errors, and t values. Results were consistent with the prediction that transformational leadership was related to engagement ($b = .23$, $t = 3.73$, $p < .001$) (path c in Figure 2), such that those who reported more transformational leadership characteristics in their supervisors were more engaged with their work. Transformational leadership explained 11% of the variance in engagement [$R^2 = .11$, $F(1, 111) = 13.92$, $p < .001$]. Transformational leadership predicted psychological safety ($b = .35$, $t = 4.19$, $p < .001$) (path a in Figure 2) such that those who reported more transformational leadership characteristics in their supervisors felt safer to be themselves at work. After controlling for transformational leadership, psychological safety did not predict engagement ($b = .07$, $t = .97$, $p > .05$) (path b in Figure 2), but transformational leadership predicted engagement after controlling for psychological safety ($b = .21$, $t = 3.11$, $p < .01$) (path c' in Figure 2). Transformational leadership and psychological safety together explained 12% of the variance in engagement [$R^2 = .12$, $F(2, 110) = 7.43$, $p < .001$].

With respect to the significance of the indirect effect, the bias-corrected 95% CI included zero (point estimate = .02, BC95% CI = -.03 to .10). These results indicate that psychological availability did not mediate the relationship between transformational leadership and engagement. Thus, Hypothesis 2 was not supported. However, transformational leadership was still directly related to engagement.

Table 4

Results of Mediation Analysis for Engagement Using Psychological Safety as a Mediator (N = 110)

	b	SE	t
Direct effects			
Transformational leadership → engagement	.23	.06	3.73***
Transformational leadership → psychological safety	.35	.08	4.19***
Psychological safety → engagement (controlling for transformational leadership)	.07	.07	.97
Transformational leadership → engagement (controlling for psychological safety)	.21	.07	3.11**

	b	SE	LL 95% CI	UL 95% CI
Indirect effect				
Transformational leadership → psychological safety → engagement	.02	.03	-.03	.10

Note. * p < .05, ** p < .01, *** p < .001.
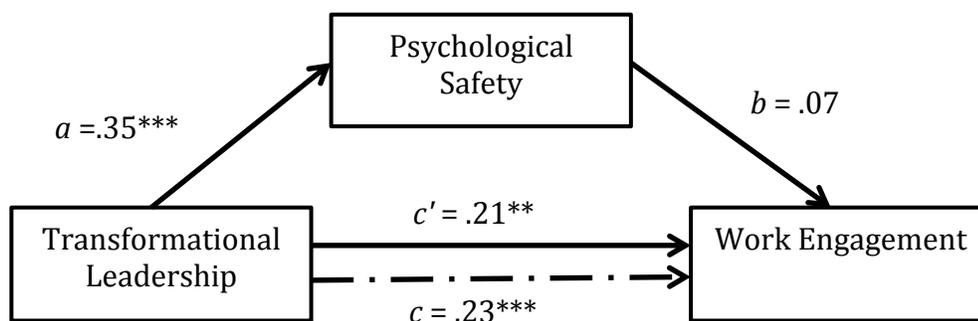
Figure 2. Mediation analysis of psychological safety in the relationship between transformational leadership and engagement (N = 110).

Hypothesis 3 stated that psychological availability mediates the relationship between core self-evaluations and work engagement. Results of the homogeneity of regression test indicated that the effect of psychological availability on work engagement did not depend on core self-evaluations [$F(1, 109) = .01, p = .91$]. Table 5 presents the

unstandardized regression coefficients, standard errors, and t values. Results were consistent with the prediction that core self-evaluations were related to engagement (b = .21, t = 2.28, p < .05) (path c in Figure 3), such that those who reported a greater sense of self-esteem and self-efficacy felt more engaged with their work. Core self-evaluations explained 4% of the variance of engagement [R^2 = .04, $F(1, 111)$ = 5.18, p < .05]. Core self-evaluations predicted psychological availability (b = .56, t = 6.36, p < .001) (path a in Figure 3) such that those who reported a greater sense of self-esteem and self-efficacy felt more available to devote themselves to their work. After controlling for core self-evaluations, psychological availability did not predict engagement (b = -.06, t = -.59, p < .05) (path b in Figure 3), but core self-evaluations predicted engagement after controlling for psychological availability (b = .24, t = 2.25, p < .05) (path c' in Figure 3). Core self-evaluations and psychological availability explained 5% of the variance in engagement, a non-significant amount [R^2 = .05, $F(2, 110)$ = 2.75, p > .05].

With respect to the significance of the indirect effect, the bias-corrected 95% CI included zero (point estimate = -.03, BC95% CI = -.15 to .10). These results indicate that psychological availability did not mediate the relationship between core self-evaluations and work engagement. Thus, Hypothesis 3 was not supported. However, core self-evaluations were still directly related to engagement.

Table 5

Results of Mediation Analysis for Engagement Using Psychological Availability as a Mediator (N = 110)

|	b	SE	t	
Direct effects				
Core self-evaluations → engagement	.21	.09	2.28*	
Core self-evaluations → psychological availability	.56	.09	6.36***	
Psychological availability → engagement (controlling for core self-evaluations)	-.06	.10	-.59	
Core self-evaluations → engagement (controlling for psychological availability)	.24	.11	2.25*	
Indirect effect			LL 95% CI	UL 95% CI
Core self-evaluations → psychological availability → engagement	-.03	.06	-.15	.10

Note. * p < .05, ** p < .01, *** p < .001.
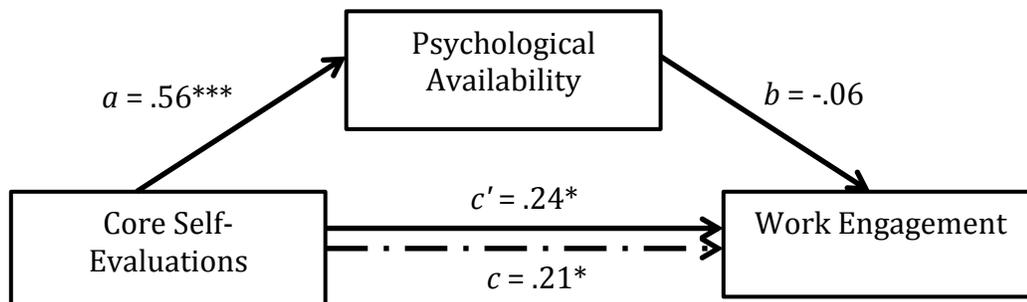
Figure 3. Mediation analysis of psychological availability in the relationship between core self-evaluations and engagement (N = 110).

Additional Analyses

Although the hypotheses were based on Kahn's theoretical propositions, because Hypotheses 2 and 3 were not supported, additional analyses were conducted to examine if each of the predictors would be related to work engagement through any of the three psychological states (psychological meaningfulness, psychological safety, and psychological availability).

The first analysis was conducted to examine whether any of the three psychological states would mediate the relationship between task characteristics and work engagement. Results of the homogeneity of regression test indicated that the effect of psychological meaningfulness [$F(1, 104) = 2.01$, $p = .16$], psychological safety [$F(1, 104) = .78$, $p = .38$], and psychological availability [$F(1, 104) = 1.02$, $p = .32$] on work engagement did not depend on task characteristics. Table 6 presents the unstandardized regression coefficients, standard errors, and t values.

Task characteristics predicted engagement ($b = .32$, $t = 5.87$, $p < .001$) (path c in Figure 4), such that those who reported more task characteristics felt more engaged with their work. Task characteristics explained 24% of the variance of engagement [$R^2 = .24$, $F(1, 108) = 34.46$, $p < .001$]. Task characteristics predicted psychological meaningfulness ($b = .47$, $t = 5.57$, $p < .001$) (path a_1 in Figure 4) and psychological safety ($b = .20$, $t = 2.35$, $p < .05$) (path a_2 in Figure 4), but did not psychological availability ($b = -.03$, $t = -.37$, $p > .05$) (path a_3 in Figure 4). These results show that those who reported more task characteristics only felt more worthwhile and valued, and safer to be themselves at work. Among the three psychological states, only psychological

meaningfulness predicted engagement ($b = .25$, $t = 4.29$, $p < .001$) after controlling for task characteristics and the other two psychological states (path b_1 in Figure 4). Task characteristics predicted engagement after controlling for all three psychological states ($b = .20$, $t = 3.44$, $p < .001$) (path c' in Figure 4). Task characteristics and all three psychological states together explained 37% of the variance in engagement [$R^2 = .37$, $F(4, 105) = 15.20$, $p < .001$].

With respect to the significance of the indirect effect, the bias-corrected 95% CI for the indirect effect of task characteristics on work engagement through psychological meaningfulness did not include zero (point estimate = .12, BC95% CI = .06 to .20). However, the bias-corrected 95% CI for the indirect effect of task characteristics on work engagement through psychological safety (point estimate = .004, BC95% CI = -.02 to .04) and through psychological availability (point estimate = -.001, BC95% CI = -.02 to .01) included zero. These results indicate that only psychological meaningfulness mediated the relationship between task characteristics and work engagement, such that those who had more task characteristics felt more psychologically meaningful, which led them to be more engaged. Task characteristics were still directly related to engagement.

The second analysis was conducted to examine whether any of the psychological states would mediate the relationship between transformational leadership and work engagement. Results of the homogeneity of regression test showed that the effect of psychological meaningfulness [$F(1, 107) = .004$, $p = .95$], psychological safety [$F(1, 107) = 1.39$, $p = .24$], and psychological availability [$F(1, 107) = .02$, $p = .88$] on work engagement did not depend on transformational leadership.

Table 6

Results of Mediation Analysis of Psychological States in the Relationship Between Task Characteristics and Engagement (N = 110)

	b	SE	t	
Direct effects				
Task characteristics → engagement	.32	.06	5.87***	
Task characteristics → psychological meaningfulness	.47	.08	5.57***	
Task characteristics → psychological safety	.20	.09	2.35*	
Task characteristics → psychological availability	-.03	.07	-.37	
Psychological meaningfulness → engagement (controlling for task characteristics and other two psychological states)	.25	.06	4.29***	
Psychological safety → engagement (controlling for task characteristics and other two psychological states)	.02	.06	.29	
Psychological availability → engagement (controlling for task characteristics and other two psychological states)	.05	.08	.66	
Task characteristics → engagement (controlling for psychological states)	.20	.06	3.44***	
			LL 95% CI	UL 95% CI
Indirect effects				
Task characteristics → psychological meaningfulness → engagement	.12	.03	.06	.20
Task characteristics → psychological safety → engagement	.004	.01	-.02	.04
Task characteristics → psychological availability → engagement	-.001	.01	-.02	.01

Note. * p < .05, ** p < .01, *** p < .001.
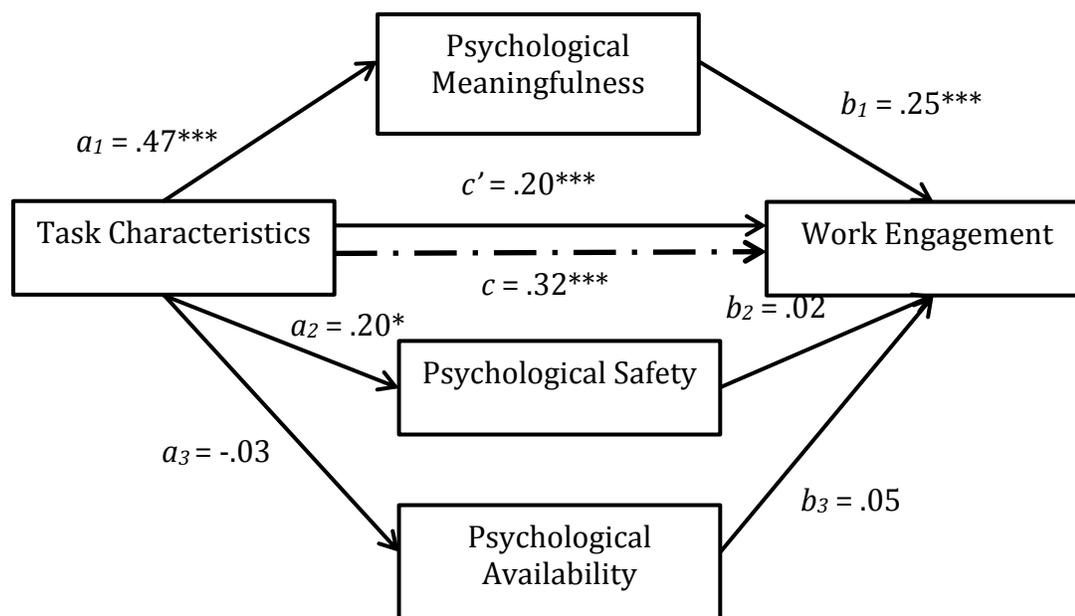
Figure 4. Mediation analysis of psychological states in the relationship between task characteristics and engagement (N = 110).

Table 7 represents the unstandardized regression coefficients, standard errors, and *t* values. Transformational leadership predicted engagement ($b = .23$, $t = 3.73$, $p < .001$) (path *c* in Figure 5), such that those who reported more transformational leadership characteristics in their supervisors were more engaged with their work. Transformational leadership explained 11% of the variance of engagement [$R^2 = .11$, $F(1, 111) = 13.92$, $p < .001$]. Transformational leadership predicted psychological meaningfulness ($b = .21$, $t = 2.15$, $p < .05$) (path a_1 in Figure 5), psychological safety ($b = .35$, $t = 4.19$, $p < .001$) (path a_2 in Figure 5), and psychological availability ($b = .16$, $t = 2.28$, $p < .05$) (path a_3 in Figure 5) such that those who reported more transformational leadership characteristics in their supervisors felt more worthwhile and valued, safer to be themselves at work, and more available to devote themselves to their work.

Among the three psychological states, only psychological meaningfulness predicted engagement ($b = .32$, $t = 5.95$, $p < .001$) after controlling for transformational leadership and the other two psychological states (path b_1 in Figure 5). Transformational leadership predicted engagement after controlling for all three psychological states ($b = .17$, $t = 2.83$, $p < .01$) (path c' in Figure 5). Transformational leadership and all three psychological states explained 34% of the variance in engagement [$R^2 = .34$, $F(4, 108) = 13.77$, $p < .001$].

With respect to the significance of indirect effects, the bias-corrected 95% CI for the indirect effect of transformational leadership on work engagement through psychological meaningfulness did not include zero (point estimate = .07, BC95% CI = .003 to .15). However, the bias-corrected 95% CI for the indirect effect of transformational leadership on work engagement through psychological safety (point estimate = -.003, BC95% CI = -.06 to .04) and through psychological availability (point estimate = -.0005, BC95% CI = -.03 to .03) included zero. These results indicate that only psychological meaningfulness mediated the relationship between transformational leadership and work engagement, such that those who reported more transformational leadership characteristics in their supervisors felt more psychologically meaningful, which led them to be more engaged. Transformational leadership was still directly related to engagement.

Table 7

Results of Mediation Analysis of Psychological States in the Relationship Between Transformational Leadership and Engagement (N = 110)

	b	SE	t		
Direct effects					
Transformational leadership → engagement	.23	.06	3.73***		
Transformational leadership → psychological meaningfulness	.21	.10	2.15*		
Transformational leadership → psychological safety	.35	.08	4.19***		
Transformational leadership → psychological availability	.16	.07	2.28*		
Psychological meaningfulness → engagement (controlling for transformational leadership and other two psychological states)	.32	.05	5.95***		
Psychological safety → engagement (controlling for transformational leadership and other two psychological states)	-.01	.06	-.13		
Psychological availability → engagement (controlling for transformational leadership and other two psychological states)	-.003	.08	-.04		
Transformational leadership → engagement (controlling for psychological states)	.17	.06	2.83**		
Indirect effects				LL 95% CI	UL 95% CI
Transformational leadership → psychological meaningfulness → engagement	.07	.04		.003	.15
Transformational leadership → psychological safety → engagement	-.003	.02		-.06	.04
Transformational leadership → psychological availability → engagement	-.001	.01		-.03	.03

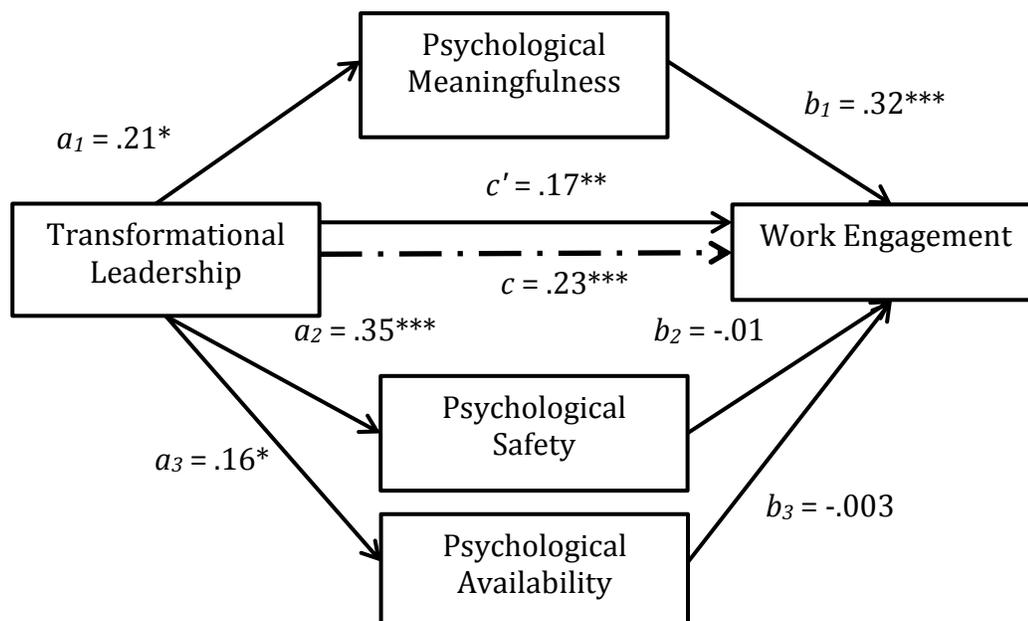*Note.* * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 5. Mediation analysis of psychological states in the relationship between transformational leadership and engagement (N = 110).

The third analysis was conducted to examine whether any of the three psychological states would mediate the relationship between core self-evaluations and work engagement. Results of the homogeneity test indicated that the effect of psychological meaningfulness [$F(1, 107) = .14$ $p = .71$], psychological safety [$F(1, 107) = .03$, $p = .86$], and psychological availability [$F(1, 107) = .14$, $p = 71$] on work engagement did not depend on core self-evaluations. Table 8 presents the unstandardized regression coefficients, standard errors, and *t* values.

Core self-evaluations predicted engagement ($b = .21$, $t = 2.28$, $p < .05$) (path *c* in Figure 6), such that those who reported a greater sense of self-esteem and self-efficacy felt more engaged with their work. Core self-evaluations explained 4% of the variance [$R^2 = .04$, $F(1, 111) = 5.18$, $p < .05$]. Core self-evaluations predicted psychological

meaningfulness ($b = .36$, $t = 2.60$, $p < .05$) (path a_1 in Figure 6), psychological safety ($b = .49$, $t = 4.06$, $p < .001$) (path a_2 in Figure 6), and psychological availability ($b = .56$, $t = 6.36$, $p < .001$) (path a_3 in Figure 6) such that those who reported a greater sense of self-esteem and self-efficacy felt more worthwhile and valued, safer to be themselves at work, and more available to devote themselves to their work.

Among the three psychological states, only psychological meaningfulness predicted engagement ($b = .33$, $t = 5.83$, $p < .001$) after controlling for core self-evaluations and the other two psychological states (path b_1 in Figure 6). Core self-evaluations did not predict engagement after controlling for all three psychological states ($b = .08$, $t = .83$, $p > .05$) (path c' in Figure 6). Core self-evaluations and all three psychological states explained 29% of the variance in engagement [$R^2 = .29$, $F(4, 108) = 11.19$, $p < .001$].

With respect to the significance of the indirect effects, the bias-corrected 95% CI for the indirect effect of core self-evaluations on work engagement through psychological meaningfulness did not include zero (point estimate = .12, BC95% CI = .04 to .21). However, the bias-corrected 95% CI for the indirect effect of core self-evaluations through psychological safety (point estimate = .02, BC95% CI = -.04 to .11) and through psychological availability (point estimate = -.01, BC95% CI = -.10 to .11) included zero. These results indicate that only psychological meaningfulness is a significant mediator of the relationship between core self-evaluations and work engagement such that those who reported a greater sense of self-esteem and self-efficacy felt more psychologically meaningful, which led them to be more engaged.

Table 8

Results of Mediation Analysis of Psychological States in the Relationship Between Core Self-Evaluations and Engagement (N = 110)

|	b	SE	t	
Direct effects				
Core self-evaluations → engagement	.21	.09	2.28*	
Core self-evaluations → psychological meaningfulness	.36	.14	2.60*	
Core self-evaluations → psychological safety	.49	.12	4.06***	
Core self-evaluations → psychological availability	.56	.09	6.36***	
Psychological meaningfulness → engagement (controlling for core self-evaluations and other two psychological states)	.33	.06	5.83***	
Psychological safety → engagement (controlling for core self-evaluations and other two psychological states)	.04	.07	.54	
Psychological availability → engagement (controlling for core self-evaluations and other two psychological states)	-.01	.09	-.17	
Core self-evaluations → engagement (controlling for psychological states)	.08	.10	.83	
			LL 95% CI	UL 95% CI
Indirect effects				
Core self-evaluations → psychological meaningfulness → engagement	.12	.04	.04	.21
Core self-evaluations → psychological safety → engagement	.02	.04	-.04	.11
Core self-evaluations → psychological availability → engagement	-.01	.05	-.10	.11

Note. * p < .05, ** p < .01, *** p < .001.
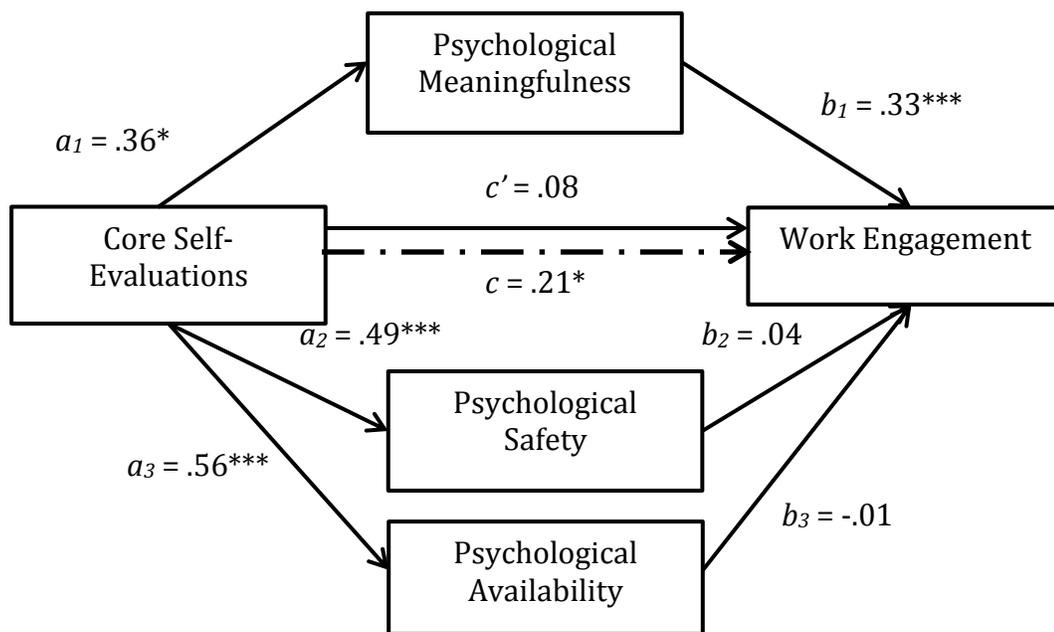
Figure 6. Mediation analysis of psychological states in the relationship between core self-evaluations and engagement ($N = 110$).

Discussion

Work engagement has been a growing topic of interest for researchers and organizations as it has been linked to positive individual and organizational outcomes such as job satisfaction, organizational commitment, job performance, customer satisfaction, productivity, and safety (Saks, 2006; Rich et al., 2010; Harter et al., 2002). Due to these positive outcomes, closer attention has been devoted to uncovering means of improving work engagement. Task characteristics, transformational leadership, and core self-evaluations have consistently been identified as predictors of engagement (e.g. Bakker et al., 2011; Burch & Guarana, 2014; Rich et al., 2010). However, research has rarely been conducted to examine why these variables are related to engagement. Kahn (1990) developed a model of engagement and argued that individuals become engaged through psychological conditions of meaningfulness, safety, and availability. Based on Kahn's theoretical model, it was argued that task characteristics would be related to psychological meaningfulness, transformational leadership would be related to psychological safety, and core self-evaluations would be related to psychological availability. The present study examined whether these predictors would be related to engagement through their respective psychological state.

Summary of Results

Hypothesis 1 stated that psychological meaningfulness would mediate the relationship between task characteristics and work engagement. It was found that task characteristics were related to engagement through psychological meaningfulness. Thus, the hypothesis was supported. This suggests that the more a job offered challenges,

variety, creativity, autonomy, and delineation of procedures and goals, the more psychologically meaningful employees felt, which in turn, influenced how engaged they were. This is consistent with May et al. (2004), who found that psychological meaningfulness mediated the relationship between job enrichment and work engagement. This suggests that the way in which jobs are designed can foster feelings of psychological meaningfulness. Jobs designed to provide employees with autonomy, allow them to use a variety of skills to complete a task from start to finish, and provide feedback to them on the success of the work done are likely to make employees feel worthwhile and valued, which then leads them to feel engaged. Although psychological meaningfulness mediated the relationship between task characteristics and engagement, task characteristics were also directly related to engagement.

Hypothesis 2 stated that psychological safety would mediate the relationship between transformational leadership and work engagement. However, this hypothesis was not supported. Psychological safety did not mediate the relationship between transformational leadership and work engagement. Instead, it showed that transformational leadership was related to psychological safety and directly related to work engagement. This suggests that the more transformational leadership characteristics supervisors displayed that convey inspiration, motivation, and trust to employees, the more psychologically safe their subordinates felt to be themselves at work and the more engaged they felt at work. These results are consistent with May et al.'s (2004) findings in that supervisor relations were related to psychological safety and work engagement, but psychological safety did not mediate the relationship between supervisor

relations and work engagement. The lack of a mediation effect in the present study could be due to the low reliability of the scale for psychological safety. With a more reliable measure of psychological safety, the mediating effect of psychological safety might have been statistically significant. Additionally, there was a weak relationship between psychological safety and engagement in the zero-order correlation. Although transformational leaders make their subordinates feel safe to be themselves at work, to be engaged at work might require more than just feeling psychologically safe.

Hypothesis 3, which stated that psychological availability would mediate the relationship between core self-evaluations and engagement, was not supported. Psychological availability did not mediate the relationship between core self-evaluations and engagement. However, core self-evaluations were related to psychological availability and directly related to work engagement. This suggests that the more employees felt a sense of worthiness, effectiveness, and capability as a person, the more psychologically available they became and the more they were engaged at work. These results are consistent with May et al.'s (2004) findings in that psychological availability did not mediate the relationship between self-consciousness and work engagement. May et al. did not find a significant relationship between self-consciousness and psychological availability in their initial model based on Kahn's theory. However, in a revised model to test additional relationships, self-consciousness was related to psychological safety and directly related to work engagement. A lack of mediation effect of psychological availability on the relationship between core self-evaluations and work engagement in the present study could be the result of the low reliability of the scale used to measure

psychological availability. Additionally, psychological availability was not related to work engagement. This goes against May et al.'s findings that psychological availability was related to work engagement, but they theorized that the lack of relationship in the initial model was due to the resources variable acting as a suppressor variable.

Additional analyses were conducted to examine whether any of the three psychological states would mediate the relationship between each of the predictors (task characteristics, transformational leadership, and core self-evaluations) and engagement. In addition to mediating the relationship between task characteristics and work engagement, psychological meaningfulness mediated the relationships between transformational leadership and work engagement and between core self-evaluations and work engagement. This suggests that the more supervisors displayed transformational leadership characteristics and the more employees felt a greater sense of worthiness, effectiveness, and capability as a person, the more psychologically meaningful they felt, which in turn made them engaged at work. These results reinforce May et al.'s (2004) findings that psychological meaningfulness is better able to explain engagement than psychological safety and psychological availability. Perhaps feeling worthwhile and valuable, and feeling the purpose and impact of work is an important psychological condition for engagement. The results are also consistent with the notion that psychological meaningfulness may be the most influential psychological state for engagement (Renn & Vandenberg, 1995).

Based on the results, some of the predictors were related to more than one psychological condition. For example, transformational leadership and core self-

evaluations were related to all three psychological states. This is consistent with May et al.'s (2004) findings, which found that predictors such as co-worker relations were related to both psychological meaningfulness and psychological safety. This indicates that Kahn's (1990) initial theory might have overlooked the possibility that a given predictor might be related to more than one psychological condition.

Implications

  Theoretical implications. Consistent with Kahn's theoretical model, the results of the present study show that psychological meaningfulness mediated the relationship between task characteristics and engagement. These results align with Kahn's (1990) original theory detailing how jobs containing challenge, variety, autonomy and clear goals make employees feel worthwhile and able to give themselves to their work and receive benefits from work and others, which then impacts feelings of engagement. Furthermore, results of additional analyses reveal that transformational leadership and core self-evaluations were related to work engagement through psychological meaningfulness. These results contributed to Kahn's theory in that it added transformational leadership and core self-evaluations as additional conditions that influence psychological meaningfulness.

  The finding that psychological meaningfulness mediated the relationship between each predictor variable examined in the present study highlights the importance psychological meaningfulness can have in the experience of engagement. This finding suggests that the extent to which employees experience meaning in the work they do plays a critical role in the relationship between predictors of engagement and work

engagement. Transformational leadership may be related to psychological meaningfulness in that supervisors displaying a transformational leadership style convey to their employees how valuable and impactful the work they do is in order to inspire and motivate them, thereby increasing employees' feelings of psychological meaningfulness. Additionally, core self-evaluations may be related to psychological meaningfulness in that if employees feel a sense of worthiness and capability to do their work, they may have increased feelings that the work they do is meaningful and worthwhile.

The present study also expanded on Kahn's (1990) initial model in that it revealed that a predictor may be related to more than one psychological condition. In this study, both transformational leadership and core self-evaluations were related to all three psychological states, and task characteristics were related to both psychological meaningfulness and psychological safety. These findings raise the possibility that predictor variables that have previously been linked with one psychological state may be linked to other psychological states.

Practical implications. The findings of this study have important implications for organizations in terms of increasing employees' feelings of engagement. The link of psychological meaningfulness to work engagement indicates that organizations should attempt to foster meaningfulness by making employees feel that their work is worthwhile and valued as well as providing employees with a sense of value returned in exchange for effort invested in the work. Additionally, the findings of the study highlight the impact task characteristics, transformational leadership, and core self-evaluations have on work engagement. Thus, organizations should strive to design jobs that provide employees

with autonomy, task variety, task significance, task identity, and feedback. Supervisors should also be trained to display transformational leadership characteristics to build relationships of trust, provide inspiration and motivation to employees, and show individualized consideration to their employees. Finally, organizations and supervisors should promote a work environment in which employees feel capable to do their work to boost feelings of self-esteem and self-efficacy, such as providing recognition for the good work.

Strengths and Limitations of the Study and Future Research

This study has several strengths as well as limitations. The first strength is that the study is based on theory of psychological engagement, conceptualized by Kahn (1990). This theoretical model drove the analytical pathways tested in the study and provided support for inferences made about the relationships found among the constructs. A second strength is that the study added to the literature in that a determinant of one particular psychological state might also be a determinant of other psychological states. This was seen with the significant relationships transformational leadership and core self-evaluations had with psychological meaningfulness. These findings expand on the current model, providing insights into additional pathways between predictors, psychological states, and engagement.

One major limitation of the present study was that the scales used to measure psychological safety and psychological availability had low reliability for the sample. This is a concern because it likely limited the accuracy to which these scales measured psychological safety and psychological availability and limited the ability to analyze

relationships involving these two psychological states. The study used shortened versions of questionnaires for task characteristics, psychological meaningfulness, psychological availability, and work engagement in order to reduce the amount of fatigue participants would experience when taking the survey and to increase participation in the present study. However, the shortened questionnaires might have reduced the reliability of the measures and statistical power to find significant relationships. Future research should use the full version of the each scale.

A second limitation of the present study was that the study sample had limited variability of tenure at their current organization. Over half of the participants reported that they have been at their current company less than five years, potentially limiting the time they had to develop meaningful relationships with their supervisors, experience meaning from their jobs, and feel safe to be themselves without fear of negative consequences. A third limitation is that the study was a cross-sectional field study that used a self-report survey instrument. Due to the nature of the cross-sectional design, causal inferences cannot be made. Therefore, one cannot conclude that task characteristics, transformational leadership, and core self-evaluations caused employees to experience psychological meaningfulness, which in turn, made them engaged at work. However, the hypothesized relationships are consistent with previous theory and research (Kahn, 1990; May et al., 2004).

The strong relationship psychological meaningfulness had with all three predictor variables and the significant mediation effects suggests the need for future research to further examine the role psychological meaningfulness plays in relationships with other

predictors of engagement not included in the present study. For example, future research could examine how psychological states relate to other management styles, such as authentic leadership, or group dynamics.

Conclusion

Given the benefits of having engaged employees at work, work engagement is an important topic of interest for organizations. Organizations strive to improve employee engagement to increase the positive benefits an engaged workforce can provide through individual and organizational outcomes. Thus, research has examined many possible mechanisms that influence engagement, such as task characteristics, transformational leadership, and core self-evaluations. However, previous research has limited focus on psychological states as they relate to work engagement and the model of engagement focused on psychological states as they impact the relationship between predictors of engagement and work engagement. Therefore, the purpose of the present study was to address this gap in the literature and provide insight into the impact psychological states have on work engagement. Results revealed that psychological meaningfulness mediated the relationship between the three predictor variables of task characteristics, transformational leadership, and core self-evaluations and work engagement. This suggests that tasks characteristics, transformational leadership, and core sell-evaluations all contribute to the feelings of worthiness and value, which then impacts employees' feelings of engagement. However, the psychological states of safety and availability did not mediate relationships between predictor variables and work engagement. Additional

research is needed to further understand the impact psychological safety and availability

have on feelings of work engagement.

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Appendix

Survey Questions

Task Characteristics

1. How much variety is there in your job? That is, to what extent does your job require you to do many different things at work, using a variety of your skills and talents?

2. To what extent does your job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines?

3. In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

4. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

5. To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about how well you are doing – aside from any "feedback" co-workers or supervisors may provide?

Transformational Leadership

6. Has a clear understanding of where we are going.
7. Paints an interesting picture of the future for our group.
8. Inspires others with his/her plans for the future.
9. Is able to get others committed to his/her dream.
10. Leads by "doing," rather than simply "telling."
11. Provides a good model for me to follow.
12. Leads by example.
13. Encourages employees to be "team players."
14. Gets the group to work together for the same goal.
15. Develops a team attitude and spirit among employees.
16. Shows us that he/she expects a lot from us.
17. Insists on only the best performance.
18. Will not settle for second best.

19. Acts without considering my feelings. *

20. Shows respect for my personal feelings.

21. Behaves in a manner thoughtful of my personal needs.

22. Challenges me to think about old problems in new ways.

23. Asks questions that prompt me to think.

24. Has stimulated me to rethink the way I do things.

25. Has ideas that have challenged me to re-examine some of the basic assumptions about my work.

Core Self-Evaluations

26. I am confident I get the success I deserve in life.

27. Sometimes I feel depressed. *

28. When I try, I generally succeed.

29. Sometimes when I fail I feel worthless. *

30. I complete tasks successfully.

31. Sometimes, I do not feel in control of my work. *

32. Overall, I am satisfied with myself.

33. I am filled with doubts about my competence. *

34. I determine what will happen in my life.

35. I do not feel in control of my success in my career. *

36. I am capable of coping with most of my problems.

37. There are times when things look pretty bleak and hopeless to me. *

Psychological Meaningfulness

38. The work I do on this job is very important to me.

39. The work I do on this job is worthwhile.

40. The work I do on this job is meaningful to me.

Psychological Safety

41. I'm not afraid to be myself at work.

42. I am afraid to express my opinions at work. *

43. There is a threatening environment at work. *

Psychological Availability

    44. I am confident in my ability to think clearly at work.

    45. I am confident in my ability to display the appropriate emotions at work.

    46. I am confident that I can handle the physical demands at work.

Work Engagement

    47. Performing my job is so absorbing that I forget about everything else.

    48. I am rarely distracted when performing my job.

    49. Time passes quickly when I perform my job.

    50. I really put my heart into my job.

    51. I get excited when I perform well on my job.

    52. I often feel emotionally detached from my job. *

    53. I exert a lot of energy performing my job.

    54. I stay until the job is done.

    55. I take work home to do.

    56. I avoid working too hard. *

* Indicates that survey questions were reverse scored