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Research Articles

Work Engagement: Evolution of the Concept and a New Inventory

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Abstract

To provide a more integrated framework for the study of work engagement, the literature on this concept was reviewed in order to develop a clearer definition of this construct that (instead of being based on the separate construct of burnout) is based on the original theory of work engagement, which allowed a new, more precise measure of work engagement to be created. The new work engagement items were tested to assess their psychometrics. Their integrity was tested via exploratory and confirmatory factor analyses, which retained 18 items for a three-component model having satisfactory fit indexes with three 6-item subscales named Cognitive, Emotional, and Physical Work Engagement. The reliabilities and validities of the new scales were also empirically tested, with reliabilities ranging from .78 to .91; and correlation tests yielded statistical support for the convergent, divergent, and concurrent validities of the new measure. The scales were also tested for application to organizations, with Self-Efficacy as a positive predictor that explained 10% to 16% of the variance for all three work engagement measures. Also, the three work engagement scales were all negative predictors of, and, together, explained 12% of the variance for Turnover Intention. Moreover, work engagement and burnout were empirically shown to be independent constructs.

Keywords: work engagement measure, cognitive work engagement, emotional work engagement, physical work engagement, validation, burnout, turnover intention

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Although the idea of *work engagement* has been in use for a long time, in one form or another, e.g., as job involvement (Allport, 1945) or job empowerment (Thomas & Velthouse, 1990), there have often been disagreements about what the term really means (Macey & Schneider, 2008; Thomas, 2009). The lack of a clear definition of the concept has led to another difficulty, namely, how to measure it. For example, some authors suggest that work engagement could be a one-dimensional measure as the opposite of burnout (Maslach & Leiter, 1997), or that it should be assessed as a multidimensional construct (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Those orientations were heavily grounded in the idea that burnout is the opposite of work engagement. But the idea that work engagement and burnout are polar opposites contradicts the reality of employees' actual situation at work, namely, employees actually can be work engaged and experience burnout at the same time.

The present study was designed to resolve these problems by (1) tracing the evolution of the construct of work engagement, (2) operationally defining the construct in terms of its critical dimensions, and (3) developing a new measure of work engagement through psychometric testing in applied settings.

Evolution of the Work Engagement Concept

As a concept, work engagement has existed for many years, but the various approaches and different conceptualizations have inhibited the development of an appropriate measure that adequately characterizes the concept (Thomas, 2009). Therefore, it is necessary to briefly review how the concept evolved in order to clarify its meaning and derive a more accurate measure. Kahn (1990) first conceptualized work engagement as the "harnessing of organizational members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances" (p. 694). In other words, people bring their personal selves into their work.

Maslach and Leiter (1997) proposed an approach that viewed work engagement as the "antipode" of burnout, as measured by the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981). In searching for a way to prevent burnout, they suggested that engaged employees have a sense of energy and view their work as a challenge. Two representative studies from that approach were the paper that made the proposal (Maslach & Leiter, 1997) and the Utrecht concept of work engagement (Maslach, Schaufeli, & Leiter, 2001).

But Schaufeli et al. (2002) thought it not possible to measure the burnout-engagement continuum using only the burnout inventory, defined work engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (p. 74), and developed a new instrument based on that definition. Vigor was characterized as "high levels of energy and mental resilience while working, the willingness to invest effort in one's work" (p. 74). Dedication was characterized as "a sense of significance, enthusiasm, inspiration, pride, and challenge" (p. 74). And Absorption was characterized as "being fully concentrated and deeply engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work" (p. 75).

Further confounding the attempts to characterize and measure work engagement, several other scholars employed different approaches. For example, Rothbard (2001), who was inspired by Kahn (1990), defined engagement as a two-dimensional construct that includes *attention* (i.e., the time one spends thinking about ones role at work), and *absorption* (i.e., the intensity of one's focus on a role at work). May, Gilson, and Harter (2004) also adopted Kahn's multi-domain concept of work engagement and developed a measure for it, but failed to confirm work engagement as a multifaceted construct.

Also, Harter, Schmidt, and Hayes (2002) used the Gallup Q12 (Gallup Organization, 1992-1999), and named it "satisfaction-engagement" to measure engagement, which they defined as "the individual's involvement and satisfaction with as well as enthusiasm for work" (p. 269). Alternately, the Corporate Executive Board (2004) defined engagement as "the extent to which employees commit to someone or something in their organization, how hard they work, and how long they stay as a result of that commitment" (p. 1). But Erickson (2005) pointed out that engagement is "above and beyond simple satisfaction with the employment arrangement or basic loyalty to the employer" (p. 14). He also said it is "the willingness to invest oneself and expend one's discretionary effort to help the employer succeed" (p. 14). And Wellins, Bernthal, and Phelps (2011) suggested

that work engagement is "the extent to which people enjoy and believe in what they do and feel valued for doing it" (p. 2).

Saks (2006) adopted Kahn's (1990) concept of work engagement as role related, i.e., an employee is psychologically "present" in a particular organization role. He also proposed that "the two most dominant roles for most organizational members are their work role and their role as a member of an organization" (p. 604). Therefore, he suggested that work engagement could be distinguished from organizational engagement.

Macey and Schneider (2008) viewed all these ideas as "old wine in new bottles," namely, they either were equivalent to engagement or a repackaging of other constructs with different labels, and that the earlier ideas also failed to support work engagement as a multifaceted construct. Thus, there has been no accurate or generally accepted measure.

Anomalies of the Existing Work Engagement Measures

Because of the different ways in which the work engagement concept was viewed, inconsistencies developed in the way it was measured. Initially, there were two approaches to its measurement. First, Kahn (1990) proposed that work engagement was a distinct variable that could have different levels, i.e., it was a single dimension along one continuum that could range from very low to very high. That is, work engagement was an independent construct; but employees could involve and express themselves in three different ways, i.e., physically, cognitively, and emotionally, at different levels while performing their roles. Thus, their involvement could range from disengaged (low level) to fully engaged (high level), which made it a *unipolar* dimension, even though it had three components.

The second approach, by Maslach et al. (2001), used burnout theory and viewed work engagement as the opposite of burnout, placing burnout on the negative end and work engagement on the positive end of a *bipolar* dimension. Engaged employees had a positive affective-motivational state of fulfillment, whereas burned-out employees had a negative emotional state/experience at work. Thus, their approach proposed a bipolar dimension, with *mutually exclusive poles*, which inevitably implied that an employee could be *either* burned out or work engaged, but not both.

The idea of treating burnout-engagement as bipolar might have emerged when Maslach et al. (2001) were searching for a positive state to counteract burnout, and conceived of work engagement as the opposite of burnout along a bipolar dimension. That is, they seem to have used work engagement to expand the burnout construct by creating a positive antipode for burnout. Conceptually, their scale is a continuum with a maximum negative value of complete burnout, then passes through a zero value, and then goes to a maximum positive value of full work engagement, thus: *Complete Burnout* ←▪▪▪0▪▪▪→ *Full Work Engagement*.

However, there is an inherent anomaly in the Maslach et al. (2001) measure, namely, if an employee experiences any burnout at work (no matter how little or how much it may be), he or she cannot be work engaged. That view resembles the original conception regarding introversion and extraversion, which were initially viewed as a single continuum in the history of personality measurement (Cattell, 1946), i.e., people who were extraverted could not also be introverted. But Myers and Myers (1995), who extrapolated Jung's (1921/1971) theory of personality types, suggested that every person can have some amount of *both* extraverted and introverted traits *at the same time*.

Then, Schaufeli et al. (2002) created a new measure of work engagement, i.e., the Utrecht Work Engagement Scale (UWES), but the idea of burnout and work engagement as opposite concepts remained in their paper, i.e., "we concur that, conceptually speaking, engagement is the positive antithesis of burnout" (p. 75). Moreover, Schaufeli and Bakker (2004) argued that there were two dimensions for the burnout-engagement continuum. The first was *activation*, which ranged from exhaustion to vigor, and the second was *identification*, which ranged from depersonalization to dedication. Their study suggested that a form of low activation and identification indicated burnout, while a form of high activation and identification indicated work engagement.

The problem with their measure was that the dimensions they created were artificial in the sense that each facet was not independently derived, but was instead *created to be the reverse of the three burnout dimensions*. (It should be noted that they did not use the three original Maslach Burnout Inventory [MBI] dimensions, namely, emotional exhaustion, depersonalization, and decreased personal accomplishment; but rather used a variation of the MBI, namely, exhaustion, cynicism, and lack of professional efficacy). Specifically, for Schaufeli et al. (2002), vigor was the reverse of the MBI emotional exhaustion facet, and dedication was the reverse of the MBI depersonalization dimension. It may also be noted that they tried to create a third facet, i.e., reduced efficacy, but it did not fit well with their model, "which consequently leaves only two burnout components: exhaustion and cynicism" (p. 87). Additionally, there were several limitations in their study, including that they needed to revise and/or delete items in both the burnout and the engagement measures, and efficacy loaded on the wrong factor (p. 86).

The UWES measure also suffers from the same anomaly as the Maslach et al. (2001) measure, i.e., they do not allow a person to experience burnout and work engagement at the same time. But the critical limiting factor of the UWES is that its facets were created as reverse dimensions of an existing burnout measure, which makes the UWES scales inherently negatively correlated with the three burnout factors; therefore, the UWES scales are not independent measures.

Adding to the doubt regarding the appropriateness of the existing measures of work engagement, Watson and Tellegen (1985) suggested that burnout and engagement may be considered two prototypes of employee conditions that are part of a more comprehensive taxonomy constituted by the two independent dimensions of pleasure and activation. This reveals an additional uncertainty about the burnout-engagement continuum. Also, Demerouti, Mostert, and Bakker (2010) tested but could not confirm burnout and engagement as opposites, and stated that the idea of a continuum for those factors was still an unclear issue.

Implications of the Previous Approaches to Work Engagement

The existing approaches to conceiving work engagement seemed insufficient to develop an adequate depiction of the construct. According to several reviewers, previous approaches to work engagement did not provide a clear explanation, or provide an operational definition, or offer a convincing measure of work engagement. Specifically, Thomas (2009) explained that the term "engagement" remains fairly vague as there is not a specific definition for it. Furthermore, Macey and Schneider (2008), in their review of engagement, added that conceptualization of the work engagement components has not been rigorously demonstrated. In addition, Bakker and Leiter (2010) suggested that further research on work engagement should focus on reaching an agreement on the meaning of the concept.

Consequently, it became necessary to clarify the concept of work engagement and create workable definitions of the work engagement components in order to develop a new and workable measure of work engagement.

Operational Definitions of the Work Engagement Dimensions

Burns and Bush (2005) argued that it is necessary to have a precise, detailed, clear and operational definition for any construct that is going to be investigated. Operational definitions describe actions that need to be carried out in order for constructs to be accurately measured. Therefore, to make work engagement measureable, it is necessary to have a clearer definition of the construct, which will allow a suitable measure to be constructed.

Based on Kahn's (1990) idea that work engagement is multidimensional, it is necessary to have a conceptual definition for the overall construct, and to have definitions for each dimension. Kahn proposed that work engagement involves one's cognitive, emotional, and physical states, but no measures have yet been developed for these components. It should be noted that Kahn's three dimensions were based on the theoretical idea that the three components of affect, cognition, and observable behaviors are the standard trichotomy that can be used for most psychological constructs (Breckler, 1984). Thus, the overall conceptual definition of work engagement is defined here as "the intentional involvement with or attachment to tasks, objectives, or organizational activities cognitively, emotionally, and physically, i.e., by having positive thoughts about improving one's effectiveness, feeling positive emotions about executing the tasks, and voluntarily utilizing one's energy and effort to achieve those tasks." Although Kahn (1990) proposed that work engagement has three dimensions, he did not operationally define them. Thus, the operational definitions presented here for those dimensions used the scientific approach of explaining them in terms of observable, and therefore measurable, events or behaviors (see Marx & Hillix, 1973).

Cognitive Work Engagement Defined

Cognitive Work Engagement is based on the idea of effectiveness, i.e., people need to work with logic and awareness to be more effective at work. Theoretically, people who are cognitively work engaged would have more positive thoughts about and pay more attention to their work. The frequency and intensity of their cognitive processing regarding work would be high, and their effectiveness would increase as a result. Thus, Cognitive Work Engagement is defined here as "the intentional and actively focused awareness of one's tasks, objectives, or organizational activities that is characterized by willingly calling one's attention to and having positive thoughts about one's work, with the purpose of improving one's effectiveness at those tasks, objectives, or activities."

Emotional Work Engagement Defined

Emotional Work Engagement is based on the idea of emotional labor at work (Grandey, 2000), which is the process of regulating one's feelings at work. Generally, people who are emotionally work engaged would feel good or happy about their work, and experiencing such positive affect would give them pleasant feelings about their work. Thus, Emotional Work Engagement is defined here as "the willing attachment to tasks, objectives, or organizational activities that is characterized by having positive feelings, such as pride, enthusiasm, and excitement, about actively executing and completing those tasks, objectives, or activities."

Physical Work Engagement Defined

Physical Work Engagement is based on the idea of bodily participation in any kind of occupation. People exert physical effort/energy to complete tasks. Even though the amounts of physical effort spent doing work can vary in different occupations (e.g., factory work and teaching), the exertion of energy at work is nonetheless a valid concept. As an example, a physically work engaged factory worker would be more energetic during his or her work shift and would complete the required tasks faster than other workers. Similarly, a physically work engaged teacher would more often go to the library for books and expend more effort in writing lectures and in the physical act of teaching (similar to performing) to help students better understand the content of a lecture.

Physical engagement includes not only the amount of energy one spends, but also the intensity or frequency with which one expends energy and effort at work. For example, a highly physically work engaged football player would run more and put greater strength into pressuring opponents in order to take possession of the ball. Therefore, Physical Work Engagement is defined here as "the bodily involvement in tasks, objectives, or organizational activities by intentionally and voluntarily utilizing one's energy and effort to execute and complete those tasks, objectives, or activities."

Burnout and Engagement Can Coexist at the Same Time

The present approach disagrees with previous views that regard work engagement as an antipode of burnout because there are many cases that contradict the idea that burnout and work engagement are mutually exclusive. For example, teaching is an occupation that Maslach and Jackson (1981) first mentioned when they explained burnout. If the Maslach et al. (2001) bipolar approach is used, teachers who feel burnout would not experience work engagement at all. But (as explained below) teachers can experience both.

Therefore, it is proposed that work engagement and burnout can coexist at the same time. That is, these two concepts can exist in *separate* dimensions. In theory, they may be visualized in a two-dimensional graphic representation, with work engagement on one axis and burnout on an orthogonal axis, as diagrammed in Figure 1.

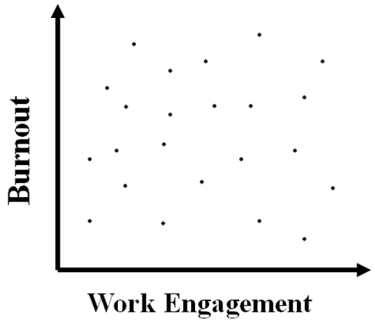

Figure 1. Theoretical independence between Burnout and Work Engagement.

Figure 1 depicts how employees can experience varying levels of both burnout and work engagement at the same time. For example, teachers have many responsibilities and a workload that can be overwhelming, which could cause burnout. But they might experience work engagement by cognitively perceiving that they are enlightening a new generation, are passionate about what they teach, and feel happy when their students

perform well under their guidance, even though the teachers might concurrently feel burnout (particularly emotional exhaustion).

As another example of experiencing burnout and work engagement concurrently, Michael Jackson, the world famous singer, songwriter, and dancer, gave thousands of performances in his 40-year career, so it may be said that he was a work engaged person. In 2009, he planned to give a concert (titled "This Is It"), but was unable to perform because he died of acute benzodiazepine intoxication while practicing for the concert. As benzodiazepine is an antianxiety, and muscle relaxing drug, this suggests how stressed he must have felt at that time (Harmon, 2011). Thus, it is argued here that work engagement and burnout can coexist at the same time (rather than being in a mutually exclusive relationship).

Consequently, there are some conceptual deficits in the existing theories and measures of work engagement. They do not view work engagement as a unique concept, which ignores the fact that burnout and work engagement can coexist. Therefore, it is necessary to examine work engagement as a multidimensional construct instead of a single concept.

Scale Construction of the New Work Engagement Measure

Construction of the items was based on Kahn's (1990) original conception and terminology, and, thus, the three dimensions of Cognitive, Emotional, and Physical Work Engagement were created. The items were generated from Kahn's theory (to facilitate content and construct validity), brainstorming with colleagues, and discussions with employees who were deemed to be work engaged. The details regarding item-creation are described in the Measures section. Initially, 29 items were created for the three facets, and after psychometric testing, 6 items were obtained for each facet (for details, see the Results). All 18 final items are shown in the Appendix.

Cognitive Work Engagement

The idea that work engagement involves cognitions is a specific aspect in most existing theories of work engagement. In addition to Kahn (1990), Rothbard (2001) mentioned the employees' attention to work, i.e., the amount of "cognitive resources," includes concentration, or the time one spends thinking about work. Also, Machlowitz (1980) viewed work as the pivotal element of one's self-concept and personal life, and suggested that employees persistently think about work issues. Additionally, Thomas (2009) suggested that engaged employees would focus not only on behaviors but also on cognitive processing, and May et al. (2004) said that thinking is critical to cognitive work engagement. Thus, cognitive work engagement would include an investment of one's time, attention, thinking, and concentration in the work in order to do well on the job. A sample item created for this notion was "My mind is often full of ideas about my work."

Emotional Work Engagement

Most theories of work engagement emphasize that engagement at work involves emotions (Bakker & Leiter, 2010; Macey & Schneider, 2008; May et al., 2004; Rich et al., 2010; Saks, 2006; Thomas, 2009). For example, Macey and Schneider (2008) suggested that "trait engagement" includes positive affect, and that positive affectivity can be characterized by feelings of enthusiasm. Saks (2006) suggested that work engagement reflects "psychological presence" (p. 608), i.e., employees have feelings about their job and organization, which can make them more satisfied with their work. That is, they are excited and eager to be involved in their work and to actively complete tasks. A sample item created for this notion was "I feel very happy when I am carrying

out my responsibilities at work." Also, emotionally work engaged people would have a sense of fulfillment when they perform well (May et al., 2004). A sample item created for this notion was "I feel a sense of gratification with my work performance."

Physical Work Engagement

Some existing theories of work engagement suggest that engagement at work involves energy and effort (Bakker & Leiter, 2010; Macey & Schneider, 2008; May et al., 2004; Rich et al., 2010). This concept was widely accepted by practitioners, especially in human resources and education. For example, Aon Hewitt (2013) suggested that engaged employees would "strive," i.e., spend extra time and effort on their jobs and in their organizations. A sample item created for this notion was "No matter how much I work, I have a high level of energy." Also, in education, Fredricks, Blumenfeld, and Paris (2004) suggested that "behavioral engagement" refers to participation, such as involvement in organizational activities, i.e., one's effort spent at work. In addition, aside from the effort itself, the intensity or frequency with which people expend physical energy and effort at work is also relevant (Rich et al., 2010). Hence, a sample item created for this notion was "I am frequently energized by my work."

Method

This study was designed to assess the integrity of the new work engagement items, including exploratory and confirmatory factor analyses for all three subscales of the new inventory. The reliabilities and the validities of the new scales were also empirically tested.

Respondents

There were four groups of respondents for the different tests of the work engagement measure. All were full-time employed adults. For the Exploratory Factor Analysis (EFA), there were 408 (201 male, 207 female), aged from 18 to 62 years (M = 32.45, SD = 9.65). For the Confirmatory Factor Analysis (CFA), there were 442 respondents (165 male, 277 female), aged from 19 to 65 years (M = 33.36, SD = 8.81). For the concurrent validity (known groups) test, there were 72 respondents (30 male, 42 female), aged from 19 to 51 years (M = 30.14, SD = 7.38). And for the convergent and divergent validity tests, there were 110 respondents (38 male, 72 female), aged from 19 to 56 years (M = 30.69, SD = 7.52).

Measures

The operational definitions of the three facets of work engagement discussed above describe the behaviors, cognitions, and emotions that allow work engagement to be *measured* (note that cognitions and emotions can be measured; see Gatchel & Rollings, 2008). Therefore, both the theory and the definitions provided guidelines to create the items and make them empirically measureable. The work engagement dimensions are described first, followed by the other variables tested with them. As the scales were written in English and the data were collected in China, back-translation by bilingual expert linguists was employed. Also, unless otherwise noted, the questions used a 5-point Likert response scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Cognitive Work Engagement

This facet is grounded in Kahn's (1990) theory, and ideas from Rothbard (2001), who suggested that employees have "cognitive resources" at work, including spending time thinking about and concentrating on the work. In addition, May et al. (2004) mentioned time as one of the characteristics of cognitive work engagement, e.g., that time seems to pass quickly at work for people who are work engaged. Sample items of the new Cognitive Work Engagement measure were "My mind is often full of ideas about my work," and "I give a lot of mental attention to my work."

Emotional Work Engagement

This facet is also grounded in Kahn's (1990) theory, and most other existing theories have a strong preference for the idea that engagement at work involves emotions (e.g., Bakker & Leiter, 2010; Thomas, 2009). Also, previous studies suggested that work engaged employees have positive feelings at work, such as being excited about the job (May et al., 2004), and being enthusiastic about the job (Rich et al., 2010). Sample items of the new Emotional Work Engagement measure were "I feel very delighted about what I am doing whenever I am working" and "I feel very happy when I am carrying out my responsibilities at work."

Physical Work Engagement

This is the third facet of work engagement in Kahn's (1990) theory, and can also be found in Bakker and Leiter's (2010) concept of behavioral work engagement, which suggested that employees devote energy to carrying out their work. In addition, Rich et al.'s (2010) concept of the intensity and frequency of energy and effort that employees spend at work also reflect this idea. Sample items of the newly created Physical Work Engagement measure were "I always have a lot of energy for my work," and "No matter how much I work, I have a high level of energy."

Burnout

This was assessed by using the original, 3-component Maslach Burnout Inventory (Maslach & Jackson, 1981), i.e., Emotional Exhaustion, Depersonalization, and Personal Accomplishment. It should be noted that the original scales were used to ensure there would be no confounds in those measures when compared to the new work engagement measures developed in this study. Sample items were "I feel emotionally drained from my work," for Emotional Exhaustion, and "I have become more callous toward people since I took this job" for Depersonalization.

For Personal Accomplishment, a sample item was "I've accomplished many worthwhile things in this job." But Maslach and Jackson (1981) stated "It is important to note that the Personal Accomplishment subscale is independent of the other subscales" (p. 5), that it "describes feelings of competence and successful achievement in one's work" (p. 5), and that *low scores* on this subscale reflect burnout. Consequently, in the present study, those items were reverse scored to measure "Decreased Personal Accomplishment." The reliabilities in this study were .86 for Emotional Exhaustion, .81 for Depersonalization, and .81 for Personal Accomplishment.

Utrecht Work Engagement Scale

This variable was assessed by using the 17 items from the Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006). Sample items were "At my job, I feel strong and vigorous" for Vigor; "My job

inspires me" for Dedication; and "I get carried away when I am working" for Absorption. The reliabilities in this study were .79, .85, and .81, respectively.

Self-Efficacy

This personality variable was considered relevant because previous studies found it to have a positive relationship with work engagement (Maslach et al., 2001), and it was included in the present study to assess how the new work engagement scales would relate to a personality measure that might influence a person's efficiency at work. It was assessed by 10 items from Leung and Leung's (2011) Chinese General Self-Efficacy Scale. Although there are many self-efficacy scales in the literature, most of them had been created in western societies (e.g., Schwarzer & Jerusalem, 1995). Therefore, as the respondents in this study were Chinese, a Chinese scale was used. A sample item was, "I am confident that I could deal efficiently with unexpected events." The reliability of this scale in this study was .88.

Turnover Intention

This variable was used because previous studies found it to have a negative relationship with work engagement (e.g., van Beek et al., 2013), and therefore was included in the present study to assess how the new work engagement scales would relate to a common organizational problem, i.e., a worker's desire to leave his or her employment. It was assessed by three items from the Turnover Intention Scale (Taormina & Kuok, 2009). A sample item was "I plan to leave this organization within the next 3 months." The reliability of this scale in this study was .91.

Procedure

The data were gathered using the sidewalk intervention method in business districts in China using random sampling (e.g., every 5th person) to reduce systematic bias of attitude, characteristic, or type among people, even if they travel in groups (Burns & Bush, 2005). Potential respondents were approached in the late afternoons when most employees leave work at the end of the workday. To ensure that those who were approached were working people, they were asked if they were employed. For those who answered in the affirmative, informed consent was requested verbally and on the cover page of the questionnaire, which stated the purpose of the survey and gave the researcher's contact information.

Ethics approval was obtained from a university research ethics committee before the study was conducted, and the ethical guidelines of the APA were followed in all parts of the study. Participants were informed that their participation was entirely voluntary and could stop responding at any time. They were told that their names and personal information were not being requested and their responses would never be revealed to anyone, that the data were only for academic use, and would be presented only in aggregated statistical form averaged for all respondents. Those who agreed to participate were given a questionnaire, which took about 15 minutes to complete, were allowed to complete it on their own, and which was collected on site when finished. The response rate for the EFA respondents was (408/527 =) 77.42%, and for the CFA group of respondents was (442/593 =) 74.54%. The response rate for the known-groups was (72/119 =) 60.50%. And the response rate for the convergent and divergent validity tests' respondents was (110/176 =) 62.50%.

Results

Several psychometric tests were run on the new measures. These were for common method bias, exploratory factor analysis, and a confirmatory factor analysis, to ensure there were three dimensions of work engagement and that the items fit into their intended scales. Also, reliability and validity tests were conducted. Finally, correlations were assessed between the new work engagement measures and self-efficacy and turnover intention.

Test for Common Method Bias

Common Method Bias is a statistical phenomenon in which statistical relationships could be based on the method of measurement rather than on the measure of the construct. This was assessed by factor analyzing all the variables, and using the "maximum-likelihood" approach with a forced, one-factor solution. If the ratio of the resultant Chi-square value divided by the degrees of freedom is less than 2.00:1, it indicates common-method bias, i.e., a single factor (see Harman, 1960). For this study, the ratio was 9.87:1, which was well above the cutoff value, indicating that common-method bias was not a concern.

Factor Analyses

Table 1

Exploratory Factor Analysis for the Three Facets of Work Engagement (N = 408)

Work Engagement Subscales and Items	CWE	EWE	PWE
Cognitive Work Engagement (CWE)			
1. My mind is often full of ideas about my work	**.46**	.28	.22
2. Wherever I am, things happen that often remind me of my work	**.54**	.13	.11
3. My mind is fully engaged with my work	**.62**	.28	.27
4. I rarely think about time when I am working	**.65**	.12	.18
5. My thoughts are fully focused when thinking about my work	**.63**	.27	.21
6. I give a lot of mental attention to my work	**.70**	.27	.26
Emotional Work Engagement (EWE)			
7. I feel very delighted about what I am doing whenever I am working	.15	**.64**	.28
8. I am very eager to do my work	.25	**.70**	.34
9. I feel very happy when I am carrying out my responsibilities at work	.27	**.57**	.27
10. I feel very good about the work that I do	.39	**.62**	.27
11. I feel strong enthusiasm for my work	.38	**.61**	.38
12. I feel a sense of gratification with my work performance	.38	**.58**	.35
Physical Work Engagement (PWE)			
13. No matter how much I work, I have a high level of energy	.20	.27	**.69**
14. I have a great deal of stamina for my work	.23	.29	**.72**
15. I always have a lot of energy for my work	.23	.28	**.76**
16. I am often physically driven by my work	.25	.24	**.63**
17. I am frequently energized by my work	.25	.31	**.75**
18. I find my work to be physically invigorating	.24	.28	**.66**
Variance Explained (Total = 55.84%)	**21.38**	**17.25**	**17.21**

Note. Boldface indicates factor loadings above the cutoff value, which was .45.

Both exploratory factor analyses (EFA) and a confirmatory factor analysis (CFA) were run for the items. First, using the 29 items from the three facets of the new work engagement scale, exploratory factor analyses were run using the maximum-likelihood approach (Fabrigar et al., 1999). Any items that had unsatisfactory loadings and/or double loadings were deleted, which left 18 items in three clean factors. That is, there were 6 items that all loaded higher than .45 on their corresponding factors. These results are shown in Table 1.

Subsequently, a confirmatory factor analysis was conducted to determine how well the data fit the theoretical model for these constructs. Model fit was evaluated using the following indicators: (a) the root mean square error of approximation (RMSEA); (b) the standardized root mean square residual (SRMR); (c) the Goodness of Fit Index (GFI); and (d) the Comparative Fit Index (CFI).

The CFI was .94 (i.e., > .90, as required by Ambrose & Schminke, 2003). The GFI was .91 (i.e., > .90; required by Byrne, 1994). The RMSEA was .06 (i.e., < .08; required by Browne & Cudeck, 1993). And the SRMR was .03 (i.e., < .08; as suggested by Hu & Bentler, 1995). Thus, all indexes for the three-component model for these 18 items were satisfactory. These results are shown in Table 2. And the SEM model is shown in Figure 2.

Table 2

Confirmatory Factor Analysis Model of the 18 Work Engagement Items (N = 442).

Competing models	χ^2	*df*	RMSEA	SRMR	GFI	CFI
Three-Factor Model (18 items)	374.65*	132	0.06	0.03	0.91	0.94

Note. A three-factor model with 18 items (6 items per factor) showed satisfactory goodness of fit for all the indicators, *p < .001. (An AMOS statistical analysis was used.).

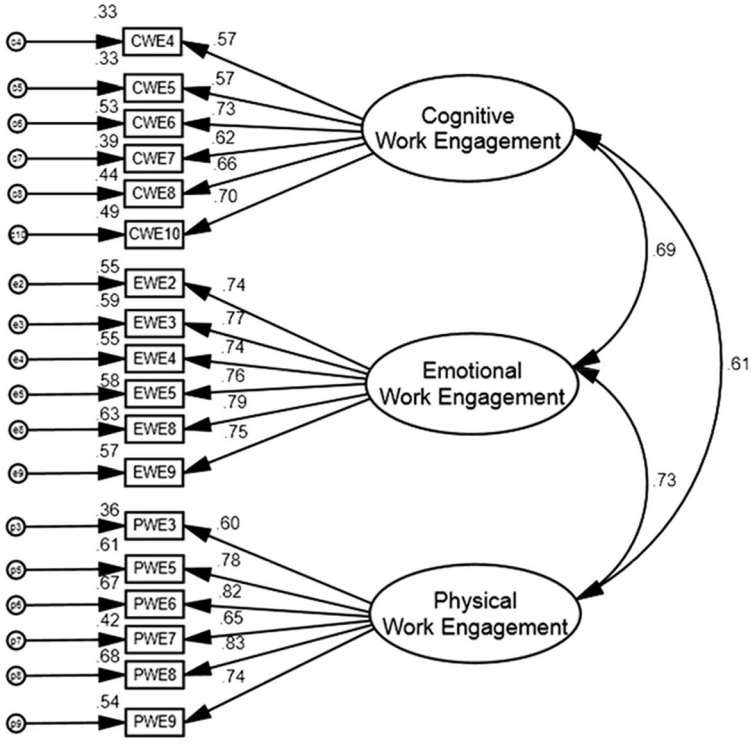

Figure 2. The SEM 3-component Work Engagement model with their relevant items.

Tests of Scale Reliability

Cronbach alpha reliabilities were computed for the three 6-item work engagement scales. Across all parts of the study, the reliabilities for the Cognitive Work Engagement scale ranged from .81 to .88; reliabilities for the Emotional Work Engagement scale ranged from .78 to .89; and the reliabilities for the Physical Work Engagement scale ranged from .88 to .91. Whereas all the scale reliabilities were above the recommended .70 value (Nunnally, 1976), all three scales may be considered to have very good internal consistency.

Tests of Scale Validity

Content Validity

Although there is no direct statistical test for content validity, the items for the measures were assiduously based on the theory of work engagement. Therefore, the measures may be considered to have content validity because they were developed from the theories about the concept (Sekaran, 1992).

Convergent Validity

A measure is considered valid if it is significantly and positively related to other scales that measures the same concept (Bland, 2014). Convergent validity was assessed by comparing correlations that the three dimensions of Cognitive, Emotional, and Physical Work Engagement had with all three facets of the UWES, and high positive correlations were found. Cognitive Work Engagement had correlations of .52 for Vigor, .45 for Dedication, and .52 for Absorption. Emotional Work Engagement had correlations of .48 for Vigor, .45 for Dedication, and .41 for Absorption. And Physical Work Engagement had correlations of .62 for Vigor, .58 for Dedication, and .56 for Absorption. All the correlations were significant at the $p < .001$ level. These results are shown in Table 3.

Table 3

Means, Standard Deviations, and Correlations Among the Variables for Testing Reliability and Validity (N = 110)

Variables Names	*M*	*SD*	1	2	3	4	5	6	7	8	9
New Work Engagement Scale											
1. Cognitive Work Engagement	3.17	0.75	(.88)								
2. Emotional Work Engagement	3.43	0.60	.59*	(.78)							
3. Physical Work Engagement	3.18	0.72	.67*	.61*	(.88)						
Burnout Inventory											
4. Emotional Exhaustion	2.89	0.79	-.01	-.04	-.06	(.90)					
5. Depersonalization	2.65	0.76	-.12	-.19	-.19	.66*	(.82)				
6. Decreased Personal Accomplishment	2.70	0.64	-.38*	-.34*	-.35*	.41*	.48*	(.87)			
Utrecht Work Engagement Scale											
7. Vigor	3.04	0.68	.52*	.48*	.62*	-.41*	-.41*	-.45*	(.83)		
8. Dedication	3.16	0.82	.45*	.45*	.58*	-.40*	-.47*	-.58*	.85*	(.87)	
9. Absorption	3.09	0.73	.52*	.41*	.56*	-.35*	-.41*	-.45*	.83*	.80*	(.84)

Note. All values ranged from 1 (low) to 5 (high). Reliabilities are in the parentheses along the diagonal.
*$p < .001$.

Divergent Validity

Divergent validity is obtained when a scale is negatively related to other measures that are supposed to be opposite to the measure being tested (Bland, 2014). Divergent validity was assessed by correlations that Cognitive, Emotional, and Physical Work Engagement had with the *divergent* burnout facet of Decreased Personal Accomplishment. Significant negative correlations were found for Decreased Personal Accomplishment with Cognitive Work Engagement, r = -.38, p < .001, Emotional Work Engagement, r = -.34, p < .001, and Physical Work Engagement, r = -.35, p < .001.

Tests of Independence Between Work Engagement and Burnout

Statistical "independence" between burnout and work engagement was assessed by the correlations that the three work engagement dimensions had with the two burnout measures of Emotional Exhaustion and Depersonalization. To be independent, their correlations should be nonsignificant, and the results in Table 3 revealed that both Emotional Exhaustion and Depersonalization had nonsignificant correlations with all three work engagement measures. To graphically illustrate their independence, i.e., to reveal that workers can have high and/or low scores on *both* dimensions at the same time, the actual results showing scores for the three work engagement scales along with Emotional Exhaustion are depicted in the three scatterplots of Figure 3 (a, b, and c).

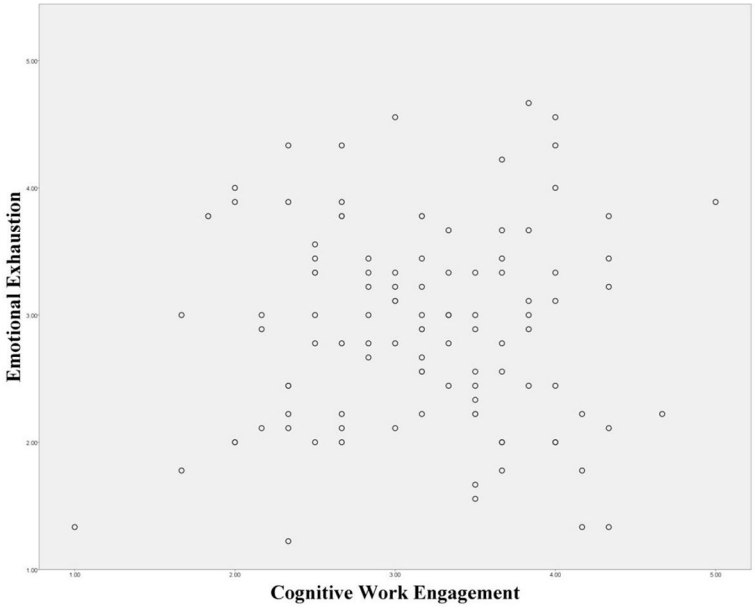

Figure 3a. Actual relation between Cognitive Work Engagement and Emotional Exhaustion, showing them as non-linear independent constructs.

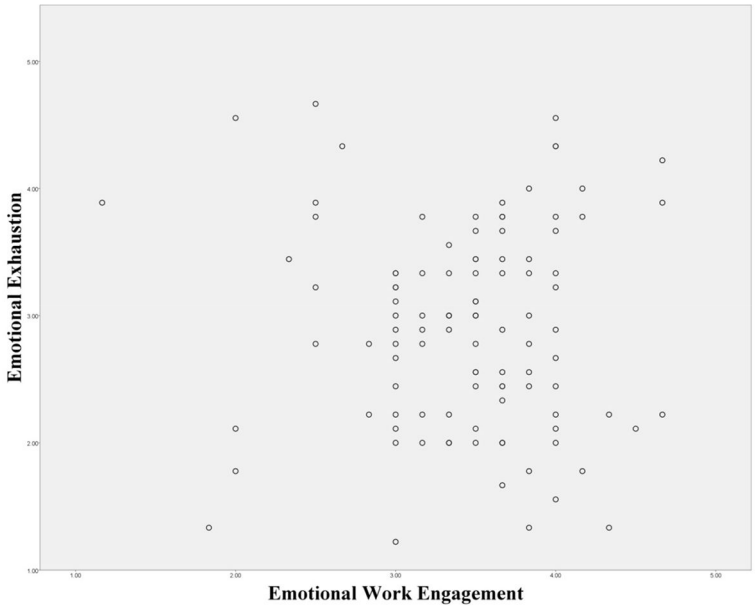

Figure 3b. Actual relation between Emotional Work Engagement and Emotional Exhaustion, showing them as non-linear independent constructs.

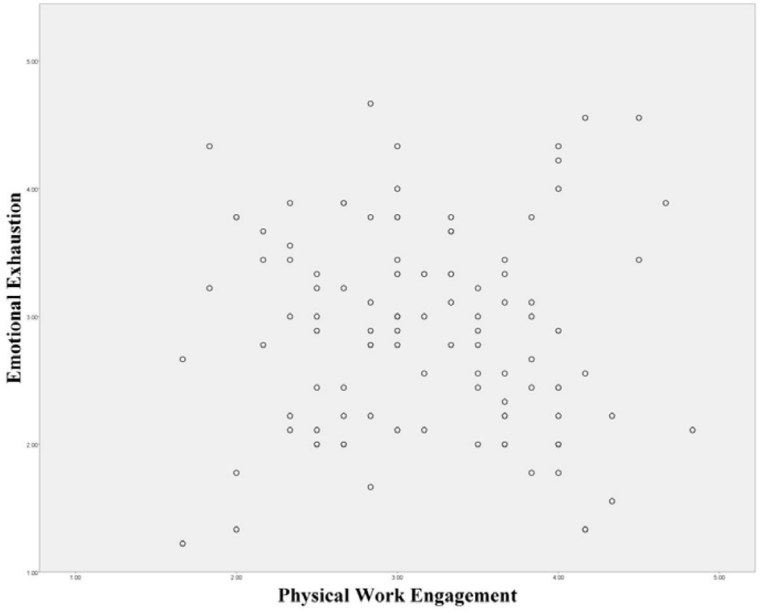

Figure 3c. Actual relation between Physical Work Engagement and Emotional Exhaustion, showing them as non-linear independent constructs.

Likewise, for Depersonalization, the actual results showing scatterplots for the three work engagement scales and Depersonalization are depicted in Figure 4 (a, b, and c).

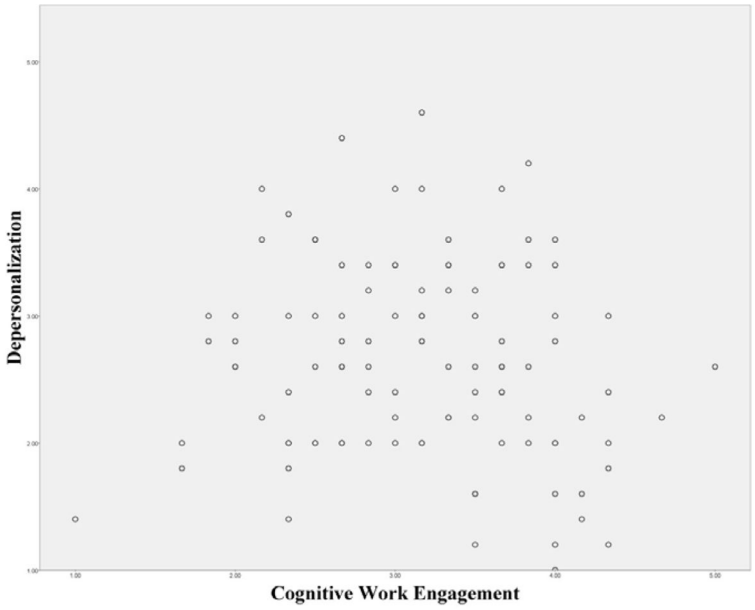

Figure 4a. Actual relation between Cognitive Work Engagement and Depersonalization, showing them as non-linear independent constructs.

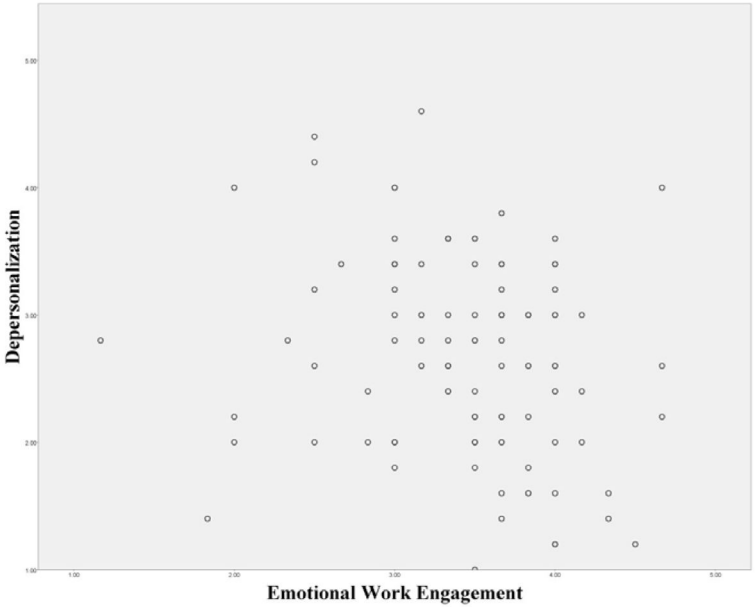

Figure 4b. Actual relation between Emotional Work Engagement and Depersonalization, showing them as non-linear independent constructs.

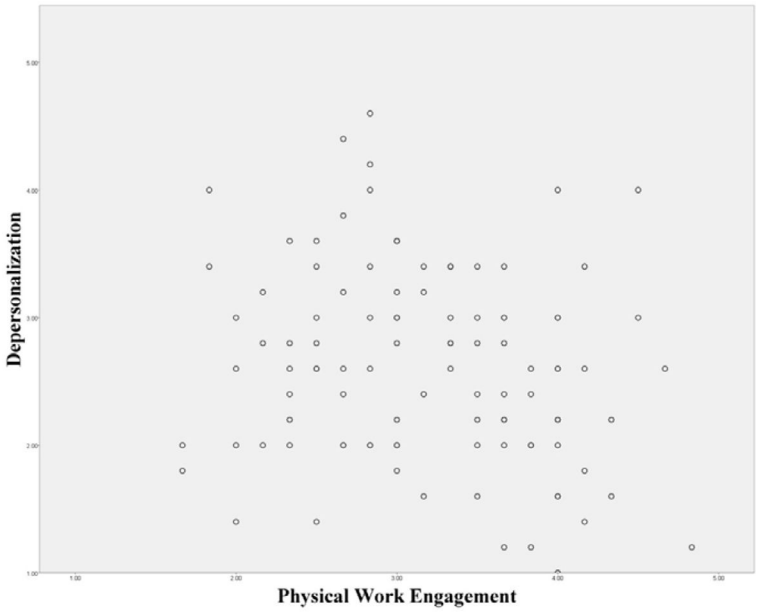

Figure 4c. Actual relation between Physical Work Engagement and Depersonalization, showing them as non-linear independent constructs.

Concurrent Validity

This is established "when the scale discriminates individuals who are known to be different" (Sekaran, 1992, p. 172). The concurrent validity of the new work engagement scales used the "known groups" method, which assesses the degree to which the measures demonstrate significantly different scores for groups that are already known to differ (and in which direction) on the dimensions measured.

Thus, the questionnaires were completed by two groups of full-time workers. One group was 37 professionals (teachers, professors, and doctors) who were expected to be high on work engagement because they devote a great deal of effort at work, involve themselves for many hours at work, and think about their job very often (Kuok, 2017). The other group was 35 laborers (casino dealers and floor workers), who tend to have low affective commitment and little interest in their jobs (Kuok & Taormina, 2015) and were therefore expected to be low on work engagement as they expend little effort, thought, or emotion on their work.

The results of t-tests run to compare the two groups on the three work engagement dimensions (on a 5-point Likert scale, where 5 reflects strong agreement) showed that the groups differed significantly (all $p < .001$), and in the expected direction. On Cognitive Work Engagement, the professionals ($M = 3.79$, $SD = 0.43$) scored significantly higher than the laborers ($M = 2.72$, $SD = 0.36$), $t(70) = 11.40$). On Emotional Work Engagement, the professionals ($M = 3.87$, $SD = 0.46$) scored significantly higher than the laborers ($M = 2.85$, $SD = 0.43$), $t(70) = 9.67$. And on Physical Work Engagement, the professionals ($M = 3.82$, $SD = 0.38$) scored significantly higher than the laborers ($M = 2.66$, $SD = 0.23$), $t(70) = 15.53$. These results, shown in Table 4, support the concurrent validity of the three new measures.

Table 4

Mean Score t-Tests on the Newly-Created Work Engagement Scales Between High and Low Work Engaged Employees

Work Engagement Subscales	High Work Engaged (*N* = 37)	Low Work Engaged (*N* = 35)	*t*(70)	*p*
Cognitive Work Engagement (CWE)	3.79 (*SD* = 0.43)	2.72 (*SD* = 0.36)	11.40	<.001
Emotional Work Engagement (EWE)	3.87 (*SD* = 0.46)	2.85 (*SD* = 0.43)	9.67	<.001
Physical Work Engagement (PWE)	3.82 (*SD* = 0.38)	2.66 (*SD* = 0.23)	15.53	<.001

Note. Both groups were full-time employees. Scores were on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Applied Tests of the New Work Engagement Scales

Intercorrelations

Self-Efficacy was found to have significant positive correlations with Cognitive Work Engagement, r = .32, p < .001, Emotional Work Engagement, r = .40, p < .001, and Physical Work Engagement, r = .39, p < .001. And Turnover Intention had significant negative correlations with Emotional Work Engagement, r = -.29, p < .001 and Physical Work Engagement, r = -.28, p < .001; and had a negative but nonsignificant correlation with Cognitive Work Engagement.

Regressions

Three regressions were run to assess whether the personality characteristic of Self-Efficacy might be related to the new work engagement measures, and it was found to be a positive predictor for all three facets of work engagement. It explained 10% of the variance for Cognitive Work Engagement, F(1,440) = 50.35, 16% of the variance for Emotional Work Engagement, F(1,440) = 83.21, and 15% of the variance for Physical Work Engagement, F(1,440) = 80.45, all three p < .001.

In addition, one regression was run to assess whether the new measure of work engagement might be related to Turnover Intention. All three facets of work engagement were negative predictors of Turnover Intention, with all entering the regression to explain a total of 12% of the variance, F(3,438) = 20.62, p < .001. Emotional Work Engagement accounted for 8% of the variance, Physical Work Engagement explained 2%, and Cognitive Work Engagement accounted for 2%.

Discussion

A review of the literature on work engagement found anomalies in the development of the concept, and problems with earlier measures used to assess the concept. Consequently, this study provided a more integrated definition of the construct, operational definitions of its three dimensions, and a valid and reliable measure for each of the work engagement dimensions. This discussion first addresses the validity and reliability of the newly created measure, then clarifies the coexistent relationship between work engagement and burnout, examines some theoretical and practical contributions that this new conceptual approach can have for organizational psychology, and proposes some opportunities for future research with the new three-dimensional measure of work engagement.

Validity and Reliability of the Work Engagement Inventory

Based on Kahn's (1990) theoretical framework, this study provided a valid conceptual definition for work engagement and created an inventory with three dimensions. The new Work Engagement Inventory showed very good internal consistency, ranging from .78 to .91 in the various parts of this study. Also, a series of validity tests demonstrated that the three facets of work engagement, which were based in the original theoretical concepts, were able to reliably measure what work engagement is supposed to assess.

Additionally, a confirmatory factor analysis had satisfactory fit indexes, which revealed that six items in each subscale had the best fit for the 3-facet model of work engagement. Consequently, although previous studies (e.g., May et al., 2004; Rothbard, 2001; Saks, 2006) were unable to do so, the results of the present research provided evidence to confirm that work engagement is a construct with three components, namely, Cognitive, Emotional, and Physical Work Engagement.

Work Engagement and Burnout Can Coexist

The Work Engagement Inventory created for this research was based on two principal criteria, i.e., that work engagement is an independent construct with multiple dimensions, and that work engagement and burnout can coexist. That they do coexist was an important finding because the data supported Kahn's (1990) theory, and demonstrated that work engagement should be measured independently of burnout. The empirical evidence showed that Emotional Work Engagement was not significantly correlated with the burnout facets of Emotional Exhaustion and Depersonalization. And Figures 2 and 3 show that full-time employees had high, middle, and low scores on *both* burnout and work engagement. Therefore, as theorized in this paper, burnout and work engagement do coexist as independent constructs.

Regarding Decreased Personal Accomplishment, Maslach and Jackson (1981) assumed that low scores on their Personal Accomplishment scale would reflect burnout, which is why those scores are reversed in most burnout research (as they were in this study). Thus, its negative correlations with work engagement may be explained by the fact that work engagement focuses on doing excellent work, which is often rewarded by pay raises and promotions. Hence, the outcomes of work engagement would *preclude* feelings of *lack* of achievement, i.e., being work engaged can lead to high levels of personal accomplishment.

Contributions to Psychology

Theoretical Contributions

The new inventory revealed that work engaged employees actually do involve their cognitive, emotional, and physical states, which confirms Kahn's (1990) original theoretical approach. That is, work engagement not only relates to behaviors, but also relates to human cognitions and emotions. These three aspects of cognition, emotion, and behavior are the critical and core areas of psychology, and because of this, the development of a measure that is based on these factors represents a major contribution because it adds an alternate, more valid measure to the literature. Furthermore, this evolution of work engagement theory helps to extend these areas to positive psychology.

In line with positive psychology theory, work engagement adds a positive view of organizational behaviors and an increased understanding of the meaning and effects of work, rather than negative aspects of work.

Traditional burnout theory focused on negative factors that cause burnout (Maslach & Goldberg, 1998), but work engagement provides a positive psychology approach to improving the employees' work situation and health. Thus, the work engagement inventory was created to study employees' positive characteristics at work, and supports Seligman and Csikszentmihalyi's (2000) idea that positive psychology advocates a change in focus from repairing the worst things in life to building positive qualities in life.

Practical Contributions

The independence of the work engagement and burnout constructs can have implications for employees and management. For employees, whereas work engagement and burnout can coexist, every person can have both characteristics at the same time. These incongruent feelings are a type of cognitive dissonance, which Festinger (1957) explained causes psychological discomfort. But now employees can better understand why they have a feeling of burnout while also feeling work engaged.

Yet, if the difference between high burnout and low work engagement is substantial, it becomes a concern for management because it could reflect discrepancies in the employees' views of themselves, which could create uncomfortable feelings such as social anxiety, fear of negative evaluations, and depression (Higgins, 1987). This reveals why it is critical to study work engagement from a positive perspective, that is, to improve certain feelings in organizational settings. In other words, increases in work engagement could mend or otherwise strengthen existing positive personal and organizational factors.

Another practical finding from this study is that the new work engagement inventory can be applied to the business setting. Interestingly, self-efficacy was a significant and positive predictor of all three facets of work engagement, which coincides with Bandura's (1982) theory of self-efficacy, and suggests that having a positive approach to one's work goals, tasks, and challenges can enable a person to execute courses of action required to deal with prospective situations.

In addition, all three facets of work engagement were negative predictors of turnover intention, which suggests that employees will be less likely to leave a company when they are more fully work engaged. Thus, the results support the usefulness of the new work engagement inventory, e.g., human resource specialists could apply this inventory to help identify cognitive, emotional, and behavioral factors that may increase the employees' interest and involvement in their work.

Implications for Management

The three-component measure of work engagement provides insights for management and human resources experts to establish policy. For example, training programs can be developed to improve employee self-efficacy at work because (based on the present findings) greater self-efficacy would increase the employees' cognitive, emotional, and physical work engagement. In theory, the result would be a group of employees who are more interested in their work, and thus more efficient at their tasks. In addition, as all three work engagement facets can predict turnover intention, workers are more likely to stay with a company if managers strengthen their workers' cognitive, emotional, and physical engagement. This should benefit the organization by saving resources for recruiting and training new staff; and should also benefit the employees, who will not waste time seeking a new job, allowing them more time to develop their careers in their current organizations.

Future Research

As the new measure of work engagement has three dimensions that have not been used before, many possibilities for future research now arise. That is, the new measures can be examined for their relationships with personality, social, and environmental factors, and for their various applications in organizational behavior. In personality, for example, among the Big-Five personality variables (McCrae & Costa, 1986) conscientiousness has been applied in many psychological and organizational studies, and thus might reasonably be expected to be a predictor of work engagement. Other personality variables that could be related to work engagement would be personal needs, such as the needs for achievement, affiliation, autonomy, and power (McClelland, 1961).

Furthermore, other social and environmental variables might act as predictors of work engagement. For example, if a person is encouraged, via emotional support from the family, to have positive regard toward work, he or she may be more engaged at work. In addition, social interactions with different people in the work environment (e.g., coworker support) could affect one's working attitudes; and supervisors in particular could conceivably impact employees' work engagement. That is, if one's supervisor provides substantial organizational support to his or her employees, such support should increase work engagement.

Yet another dimension of potential applications for the new work engagement measures would include organizational outcomes. For example, whereas all three dimensions of work engagement were negative predictors of turnover intention in the present study, they could also be tested for their relationships with, and their ability to predict, affective, normative, and continuance commitment to the organization (Allen & Meyer, 1990). Of course, another area for investigation could be the relationship between the new work engagement dimensions and employee performance.

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Competing Interests

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Appendix

The Work Engagement Inventory with three 6-item subscales

Cognitive Work Engagement (6-item scale):

1. My mind is often full of ideas about my work
2. Wherever I am, things happen that often remind me of my work
3. My mind is fully engaged with my work
4. I rarely think about time when I am working
5. My thoughts are fully focused when thinking about my work
6. I give a lot of mental attention to my work

Emotional Work Engagement (6-item scale):

1. I feel very delighted about what I am doing whenever I am working
2. I am very eager to do my work
3. I feel very happy when I am carrying out my responsibilities at work
4. I feel very good about the work that I do
5. I feel strong enthusiasm for my work
6. I feel a sense of gratification with my work performance

Physical Work Engagement (6-item scale):

1. No matter how much I work, I have a high level of energy
2. I have a great deal of stamina for my work
3. I always have a lot of energy for my work
4. I am often physically driven by my work
5. I am frequently energized by my work
6. I find my work to be physically invigorating

Note. Instructions asked respondents to indicate how much they agreed or disagreed with each statement on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*).

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