The Development of the Wright Work Engagement Scale

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THE DEVELOPMENT OF THE WRIGHT WORK ENGAGEMENT SCALE

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy

By

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ABSTRACT

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Recent developments in organizational attitude research have focused on the concept of engagement. Despite the growing literature on engagement there is little agreement on the conceptualization of engagement. The current study sought to conceptualize and measure work engagement using Item Response Theory. The Wright Work Engagement Scale was created using two samples, a student sample for exploratory analyses and a working sample for item analyses. Results indicate engagement is a unidimensional construct. The 12 item Work Engagement Scale was created and demonstrated sufficient convergent and discriminant validity.
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Introduction

The concept of work engagement has received increased attention in the past decade. A growing body of literature on the concept can be seen in a review of the organizational literature, with the culmination being a focus article on employee engagement in the first issue of the journal Industrial and Organizational Psychology (Macey & Schneider, 2008). Despite the growing focus on work engagement, there is little agreement about the construct. This dissertation defines work engagement as a positive affective and cognitive state regarding the work one is doing. Engagement is a relatively stable state, but is influenced by contextual variables. Several scales currently exist for measuring engagement; however, they all have serious theoretical and psychometric flaws. Additionally, newer methods that are superior to traditional test construction methods are available for creating tests, such as item response theory (IRT). The focus of this project is the conceptualization and measurement of work engagement, specifically the construction of a scale using IRT methods.

The concept of engagement originated in consulting firms. The Gallup Organization has been exploring what it deems engagement since 1992 (Harter, Schmidt, & Hayes, 2002), creating a scale which is suggested to measure engagement. In addition, the authors of the focus article on engagement mentioned previously are both consultants with Valtera Corporation (Macey & Schneider, 2008). The definition consulting firms use to describe the construct is not always clear what the construct entails. This may be a result of the time pressure of trying to get the new tool to customers. This has led to a dearth of theory behind the construct.
Several definitions of engagement are prevalent in the literature and several constructs which have been found to be different theoretically and statistically are encompassed in the engagement construct as defined in consulting firms. Indeed the focal article by Macey and Schnieder (2008) included several constructs ranging from proactive personality to involvement to role expansion. Little research has been conducted in the literature to differentiate the constructs. Indeed, comments to the focal article emphasized the need for a specific definition of engagement, rather than repackaging old constructs into a new terminology. In addition, some of the engagement scales, such as the Gallop Workplace Audit, are comprised of items that measure several constructs such as job satisfaction, community at work, and role ambiguity (Harter et al., 2002).

Research on work engagement has increased since the turn of the millennium due to the positive psychology movement (Macey & Schneider, 2008; Schaufeli, Bakker, & Salanova, 2006). Positive psychology is the focus on optimal functioning and human strengths (Seligman & Csikszentmihalyi, 2000). This focus is in contrast to the “traditional” focus of psychology on disease, damage, disorder, and disability. Although some have suggested the movement has limitations such as being overly causal, lacking a clear definition of the constructs, and disregarding discrete emotions, the ideology behind the movement remains scientific (Martin, 2003). Unlike its predecessor, the humanistic movement which did not emphasize quantitative methods, the positive psychology movement considers scientific methodology a necessity (Martin, 2003). The influence of positive psychology can be seen in the organizational literature, especially the engagement literature (Luthans, 2002; Schaufeli, Martinez, Marques Pinto, Salanova, &

Academic research on work engagement has demonstrated that it is related to organizational variables such as job satisfaction (Alarcon & Edwards, 2008b; Saks, 2005), turnover intentions (Alarcon, Lyons, Swindler, & Tartaglia, 2008; Saks, 2005; Schaufeli & Bakker, 2004), emotional demands (Schaufeli & Bakker, 2004), organizational commitment (Hakanen et Bakker, & Schaufeli, 2006; Saks, 2005), social support (Schaufeli & Bakker, 2004), health (Schaufeli & Bakker, 2004), subjective well-being (Salanova, Llorens, Cifre, Martinez, & Schaufeli, 2003), organizational citizenship behaviors (Saks, 2005) and task performance (Salanova et al., 2003). Research has also demonstrated that work engagement is related to contextual variables, such as job control (Llorens, Bakker, Schaufeli, & Salanova, 2006; Schaufeli & Bakker, 2006) and workload (Hakanen, et al., 2006). Personality variables such as optimism, self-efficacy, and conscientiousness have also demonstrated a moderate relationship to the construct of work engagement (Mostert & Rothman, 2006; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

The scales used to measure work engagement were constructed with little conceptualization of the construct. Early engagement measures leveraged existing constructs. For example, the Utrecht Work Engagement Scale (UWES) was constructed as the antithesis of burnout, rewording a burnout scale so as to measure engagement (Schaufeli et al., 2002). As such, there was little conceptualization of the work engagement construct prior to creating the scale. The lack of conceptualization prior to creating the scales has led to some fundamental flaws in the work engagement scales that
will be discussed later. The research concerning work engagement must be interpreted with caution until the construct of work engagement is clearly stated and differentiated from other constructs. Without a well-established construct the items in a given scale may diverge from the intended construct, creating issues of construct and content validity, and possibly criterion validity (Leong & Austin, 2006). First, the scale may not encompass the entire construct, leaving out key aspects. Second, the scale may encompass other constructs that are similar but conceptually different. Lastly, by poorly defining or not defining the construct prior to scale development and subsequent construct and criterion validation, the scale may fail to capture significant relationships between otherwise related variables. A clear definition of what type of variable engagement is, i.e. cognitive or affective etc., will help with these aforementioned issues.

Macey and Schneider’s (2008) review of the literature demonstrated that engagement has been conceptualized as trait engagement, state engagement, behavioral engagement, or some combination of the three. Trait engagement was defined as personality traits of individuals that predispose them to engagement. Macey and Schneider focused on traits such as positive affect, proactive personality, conscientiousness, extraversion, and autotelic personality as trait engagement. Behavioral engagement was defined as directly observable constructive behaviors in the work environment. These behaviors have conceptual overlap with organizational citizenship behaviors, proactive initiative, role expansion, and adaptive behaviors. Lastly, state engagement was defined as a positive affective or cognitive state. According to Macey and Schneider, research on state engagement has focused on job involvement, satisfaction, commitment, empowerment, energy, dedication, and absorption as either
correlates or sub-constructs of engagement. The concepts of trait, behavioral and state engagement will each be discussed in more detail.

**Trait Engagement**

First, trait engagement has been conceptualized as positive views of life and work, as exemplified by proactive personality, autotelic personality, trait positive affect, and conscientiousness (Macey & Schneider, 2008). There are both theoretical and quantitative issues with trait engagement as a construct; first I will discuss the theoretical issues. Trait engagement, as defined by Macey and Schneider, is a personality variable and thus, is an antecedent of work engagement, not a type of engagement. For example, an individual high on proactive personality, or one of the many other traits is predisposed to engagement, but the work environment also determines engagement (Maslach, Schaufeli, & Leiter, 2001; Maslach & Leiter, 2008; Schaufeli & Bakker, 2004). Previous research has demonstrated environmental factors such as control, community, rewards, workload, fairness and the similitude of person and organizational values, interact with personality variables to predict workplace well being (McKee, Alarcon, & Edwards, 2007; Maslach & Leiter, 2008).

Trait engagement as a personality construct would be relatively stable across environments. Individuals high on trait engagement would have a propensity to experience state engagement in a variety of different situations, regardless of the environment. For example, a trait engaged person would be engaged in almost any work setting, and would have the propensity to be engaged outside of work such as when working on a car, doing the dishes, or mowing the lawn. Trait engagement would necessitate consistency across situations. On the other hand, state and behavioral
engagement are relatively stable, but the stability of the engagement is dependent on the environment. The engaged individual may become disengaged because of changes in the environment. Research has demonstrated environmental characteristics play an integral role in engagement (Alarcon, Lyons, Swindler, & Tartaglia, 2008b). For example, if a manager is transferred, retires, or is downsized from a company and an inexperienced manager is in place that interferes or makes the job considerably more difficult, the previously engaged worker may be less engaged or disengaged from the work. In addition, if trait engagement existed there would be quantitative evidence of it in the literature.

Quantitatively, if trait engagement is a latent variable, correlations in previous literature would elude to it. A review of the literature demonstrated that correlations between proactive personality, conscientiousness, extraversion, positive affect, and autotelic personality suggest there is not an underlying second-order latent factor that may be present. Intercorrelations between the constructs range from .15 to .42, and do not justify a second-order latent construct (Deluga & Masson, 2000; Major, Turner, & Fletcher, 2006; Brown, Cober, Kane, Levy, & Shalhoop, 2006; Zellars, Perrewe, Hochwater, & Anderson, 2006). To support a latent construct, intercorrelations between the scales should be higher, in the .50 range, such as in the core self-evaluation literature (Judge, Locke, Durham, & Kluger, 1998). The research on emotional stability, self-esteem, generalized self-efficacy, and locus of control demonstrated conceptual overlap between the scales due to high inter-correlations of the scales (Judge & Bono, 2001a; Judge & Bono, 2001b; Judge, Erez, Bono, & Thoresen, 2003). Additionally, the constructs have similar correlations with the same criterion such as performance and job
satisfaction (Judge & Bono, 2001b). These high correlations and similar criterion correlations led to the hypothesis of a second order latent factor, core self-evaluation. The correlations between the personality traits described by Macey and Schneider (2008) do not suggest a second order latent factor. As such, there is no evidence to suggest a trait engagement second order latent construct is valid.

Lastly, personality variables only explain about 3-10% of work engagement in previous studies (Mostert & Rothman, 2006; Xanthopoulou et al., 2007), which is comparable to the link between personality and job performance (Barrick, Mount, & Judge, 2001). This suggests that other workplace variables, such as work environment, may play a role in predicting engagement. For example, an individual high in proactive personality that does not have control over any aspects of the job may not experience engagement because of the inability to change the environment, and in fact research has demonstrated this situation can lead to burnout (McKee et al., 2007). However, researchers should be cautious about the impact of environmental variables.

Although environmental characteristics are important for an individual to become engaged, the environment itself is not sufficient to produce state engagement. Personal characteristics such as personality and health also play a role in predicting engagement (Alarcon & Edwards, 2008c). In addition, personal characteristics in a specific situation such as dynamic coping and social support may also play a role in predicting state engagement. Research on student engagement has demonstrated personality, health, coping styles, and social support explain a significant amount of variance in academic engagement (Alarcon & Edwards, 2008c; Gan, Yang, Zhou, & Zhang, 2007; Zhang, Gan, & Cham, 2007). Macey and Schneider (2008) state while the environment is important,
individual differences in perception also play a role in predicting engagement. I agree with the authors that characteristics like autonomy, control, variety, and many other environmental variables are important, but they contribute to state engagement, they do not constitute state engagement. Thus, I assert there is no trait engagement, but personality variables do play a role in predicting engagement.

**Behavioral Engagement**

Macey and Schneider (2008) also discuss what they call behavioral engagement. Behavioral engagement is conceptualized as the positive behaviors an engaged individual may perform at work. Macey and Schneider suggest behavioral engagement shares conceptual overlap with proactive/personal initiative, adaptive behaviors, role expansion behaviors, and organizational citizenship behaviors (OCB). The issue with these aforementioned constructs is that the constructs are too broad and encompass almost all behaviors at work, so it is difficult to differentiate them from each other. Common criticisms of OCBs are that they entail any positive activity not defined by the position such as: altruism, general compliance, courtesy, civic virtue, sportsmanship, job dedication, and social participation, (Lepine, Erez, & Johnson, 2002; Van Dyne, Graham, & Dienesch, 1994). In addition, one would have to ascertain the motivation behind the actions the individual is performing to assess behavioral engagement. As motivation and leadership theorists have found, an individual may have multiple reasons for performing a specific action. For example, an individual may arrive at work early every day. This may be an OCB, but there may be many motives behind the behavior. For instance, the person may arrive at work early to beat the morning traffic or is in a car pool with others and is dropped off first. The behavioral engagement motivation would be arriving early at
work because the individual enjoys working. Behavioral engagement may also be an amalgamation of the many different motivations. Adaptive behaviors, role expansion, and personal initiative are also susceptible to some of the same criticisms as OCBs. Thus, although there may be a link between these behaviors and engagement, we cannot be sure they constitute engagement until we can differentiate the motives behind them.

State Engagement

State engagement is characterized by positive affective and cognitive states while performing an activity such as work. State engagement can occur in many settings. For example, one may be engaged at work, or while doing a sports activity such as running or swimming. The psychological state of engagement is theoretically the same in both instances. The focus is on what the individual experiences while doing an activity. Macey and Schneider (2008) use the term state engagement in their article, but they are really focusing on work engagement. Work engagement is a specific occurrence of state engagement. They assert work engagement has conceptual overlap with job satisfaction, job involvement, organizational commitment, and empowerment. They describe work engagement as a combination of these constructs, with work engagement as the second order latent construct. Work engagement may correlate with job satisfaction, job involvement, and organizational commitment, but it is a different construct that should be explored. Similarly, empowerment may be an antecedent of work engagement, but it does not constitute the construct of work engagement.

Although Macey and Schneider discuss three types of engagement: trait, behavioral, and state engagement, only state engagement will be focused on in the current study. As mentioned previously, the low correlations in the literature, theoretical aspect
of personality, consistency issue, and small amount of variance personality explains why in previous engagement research trait engagement is not a viable construct. In addition, the overly broad definition and issues in determining the motivation behind a behavior demonstrate behavioral engagement is not a viable construct for measurement. A clearer definition of behavioral engagement, with specific motivations and behaviors needs to exist, before we can adequately quantify the construct. Thus, the focus of the current paper is a specific type of state engagement, work engagement, but before a review of the literature, a distinction must be made between job and work so as to avoid the ambiguity of the construct, as was seen in the involvement literature (Kanungo, 1982). The issue at hand is content versus context.

**Job/Work Distinction**

Kanungo (1982) differentiated between job and work involvement in terms of specific versus generalized references to the task. More specifically, the job is the specific context, whereas work is the more general content. The job, or context, is the specific situation of the current work role. An example of job context is a nurse at a specific hospital in a specific unit. This can include role ambiguity, workload, control, time demands, under or overstaffing, and many other variables specific to that organization and title. The nurse may have a relatively low workload and high control. In contrast, a nurse in a different hospital in a different unit of the hospital may have higher workload and lower control. The work, or content, is more general in that it is the general framework of the type of tasks. This can include perceptions of the value of the work and the essence of the work. For example, work content for a nurse includes helping individuals and being in the medical profession. The nurses in the aforementioned
hospitals share the same type of work content, medical helping professions, but their context is different.

Additionally, researchers have distinguished between work and job more concretely. Paullay, Alliger, & Stone-Romero (1994) explored the conceptual differences between job involvement and work centrality (previously labeled work involvement in the literature). Similar to others (Kanungo, 1982; Rabinowitz & Hall 1977), they conceptualized job involvement as the extent to which one identifies psychologically with the current context. Paullay et al. (1994) separated job involvement into involvement with the role of the current employment and involvement with the context of the current job. They defined work centrality as the importance of work or paid employment in general, specifically as a central life interest. They demonstrated that involvement with the current content, involvement with the current context, and work centrality were all separate constructs. The term “job” refers to the current role in an organization one holds, or more specifically the context. In contrast, “work” refers to the general tasks one completes, or the content. When discussing variables in job context, one should ask about the current setting, such as how often one experiences certain cognitions, affect, and emotions, and performs specific behaviors. When discussing work content, one should explore how often in general the person experiences certain cognitions, affect, and emotions in relation to the tasks they perform in general.

For example, a nurse working in a specific hospital may perceive low control, low sense of community, and high role ambiguity, high time pressure, and understaffing as the job context, which is specific to the particular hospital. In addition, the job context can include the type of equipment in the hospital, the general socio-economic status of
the patients, and other demographic variables. The work content is the demands of the profession, using the nursing example the profession requires high demands for emotional labor, high time constraints, and typically has high workload. In addition, objective tasks such as administering drugs, taking vitals, and providing education are examples of objective aspects of the content. Another example is a nurse transitions from one hospital to another because the previous job context was extremely demanding. The nurse transitions to a hospital, where the job context is less demanding such as from a hospital in an inner city to a hospital in a more rural area. In this situation, the work content is similar, but the job context has changed. In a similar situation, a nurse may transition from the busy inner city hospital to being a pharmaceutical representative. In this instance, the nurse changes the work, or content, being performed. It is important to note, in the example of changing to a pharmaceutical representative, the job context has changed too, but the emphasis is on the content changing.

Work Engagement

Macey and Schneider (2008) discuss work engagement as having conceptual overlap with job satisfaction, job involvement, organizational commitment, and empowerment. They describe work engagement as an amalgamation of the constructs. A review of the constructs and the conceptual overlap and distinctness from engagement is discussed below. The theoretical antecedents, correlates, and outcomes of work engagement are also discussed. Additionally, previous work engagement scales are reviewed, with specific attention given to the Utrecht Work Engagement Scale (UWES, Schaufeli et al., 2002). Lastly, a conceptualization of work engagement is proposed.
Work engagement is a specific type of state engagement; more precisely it is the experience of state engagement with the work one is performing.

*Job Satisfaction.* Job satisfaction has been defined in a variety of different ways. A general definition of job satisfaction is how much one is fond of one’s job (Spector, 1997). Job satisfaction has been defined as an appraisal of one’s job (i.e. a cognitive variable), an affective reaction to one’s job, or an attitude towards one’s job (Spector, 1997; Brief, 1998; Weiss & Brief, 2001; Weiss, 2002). Weiss (2002) has argued that job satisfaction is an attitude, and research should distinguish the objects of cognitive evaluation such as emotions, beliefs, and behaviors. He argues that previous measures of job satisfaction confound job cognitions with job satisfaction, the former being cognitive evaluations and the latter being affective. Job satisfaction can also be discussed in global or facet aspects (Spector, 1997). Global job satisfaction refers to the overall feeling towards the particular job. Global job satisfaction is a predictor of organizational citizenship behaviors (Organ, & Ryan, 1995), absenteeism (Wegge, Schmidt, Parkes, & van Dick, 2007), and turnover (Saari & Judge, 2004). The facet approach is used to find out what aspects of the job context produce satisfaction or dissatisfaction. Some of the facets measured are satisfaction with: the job, supervisor, coworkers, pay, and promotion. There is a vast amount of literature on both global and facet approaches to job satisfaction. Some researchers have suggested job satisfaction can also be separated into cognitive and affective evaluations of the job (see Table 1).

Organ and Near (1985) discussed the distinction between cognitive and affective appraisals of the job. Cognitive appraisals of the job are evaluations of the job in contrast to another context. The emphasis is on the appraisal and assessment of the circumstances
of the job. The affective aspect of job satisfaction captures the feelings in the job, for example the degree of happiness felt about the job. The emphasis here is the emotions, in other words the hedonic tone. They suggest, and others agree (Brief & Robertson, 1989), that most job satisfaction measures capture the cognitive, not the affective tone.

Job satisfaction is different from engagement in several ways. First, job satisfaction can be experienced at many different levels and is a function of perceptions and affect towards the job (Brief, 1998; Organ & Near, 1985; Spector, 1997), whereas work engagement is the content of the work itself (Maslach & Goldberg, 1998). Second, job satisfaction is a focus on the job, or context, not the work (Organ & Near, 1985). The job is a specific instance of employment, such as a nurse in a specific hospital, in a position such as emergency room personnel. The work content is the actual duties one is performing, such as a nurse’s requirement to exhibit empathy, draw blood, and check on the general well being of patients. Keeping with the nurse example, the nurse may not find much job satisfaction from the context, but may be engaged with the work. Thus, a person can be engaged with work and gain a sense of satisfaction from the work, but it is not necessarily an outcome of the job. Research has demonstrated work engagement is positively, but moderately, associated with demands in the workplace (Alarcon et al., 2008a; Saks, 2005), unlike job satisfaction which has been negatively associated with demands (Macklin, Smith, & Dollard, 2006). Lastly, research using structural equation modeling has demonstrated job satisfaction is an outcome of work engagement, and that work engagement fully mediates the relationship between variables such as role clarity and job satisfaction (Alarcon et al., 2008a).
The next logical question then is “Is work engagement simply work satisfaction?” A review of the literature found only one scale to measure work satisfaction, the work satisfaction subscale of the Job Descriptive Index (JDI, Smith, Kendall, & Hulin, 1969). Conceptually, work satisfaction would be how gratified an individual is with his or her work. For example, the work satisfaction subscale asks participants to respond to statements such as “boring”, “fascinating”, and “can see results” in regards to their present work. Although there is conceptual overlap, work engagement is more complex than just being pleased with one’s work, rather it is has been defined in terms of high energy, a sense of dedication, meaningfulness, positive emotions, and a similar feeling to flow (Schaufeli et al., 2002a, 2002b). Additionally, work satisfaction does not have a cognitive component in the JDI, unlike work engagement. The difference is that an individual can like the job and be satisfied, but not feel invigorated, dedicated, or “in the moment.” For example, an individual may have a job that requires very little from the individual and has relative job security. The individual may come to work, work a little, and be able to socialize for a large portion of the day. If the individual is the type of person that enjoys loafing, the individual will have high job satisfaction because it is meeting all of the individual’s needs, but no researcher would say the individual is engaged. Similar confusion with job involvement and engagement exist, but again the constructs are conceptually different.

Job and Work Involvement. Job involvement has been conceptualized as a cognitive belief that is a function of how much the job can satisfy the worker’s present needs (Brown, 1996; Kanungo, 1982). Job involvement is a descriptive belief and cognitive state of psychological identification with the specific job (Kanungo, 1982).
Work involvement is a normative belief about the value of work in one’s life and cognitive psychological identification with the work in general. Kanungo (1982) noted that job involvement is caused by current events, whereas work involvement is caused by previous events. Research has focused on many different measures of job and work involvement, with the terms being used interchangeably (Brown, 1996; Kanungo, 1982; Lodahl & Kejner, 1965; Saleh & Hosek, 1976). The job and work involvement literature focus on: a) work being a central life interest b) the extent of active participation in the job and c) performance self-esteem. Performance self-esteem is the degree to which one’s job performance influences the person’s general self-esteem (Brown, 1996). Although research in this field is still conceptually ambiguous, these three criteria for job involvement are evident in all the scales created to measure involvement.

Job and work involvement differ from work engagement. Work engagement does not have to be central in one’s life. Researchers have described engagement as a stable affective state one experiences at work (Schaufeli et al., 2002b; Hallberg & Schaufeli, 2006). The engaged individual is engrossed while at work, but it is not a necessary condition that the individual see work as a central tenet to life, as in job involvement. Although engagement and self-esteem should be positively correlated, engagement with one’s work may not necessarily have a direct impact on self-esteem. Research with existing work engagement scales demonstrates discriminant validity of work engagement and job involvement (Hallberg & Schaufeli, 2006). The UWES was condensed into a nine-item composite scale and correlated with a measure of job involvement. The correlation between engagement and job involvement was .35, meaning they only shared approximately 12.25% of variance, indicating job involvement is a correlate of
engagement but not the same construct. In addition structural equation modeling demonstrated they are distinct constructs. Similarly, engagement has also been confounded with other contextual variables such as organizational commitment.

Organizational Commitment. Organizational commitment is the psychological attachment an employee experiences towards the organization and its goals (Mathieu & Zajac, 1990; Riechers, 1990). Organizational commitment has been conceptualized and measured in a variety of different ways including but not exclusive to: attitudinal commitment, calculated commitment, and normative commitment (Cooper-Hakim & Viswesvaran, 2005; Mathieu & Zajac, 1990). The commonly used operational definition of organizational commitment is in terms of identification and involvement with a particular organization (Mowday, Porter, & Steers, 1982). More simply put it is the general attitude or belief towards the organization as a whole (Porter, Steers, Mowday, & Boulian, 1974).

The most researched component is attitudinal, typically with the scale developed by Mowday, Steers, & Porter (1979). It is defined as an individual’s identification and involvement with a particular organization. Attitudinal organizational commitment has three factors: a) acceptance and belief in the organizations purpose and values; b) readiness to exercise effort on behalf of the organization and, c) a strong desire to continue membership in the organization (Mowday et al., 1982). Calculated commitment is defined as an individual investing in the company with “side-bets” such as pension plans, and cannot “afford” to separate from the company (Mathieu & Zajac, 1990). Normative organizational commitment, the cognitive aspect of organizational
commitment, occurs when the employee commits to the organization out of sense of obligation, such as training the company provided the employee (Weiner, 1982).

The crux of organizational commitment is the relationship with the organization, or context (Porter et al., 1974), unlike work engagement, which is a relationship with the work itself (Maslach & Goldberg, 1998). Organizational commitment scales focus on the relationship one has with the organization as a whole, and how likely it is the individual will leave. Engaged individuals may want to leave or dislike the company, but the engagement with the work may remain the strong. Research demonstrates discriminant validity of work engagement and attitudinal organizational commitment (Hallberg & Schaufeli, 2006). Although the UWES was correlated with a measure of organizational commitment, structural equation modeling demonstrated they are distinct constructs. The correlation between work engagement and organizational commitment was .46 meaning they only shared approximately 21.16% of variance. It is clear organizational commitment is a correlate of work engagement, but not necessarily the same construct. It is possible to imagine an individual who is engaged in the work, yet not committed to the organization, and vice versa. Continuing with the nurse example, if the nurse is overworked and mistreated in the organization, the nurse may leave for a different organization where the same work can be performed. Additionally, work engagement is conceptually different from calculated commitment. The engaged worker may not invest in “side-bets,” and thus may not be attached to the organization. Lastly, normative organizational commitment results from a feeling of obligation, but work engagement has not been conceptualized as preceding feelings of obligation.
Empowerment. Empowerment is a multidimensional motivational construct that retains its meaning and function across levels of analysis (Klein & Kozlowski, 2000). Empowerment is seen as a multidimensional construct that is comprised of meaning, perceived competence, self-determination, and impact (Thomas & Velthouse, 1990). The construct of meaning is conceptualized as how individuals gauge the relative worth of their work relative to the goal one is pursuing, such as acquiring a raise. Perceived competence is similar to self-efficacy; it is the belief in ability to perform adequately (Spreitzer, 1995). Self-determination is similar to locus of control; it is the belief one has a choice in initiating and regulating actions. Impact is the degree to which an individual can influence the job environment, either strategic, administrative, or operating outcomes.

Work engagement is different from empowerment in many ways. Meaning, competence, self-determination, and impact may influence the work engagement, but they do not constitute engagement by themselves. Both empowerment and work engagement are multidimensional constructs, and have conceptual overlap in the latent variables that make up the second-order latent variables. However, they do not constitute the same second-order latent constructs because engagement and empowerment have latent constructs the other does not. Meaning is an important aspect of engagement, but meaning in terms of empowerment is different. For example, work engagement is not a concern with any particular goal, other than participating in the work, whereas meaning in empowerment is gauging oneself relative to the goal, such as acquiring a raise (Thomas & Velthouse, 1990). Self-determination may influence work engagement, but the belief one has a choice in his or her actions does not constitute work engagement. Similarly, the degree to which an individual believes he or she can influence the job
environment does not constitute work engagement because it does not focus on the work. Work engagement is a cognitive/affective construct, whereas empowerment as defined in the literature is strictly a cognitive construct. Empowerment does share conceptual overlap with engagement, specifically competence.

Competence at one’s work has been neglected in the engagement research. To feel engaged one would have to perceive competence in the task one is performing. One is not engaged in the task if one is constantly trying to learn what the work entails. However, the person may be engaged with learning the material, but the engagement with the work is not present. This example illustrates that one may be engaged in learning an aspect of the work, but it is engagement with learning, which may or may not lead to engagement in the work content. For example, an individual is learning how to use new software. At first, the individual may be engaged with trying to learn the software, perhaps forgetting to go on break, taking an interest in how the program works, etc. However, after the individual learns the program, he or she may not like its interface or its processing capacities and become less engaged. Conversely, an individual may not be engaged in learning the program, finding it very difficult to learn, however; once the program is learned the work may be engaging because of a quality of the work. Thus, empowerment should be a correlate of work engagement, but the two constructs will not have a high correlation that indicates the same construct.

*Perception of Performance.* It is peculiar that performance has not been included in previous criteria for engagement. Performance has been dichotomized as either contextual or task performance (Borman & Motowidlo, 1997). Contextual performance is defined as behaviors an individual engages in that contribute to the organizational
effectiveness in ways that shape the organizational, social, and psychological context that serves as the catalyst for task activities and processes. Contextual performance shares considerable conceptual overlap with OCB. Task performance is the effectiveness of performing activities that contribute to the organizations technical core either directly by implementing a part of its technological process or indirectly by providing it with needed materials or service. Contextual and task performance can both be conceptualized as either objective or individual subjective performance. A key aspect of state engagement that is missing from most definitions of engagement is subjective task and contextual performance. The engaged individual feels a sense of effectiveness in performing the behaviors. However, it is important to note perceived performance is different from actual performance, the latter being behavioral engagement the former being state engagement.

In summation, engagement is conceptually different from job satisfaction, work satisfaction, job and work involvement, organizational commitment, empowerment, and perceptions of performance as demonstrated in Table 1. Engagement is the positive affective and cognitive state of absorption, energy, fulfillment, and competence in one’s work content. Job satisfaction is the affective or cognitive reaction to one’s work context. Work satisfaction is one’s perceived gratification with one’s work content and is purely cognitive. Job involvement is the degree of identification with one’s work context; whereas work involvement is the cognitive belief of the centrality of the work content to one’s life. Organizational commitment is the affective attachment to the job context. Empowerment is the cognitive belief of meaning, competence, self-determination, and
impact of the job context. Lastly, perceptions of task and contextual performance is a cognitive belief about the work content one is performing.

**Antecedents, Correlates, and Outcomes of Work Engagement.** Before discussing the previous measures of work engagement it is important to clarify the antecedents, correlates, and outcomes of work engagement to clearly operationalize the construct. Antecedents of work engagement include the objective and subjective environment and personality. Previous research has demonstrated perceptions of the environment are important in predicting work engagement (Alarcon et al., 2008, Saks, 2005). Specifically, the job demand-control model suggests high demands interact with high control to predict optimal functioning (Karasek, 1979), which research has supported (Alarcon et al., 2008). Previous research has demonstrated control and demands are positively correlated with engagement (Alarcon et al., 2008, Macklin et al., 2006). This research suggests how the individual perceives the environment plays a role in predicting work engagement. Personality has significantly predicted work engagement (Langelaan, Bakker, van Doornen, & Schaufeli, 2006) and has demonstrated a role in how individuals perceive the environment (Alarcon & Edwards, 2008), suggesting the relationship between personality and work engagement is partially mediated by perceptions of the environment.

Correlates of work engagement include variables such as job involvement, work centrality, organizational commitment, empowerment, and strain. Job involvement, work centrality and organizational commitment have all demonstrated significant correlations with a previous measure of engagement (Hallberg & Schaufeli, 2006). As discussed earlier, the constructs only share between 10-20% of variance with engagement, leading researchers to conclude work engagement is a separate construct. Empowerment is a
multidimensional construct that shares conceptual overlap with work engagement, as described before. The construct has not been explored in relationship to work engagement to date, but should moderately correlate with work engagement. Lastly, strain, more specifically burnout, has demonstrated a significant negative correlation with work engagement (Alarcon & Edwards, 2008; Schaufeli et al., 2002a; 2002b). Indeed, a measure of burnout, emotional exhaustion, was used to construct the most popular form of measuring engagement, which will be discussed later.

The outcomes of work engagement include variables such as objective performance, job satisfaction, turnover intentions, and behaviors labeled as behavioral engagement by Macey and Schneider (2008). Although it has been argued above that subjective beliefs about one’s ability to perform a task are part of work engagement, the objective performance is an outcome of work engagement. The beliefs and attitudes held by the individual help to increase one’s performance with the work. In addition, job satisfaction is an outcome of work engagement, as the positive beliefs and attitudes should facilitate job satisfaction (Saks, 2005). Turnover intentions have been negatively associated with work engagement, so that as an individual becomes more engaged in the work, it is less likely the individual will have aspirations of leaving (Alarcon & Edwards, 2008; Saks, 2005). Lastly, behavioral outcomes such as adaptive behaviors, role expansion, and organizational citizenship behaviors, also known as behavioral engagement (Macey & Schneider, 2008) should be a consequence of work engagement.

Some researchers suggest there is no need for a work engagement scale. Newman and Harrison (2008) suggested, there is conceptual overlap between work engagement and job satisfaction, involvement, organizational commitment, affect, and empowerment,
thus there is no need for a work engagement scale. However, although there is conceptual overlap between the construct of work engagement and the aforementioned constructs, work engagement can clearly be differentiated from job satisfaction, job involvement, organizational commitment, and empowerment.

Additionally, previous scales, such as the UWES, have serious issues with construction and conceptualization of work engagement. These research gaps create the impetus for a scale that captures the full construct of work engagement.

*Previous Engagement Scales.* Four scales of engagement are prevalent in the literature, the engagement scale by the Gallup Workplace Audit (GWA; Harter, Schmidt, & Keyes, 2002), low scores on the Maslach Burnout Inventory (MBI; Maslach et al., 2001), the Work Engagement Scale (Britt, Adler, & Bartone, 2001; Britt et al., 2005), and the UWES (Schaufeli et al., 2002b).

The GWA was created to measure engagement in the workplace, but the items do not address the individual’s relationship with the work. Engagement was defined as emotional connectedness to others and cognitive vigilance as well as attitudinal outcomes such as “satisfaction, loyalty, pride, customer service intent, and intent to stay with the company” (Harter, Schmidt, & Hayes, 2002). The items on the scale measure constructs that may lead to engagement, but do not constitute engagement itself. The items represent role clarity, rewards, sense of community, perceived control, opportunities for growth, and having the necessary provisions for the completion of work, all aspects that were described above as antecedents of engagement. The scale is copyrighted and cannot be reproduced in the current manuscript; however the reader is free to view the scale in the target article (Harter et al., 2002). The issue with the scale is that it does not measure the
cognitive and affective experience with the work; rather it measures perceptions of environmental variables of the workplace, which have already been discussed as conceptually different from engagement. The measure does predict business-unit performance, as would be expected, and is an adequate measure of a wide variety of environmental characteristics, but it does not measure work engagement. Lastly, the measure has been labeled both as a work satisfaction and work engagement scale, leading one to wonder what it actually measures (Macey & Schneider, 2008, Navy Morale, Welfare, & Recreation, 20089).

Maslach and Leiter (1997) have stated that burnout and work engagement are comprised of three latent constructs with burnout as the low range and engagement as the high range. The latent constructs are energy, involvement, and efficacy. These dimensions represent the essence of burnout where energy turns into emotional exhaustion, involvement turns into cynicism or depersonalization, and efficacy turns into reduced personal accomplishment. Low scores on any version of the MBI, indicating the individual is engaged, measure engagement in this theory. They infer the MBI measures the full range of the three latent constructs.

Research has instead indicated that the MBI measures the middle to low range of the three latent constructs and does not measure individuals experiencing engagement (Duran, Extremera, & Rey, 2004; Gonzalez-Roma et al., 2006; Hakanen et al., 2006; Langelaan et al., 2006; Schaufeli & Bakker, 2004; Schaufeli et al., 2002a; Schaufeli et al., 2002b). The MBI was scaled with the intention of measuring people experiencing burnout rather than work engagement. The scale is primarily a strain scale and has demonstrated only moderate correlations with other engagement scales (Demerouti,
Bakker, de Jonge, 2001; Hakanen et al., 2006; Schaufeli et al., 2002a, 2002b) and confirmatory factor analyses have demonstrated burnout and engagement are not comprised of the same latent constructs (Alarcon, 2007; Duran, Extremera, & Rey, 2004).

The Work Engagement Scale (Britt et al., 2001, 2005) is a four-item scale that assesses commitment to and importance of the job to the individual. A review of the scale demonstrates it is measuring commitment and job involvement. Items such as “I am committed to my job” demonstrate the scale is not measuring engagement with the work. The constructs of organizational commitment and job involvement have been discussed previously. The GWA and Work Engagement Scale measure constructs previously compared and contrasted to engagement, are not used frequently in academic research, and do not warrant further review. However, the most prominent scale in the engagement literature to date is the UWES, which will now be discussed.

The UWES is the most popular work engagement scale in the literature. A review of articles in PSYCHINFO from 1990 to 2006 demonstrates the scale is used in 80% of articles on engagement in the workplace (Alarcon & Edwards, 2008). The UWES is a scale that was created as the conceptual antithesis of burnout (Schaufeli et al., 2002a, 2002b). A review of the literature, in the database PSYCHINFO, demonstrates it is the most widely used work engagement scale to date. The original version of the scale is 17-items long (Schaufeli et al., 2002b), but recently a shorter 9-item version of the scale has been created (Schaufeli et al., 2006). The scale is comprised of three subscales: vigor, dedication, and absorption.
Vigor is an abundance of energy at work, due to an abundance of resources (Schaufeli & Bakker, 2001; Schaufeli et al., 2002b). Vigor is characterized by high levels of energy and mental resilience (persistence in the face of difficulties), and investing in work (Maslach & Goldberg, 1998; Maslach et al., 2001; Schaufeli et al., 2002b). Dedication is exemplified by a sense of significance, enthusiasm, challenge, pride, and inspiration (Schaufeli et al., 2002b). Dedication is conceptualized as high levels of identification with the work (Schaufeli & Bakker, 2001; Schaufeli et al., 2002b) and has been positively correlated with constructs such as organizational commitment (Hakanen et al., 2006). Absorption is characterized by focused attention, a clear mind, intrinsic enjoyment, loss of self-consciousness, distortion of time, a sense of complete control, and effortless concentration (Schaufeli et al., 2002b). Absorption is similar to the construct of flow; the difference between the two constructs is that flow is experienced in short peak episodes, whereas absorption is experienced in persistent and encompassing episodes, such as when a person is at work (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005; Schaufeli et al., 2002b).

Although the scale is the most popular engagement scale in the academic literature, there are issues with the construction of the UWES. First, the scale was created from a small pool of items. Second, the scale is susceptible to answering bias, as all items are positively worded. Third, the scale focuses exclusively on the affective component of engagement. Lastly, an abundance of literature has explored the UWES cross-culturally, however proper measurement equivalence procedures were not run, as such it is unclear what the scale is measuring across cultures. Each of these issues will be discussed in turn.
The original 17-item scale was created from a pool of only 24-items, a ratio of less than 1.5:1. Researchers have suggested the item pool be at least twice as big as the intended test, a ratio of 2:1 (Nunnally, 1978; Kline, 1999). The abundance of items gives the researcher better probability of identifying adequately and poorly functioning items. Additionally, as the nature of the items is usually not known during scale development, having an abundance of items provides some mitigation of risks against poor reliability, such as with the absorption scale (DeVellis, 2003). An item pool with a 4:1 ratio has been suggested in the literature to ensure the best items are chosen with the most information possibly given (DeVellis, 2003; Fishman & Galguera, 2003). This is done to ensure componentiality is preserved, for refinement purposes, and to avoid low reliabilities. Other researchers have suggested an optimal ration of 6:1, but consider a ratio of 3:1 as the absolute minimum to avoid psychometric issues (Hambleton, Jones, & Rogers, 1993).

However, if the aforementioned procedure is not viable, researchers can have subject matter experts rate the items and give feedback to determine the best items for use, no longer needing the large ratios for the item pools (Spector, 1992). Neither of these procedures were used in the creation of the UWES.

The 24 items that were created are clearly a derivation of the MBI. The MBI is a copyrighted scale and I am unable to reproduce the items in the current research, however the reader is encouraged to compare the items in the original articles publishing the MBI (Maslach & Jackson, 1981) and the UWES (Schaufeli et al., 2002b). The conceptual overlap of the items on the two scales has led to problems with the UWES. An individual that is answering a question first negatively, then reworded positively may mentally refer to the previously answered question for a response (Nunnally, 1978). Many books on
psychometrics warn against redundant items in a test (Nunnally, 1978; DeVellis, 2003; Fishman & Galguera, 2003; Leong & Austin, 2006; Spector, 1992). Spector (1992) advised specifically against rewording items to make them negative, and conversely in the case of the UWES to make them positive. It is clear the formation of the 24 items was not based on the method described by Spector (1992), which is generally used in scale construction. Although research has demonstrated the UWES provides incremental validity in predicting job satisfaction and turnover intentions controlling for burnout, it is unclear whether engagement is the construct being measured (Alarcon & Edwards, 2008).

The UWES may be susceptible to answering bias. Both the 17 and 9-item versions of the UWES are all positively worded. There are no reverse coded items for the scale. The lack of reverse coded items may lead to answering bias in the scale, specifically acquiescence and social desirability (Nunnally, 1978; Spector, 1992). Spector (1992) warns that if all items are worded positively or negatively, the construct may be confounded with the individual’s tendency to agree rather than the individual’s actual attitudes towards the items. This can cause extreme scores on scales. Additionally, the priming of only positive or only negative events can lead to extremeness, a tendency to mark the extremes of rating scales. These can all lead to a lack of content and criterion validity (Cronbach, 1984).

In addition, the UWES contains double loaded items. The item “” is a double loaded item in that participants may be responding to either aspect of the item. Spector (1992) discussed how double loaded items may confuse participants and may have trouble responding to both aspects of the item.
In addition, the UWES focuses strictly on the affective component of engagement, and ignores the cognitive component of work engagement. The affective component is an integral part of work engagement. The relationship with the work creates an emotional response in the individual, but this is not the sole component of work engagement. The cognitive component is just as important as the emotional aspect. The cognitive aspects such as subjective task performance, efficacy, and the meaningfulness of the work are an integral part of state engagement. As discussed earlier, similar issues were found in the job satisfaction literature (Brief & Weiss, 2002). Organ and Near (1985) described job satisfaction as having both an affective and cognitive component. Researchers demonstrated only one scale effectively captured both the affective and cognitive components of job satisfaction, and other measures primarily measured the cognitive components (Brief & Robertson, 1989). The paradox of construing job satisfaction in affective terms, but measuring it cognitively remains today (Brief & Weiss, 2002). Similarly, work engagement has been primarily discussed in terms of affect while ignoring the cognitive components.

Some have advocated the UWES is a high-quality measure of engagement because studies have demonstrated its validity cross-nationally and across racial groups (Schaufeli et al., 2002b, Schaufeli et al., 2006; Storm & Rothman, 2003). However, research exploring the equivalence of the measure cross-culturally has been neither consistent nor adequate. A review of all the literature for measurement equivalence of the scale demonstrates that none of the studies followed the procedure covered by Vandenberg and Lance (2000), which has been the preferred procedure due to its theoretical methodology (for more information see the target article, Ployhart,
Weichmann, Schmitt, Sacco, & Rogg, 2003; Meade & Lautenschlager, 2004; Ployhart & Oswald, 2004). Without the proper measurement equivalence procedures the UWES cannot be assumed to measure the same constructs nor function similarly across cultures. It is possible the UWES measures completely different constructs across countries. In addition, if the items function differently across cultures it may be biased towards certain cultures.

In summation, the UWES has several problems inherent in the scale. The scale was not constructed with adequate psychometric rigor. The scale is a rewording of the MBI, the scale had a small number of items for selection from the item pool, and the scale does not have any reverse coded items. In addition, although it has been argued the scale assess engagement across cultures; it cannot be adequately supported because proper measurement equivalence procedures were not performed.

*Engagement Defined.* State engagement is an affective and cognitive construct that focuses on the work content. Work engagement is a specific instance of state engagement; more precisely it is the experience of state engagement with the work content. Work engagement is comprised of positive affective states and cognitive beliefs about the work. Work engagement is relatively stable state while performing the work content; however it is influenced by environmental variables. Work engagement focuses affective and cognitive aspects of the work content at the individual level. The affective component of work engagement can be defined as a positive energetic relationship with the work defined by dedication, an abundance of energy, satisfaction, and positive emotional states. The cognitive components of state engagement can be defined as
competence or perceived self-efficacy, performance self-esteem, absorption, and a sense of meaningfulness.

Research has demonstrated that classical test theory (CTT) has issues with determining the best items for use in a survey, but more advanced procedures allow researchers to represent items with models that fit the data more accurately (Embretson & Reise, 2000). Advances in computer technology have changed the ease with which we can analyze data, resulting in nonlinear models to deal with complex statistics. Traditional methods for creating scales assume linearity of the constructs, whereas recent literature demonstrates affective and emotional scales maybe nonlinear (Waller et al., 1996). The UWES used CTT methods that rely on the assumption of linearity to create the scale. Advances in scale construction using non-linear forms such as IRT ensure that a scale is measuring adequately across the entire latent trait (Embretson & Reise, 2000). A more in depth discussion of the use and comparison of nonlinear methods with linear methods follows.

*Item Response Theory*

Nonlinear models of scale development have received increasing interest in the last 20 years (Waller, Tellegen, McDonald, & Lykken, 1996). IRT estimates a person’s trait level from responses to test items. The IRT model specifies both trait and item level properties, and how they are related to the person’s responses on items. The latent trait is estimated in the context of an IRT model, thus IRT is a model-based measurement theory. Many studies have used IRT to construct, revise, and shorten ability tests, and compare the efficiency of tests (Embretson & Reise, 2000; Samejima, 1994; Scherbaum, Cohen-Charash, & Kern, 2006; Waller et al., 1996). Although in the past scale
development using IRT focused on aptitude and intelligence tests, which are typically dichotomous, a growing literature has taken advantage of graded-response models to evaluate personality measures (Embretson & Reise, 2000). The following is a brief review of IRT.

The graded response model (GRM) is an extension of the two parameter logistic model (2PLM). Whereas the 2PLM is for tests with dichotomous items, the GRM is for tests with ordered categorical responses, such as Likert scales. The GRM is a difference model, meaning the conditional probability of endorsing a particular category (i.e. 1 through 5) requires two steps. First, boundary response functions (BRFs) are used to estimate the threshold between two items. The measurement of the thresholds between items means we will estimate k-1 response categories. For example, if a given question has five Likert response categories only four threshold parameters will be estimated. The formula for the GRM BRF is:

$$P_{ix}^*(\theta) = \frac{\exp[a_i(\theta_s - b_{ij})]}{1 + \exp[a_i(\theta_s - b_{ij})]}$$

where $P_{ix}^*(\theta)$ is the probability of a respondent at a given level of theta responding to option X or any higher ordered option on item i, $b_{ij}$ is the option difficulty parameter, and $a_i$ is the discrimination parameter. After the operating characteristic curves are created, the next step is to create item characteristic curves (ICC). The ICCs are a function of the probability of responding in the particular response category. The probability of responding above the lowest category is 1.0, and the probability of responding above the highest category is 0.0. The probability of a participant responding to each category is a function of operating characteristic curve and either the upper or lower limits of the test.
or the previous operating characteristic curve. For example, for a test with five items, the probability estimates would be:

\[
P_{i0}(\theta) = 1.0 - P_{i1}^*(\theta)
\]
\[
P_{i1}(\theta) = P_{i1}^*(\theta) - P_{i2}^*(\theta)
\]
\[
P_{i2}(\theta) = P_{i2}^*(\theta) - P_{i3}^*(\theta)
\]
\[
P_{i3}(\theta) = P_{i3}^*(\theta) - P_{i4}^*(\theta)
\]
\[
P_{i4}(\theta) = P_{i4}^*(\theta) - 0
\]

It is also important to note that for any fixed value of theta, the sum of the response probabilities is equal to 1.0.

The use of IRT requires estimating an item information function (IIF). An IIF indicates the amount of psychometric information an item contains at all points along the latent trait-continuum. The IIF can then be used to form test information functions (TIFs) that can help researchers evaluate the effectiveness of a test. This provides information about the test that can not be obtained from classical psychometric procedures because the standard error of measurement is assumed to be constant across all levels of the construct. IRT has a distinct advantage over CTT in that some items may be better indicators than other items, and may not be identified using CTT models. In CTT scores may have high internal consistency, but the items may be inconsistently related to the construct. IRT can establish if the items are consistently related to the construct.

Any ICC can be transformed into IIF. The IIF is an estimate of the precision each item offers across the latent trait. The general formula for an IIF is:

\[
I(\theta) = \sum_{x=0}^{m} \frac{P_{ix}^*(\theta)^2}{P_{ix}(\theta)}
\]
where $I(\theta)$ is the amount of psychometric information of an item for a given theta, where $m$ is the number of category boundaries, $i$ is the difficulty of the step associated with the category score $x$, and the higher the categories indicate higher ability (De Ayala, Dodd, & Koch, 1992).

The IIFs are additive across items that are regulated on a common latent trait to create the TIF. The TIF can be used to determine how well a set of items measure the latent trait. The formula for the TIF is:

$$TI(\theta) = \sum_{i=1}^{I} I(\theta)$$

The TIF has an exact relationship with the standard error of measurement for scoring a respondent with maximum likelihood. The standard error formula is:

$$SE(\theta) = \frac{1}{\sqrt{TI(\theta)}}$$

It is worth noting that the TIF value is completely independent of the sample taking the test. This is in stark contrast to CTT.

As mentioned earlier, IRT is a model based method for determining a person’s trait level. Two methods are used for assessing model fit, graphical methods and statistical methods. Graphical methods use fit plots to examine model-data fit. Statistical methods are more widely used for assessing model fit and are more formalized, specifically the chi-square statistic. For a more comprehensive review of both approaches, the reader is invited to read chapter 9, in Embretson & Reise, (2000).

The chi-square statistic is a theoretical probability statistic. The ordinary chi-square for an individual item $i$ is:
\[ X_i^2 = \sum_{k=1}^{s} \frac{[O_i(k) - E_i(k)]}{E_i(k)} \]

where \( s \) is the number of keyed options, \( O_i(k) \) is the observed frequency of endorsing option \( k \), and \( E_i(k) \) is the expected frequency of option \( k \) under a particular IRT model.

The expected frequency of a participant selecting an option is:

\[ E_i(k) = NP(v_i = k | \theta = t)f(t)dt \]

where \( f(t) \) is the theta density, which is usually taken to be the standard normal (Drasgow, Levine, Tsien, Williams, & Mead, 1995). The chi-square statistic for single items is insensitive to violations of unidimensionality (Vander Wollenberg, 1982). Additionally, the statistic is insensitive to other fit issues, to avoid these problems the chi-square statistic should be computed for pairs and triplets of items. The pairs and triplets of items more accurately demonstrate whether there are issues of fit with the model. The expected frequency for a pair of items in the \((k,k')\)th cell for items is computed as follows,

\[ E_{ii'}(k,k') = NP(v_i = k | \theta = t)P(v_i = k' | \theta = t)f(t)dt \]

And the observed frequencies are counted in each cell. Some of the cells are merged so the expected frequencies exceed 5. The normal chi-square statistic is then calculated for a two-way table. A similar procedure is used for triplets. For a more in depth discussion of the chi-square statistic the reader is encouraged to review Drasgow et al. (1995).

The method described by Drasgow and colleagues (1995) has received increased scrutiny. Their method involves splitting the sample in half and using the two halves for comparison in the chi-square test. Recent research has suggested using the same data, i.e. not splitting the data in half, for more accurate assessment of the chi-square fit indice (LaHuis, Clark, & O’Brien, 2009). The chi-square test of pairs and triplets will be the preferred method for assessing model fit in the current study.
IRT has clear advantages over CTT. First, the assessment of items is non-linear and is thought to be a more accurate assessment of how participants respond to items. In addition, the standard error in item response theory is not sample dependent and may vary across the latent trait. Lastly, IRT is able to assess the amount of information a test is providing at a given point on a latent trait.

Current Study

The goal of the current study addresses the need for a construct valid and reliable measure of work engagement. The current study uses the previously outlined theoretical framework, with work engagement consisting of a positive energetic relationship with the work defined by dedication, competence or perceived self-efficacy, performance self-esteem, and a sense of meaningfulness. The current scale was developed with the aforementioned constructs in mind.

Measures of work engagement, perceptions of the work environment, trait affect, strain, and job satisfaction will serve as measures of convergent and discriminant validity. The UWES will be included as a measure of convergent validity. However, it is not expected to meet the criteria of convergent validity, rather it will be highly correlated with the current engagement scale, because the conceptual domain of the current scale is wider than that of the UWES. Thus, they should be correlated, but not on a level to indicate convergent validity.

Hypothesis 1: Higher scores on the UWES will be correlated with higher scores on the WWES, but will not be strong enough to indicate convergent validity.

A measure of burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) will provide discriminant validity with the engagement scale. As noted before, research has
demonstrated burnout and engagement are separate constructs (Duran et al., 2004; Schaufeli & Bakker, 2004), thus the measure of burnout should have a moderate negative correlation with engagement.

_Hypothesis 2: Higher scores on burnout will be correlated with lower scores on the WWES._

The Areas of Worklife Survey (Leiter, 2008) will be included to demonstrate discriminant validity. Maslach and Leiter (1997) hypothesized engagement is a function of six perceptions of fit with the environment, specifically workload, control, reward, community, fairness, and values. Perceptions of match with the work environment should positively correlate with engagement; however they do not constitute engagement, as described above.

_Hypothesis 3: Higher perceptions of fit will be correlated with higher scores on the WWES._

The Positive Affect Negative Affect Scale (PANAS, Watson, Clark, & Tellegen, 1988) measure will provide a measure of discriminant validity with the current engagement scale. Research has demonstrated an individual’s disposition plays an important role in organizational attitudes (Maslach et al., 2001; Mostert & Rothman, 2006). Trait affect should correlate significantly with engagement, but no so high as to indicate convergent validity. As discussed above, trait affect is theoretically different from affective and cognitive beliefs of the work.

_Hypothesis 4: Higher scores on the positive affect and lower scores on negative affect will be correlated with higher scores on the WWES._
Job satisfaction (Cammann, Fichman, Jenkins, & Kelsh, 1979) will provide discriminant validity. Job satisfaction is conceptually different from engagement as stated prior, and the job satisfaction measure should provide discriminant validity for the current scale. Measures of empowerment, job/work involvement, organizational commitment, and performance will not be included because previous research has already demonstrated they are separate constructs from engagement (Hallberg & Schaufeli, 2006).

*Hypothesis 5: Higher scores on job satisfaction will be correlated with higher scores on engagement.*
Method

Participants

Data for this study was collected with two samples. The first sample was used for the purpose of scale refinement. Data from this phase was used to select the items for the refined version of the WWES. The second sample was used for the final item selection and validation of the WWES.

Sample 1. Participants in this sample were 1000 employed introductory psychology students at a Midwestern university, who participated for course credit. Students were recruited from an online data collection web site. The website stated the requirements for the study. The only restriction to participating in the study was the students had to be employed. The data was screened for participants who worked 20 hours or more a week and had a job tenure of greater than six months. Previous research suggests a minimum of 20 hours a week is necessary for adequate reliabilities for workplace variables (Chang, Rand, & Strunk, 2000). This resulted in a sample of 387 participants. Participants were screened post collection to avoid response distortion of hours worked for inclusion in the study. The average age of the participants was 20 years old. Approximately 63% of participants were female and 73% were Caucasian. The average hours worked was 28.5 and average tenure on the job was 21.5 months.

Sample 2. Participants were 541 full time employees from a variety of occupations who participated in the current study for a $5 gift card. Participants were recruited from the StudyResponse Project (“The StudyResponse Project.; n.d.). StudyResponse maintains a database of more than 80,000 individuals that agreed to be emailed regarding possible participation in online research. The database has been used
to recruit participants for published studies in the past (e.g., Judge, Ilies, & Scott, 2006; Piccolo & Colqitt, 2006; Reynolds & Ceranic, 2007). The participants were recruited from an online data collection web site. Participants were sent an invitation by electronic mail to complete a questionnaire online and encouraged to forward the invitation to other potential participants. The electronic message contained a website link to the survey which took the participant directly to an informational letter describing the purpose of the study and instructing them to answer the questionnaire with regard to the participant’s present work. The average age of the participants was 42 years old, approximately 51% of participants were female, and 76% were Caucasian. The average amount of hours worked a week for the sample was 40, and the average tenure on the job was 74 months.

Item Development

Item development was based on the guidelines set forth by Spector (1992). Based on the theoretical framework discussed previously 133 items were developed to measure the affective and cognitive components of work engagement, items are in Appendix B. Consistent with the definition of work engagement, items reflect positive emotional states and cognitive beliefs of competence and meaning at work. Items were generated by reviewing past work engagement scales, but not duplicating any items. Care was taken to generate both positive and negatively worded items to avoid answering bias. The items were given to a convenience sample of 6 graduate students and working I/O psychologists to establish the clarity of instructions, establish the length of time necessary to complete the measure, determine whether items were cognitive or affective, and to identify any problems with wording or objectionable items. Open-ended comments were requested at the end of the questionnaire. Any redundant items were deleted and
instructions were modified as necessary. Additional changes were made to items that did not appear to fit the latent constructs. Participants were asked to indicate their level of agreement on a Likert-type scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The steps described above left 82 usable items for administration to the student sample.

**Measures**

Participants in sample 1 were given 82 items pertaining to engagement for exploratory factor analyses. From the 82 items, 45 were chosen and given to sample 2. All participants completed a survey with demographics, an engagement scale, burnout scale, perceptions of work environment, trait affect, and job satisfaction.

*Demographics.* Information regarding the participant’s age, gender, job tenure, hours worked per week, race, and profession were collected.

*Work Engagement.* Work engagement was measured using two questionnaires, the preliminary WWES measure consisting of the 82 items and the UWES. Items were measured on a 7-point Likert-type scale ranging from 1 (Never) to 7 (Everyday).

The UWES-9 has three subscales that measure vigor, dedication, and absorption with one’s job (Schaufeli et al., 2006). The subscales are all three items long, and have internal reliability consistencies of .77, .85, and .78 respectively. The scale was used as a measure of convergent validity, however it was hypothesized to correlate moderately with the WWES because the latter includes aspects of the engagement construct the former does not.

*Burnout.* The Oldenburg Burnout Inventory (Demerouti et al., 2001) was used to measure burnout. Items were measured on a 4-point Likert-type scale ranging from 4
(Strongly Disagree) to 1 (Strongly Agree). The scale has two subscales, only the exhaustion subscale was used in the current study. The subscale is seven items long, and has internal reliability consistencies of .82. The exhaustion scale will be used as a measure of convergent validity, however it should only correlate moderately with the work engagement scale because the latter includes aspects of the engagement construct the former does not.

Perceptions of Work Environment. The Areas of Worklife Survey (AWLS) measures perceived person-context fit (Leiter, 2003). The scale has six subscales that measure perceived workload, control, reward, community, fairness, and values in the workplace. The scale is 29 items long and the reliabilities are .76, .69, .82, .82, .82, and .72 respectively. The scale has demonstrated discriminant validity from constructs such as burnout and job satisfaction (Leiter & Maslach, 2005; Leiter, 2005)

Trait Affect. The Positive Affect Negative Affect Scale (PANAS) was used to measure positive and negative trait affectivity (Watson, Clark, & Tellegen, 1988). The scale has two subscales that measure trait positive and negative affectivity. The two scales consist of 10 items each, and both have an internal consistency reliability of .80. The PANAS has demonstrated construct validity with workplace attitudes, workplace experiences, and work behaviors (Connolly & Viswesvaran, 2000; Ng & Sorensen, 2009). Research demonstrates they are dispositional variables, rather than workplace attitudes.

Job Satisfaction. The Michigan Organizational Assessment Questionnaire (MOAQ, Cammann et al., 1979) measures global job satisfaction. The scale is three items long, and has an internal consistency of .80. Higher scores on the scale indicate greater
amounts of global job satisfaction. The MOAQ has demonstrated adequate construct validity, with task identity, skill variety, and job complexity as antecedents, and life satisfaction, perceptions of justice, and job involvement as correlates, and in role performance and organizational citizenship behaviors as outcomes of the measure (Bowling & Hammond, 2008).

**Procedure**

The 82 items selected for administration to the student sample were created into a web based survey. The survey contained the 82 items for the scale first, followed by the UWES, the OLBI, the AWS, the MAOQ, the PANAS, and lastly the demographics page. Two criteria determined the order of the scales in the survey. First, the focus of the study is the construction of the engagement scale, as such the 82 items were placed first. The other scales in the study were placed in order of less stable constructs, such as burnout, perceptions of fit with the workplace and job satisfaction, to more stable constructs, i.e. trait affectivity and demographics. Upon collection, participants who did not work a minimum of 20 hours a week and did not have a tenure of at least 6 months were removed from the data set. Exploratory factor analyses were run on the data. The data was used to determine which items had adequate factor loadings, a loading of .30 or more, and to determine the factor structure of the data.

After determining the items that had adequate factor loadings the items were created into a web based survey. The survey contained all the same subscales the previous survey contained (i.e. burnout, trait affect, etc.) except the second survey only contained the items determined by the exploratory factor analyses to have adequate factor loadings. A link to the web survey was then emailed the participants in the second
sample, 550 employed participants. IRT analyses were run on the items from the second sample to determine the best items for the scale. Correlations were run with the scale created from the second sample and the scales included in the study to determine convergent and discriminant validity.
Results

Exploratory Factor Analysis

Exploratory factor analysis (EFA) was used with maximum likelihood extraction and oblique rotation on items collected from the first sample. EFA with maximum likelihood rotation was chosen instead of principle components analysis (PCA) because the goal of the EFA is to identify interpretable latent constructs. The purpose of EFA is to determine the number of common factors that account for the relationships among the measured items (i.e. shared variance), whereas the purpose of PCA is to account for the most variance possible in the measured items by analyzing both common and unique variance (Tabachnick & Fidell, 2007). Although they often produce similar results, the differences stated earlier make EFA the best method of identifying the latent constructs that represent correlations among measured variables (Preacher & MacCallum, 2003).

Results from the EFA showed seventeen factors emerged with eigenvalues greater than 1. However, the scree plot suggested that a two or three factor solution would be appropriate (see Figure 1). The oblique rotation method was used instead of orthogonal rotation because it was anticipated that any factors that emerged would be correlated with each other. Three-, two-, and one-factor solutions were run with oblique rotation. The three-factor solution accounted for 44% of the initial variance and 46% of the extracted variance. However, the factors were theoretically difficult to interpret. The latent constructs for the items did not make any sense. As such, the three-factor solution was rejected. The two-factor solution accounted for 38% of the initial variance and 40% of the extracted variance. The two factors were interpreted as engagement and disengagement, with positively worded items on one factor, and negatively worded items
on the other factor. However, six items that were on the engagement factor were
negatively worded; conversely seven items that were on the disengagement factor were
positively worded. The two and three factor solutions were difficult to interpret
theoretically. The one factor solution was chosen as the best model.

Items were assessed by the factor loadings. An item with a factor loading of less
than .30 was considered inadequate and was removed from further analyses. A total of 45
items were considered for item analysis in the second sample, the factor loadings of items
with a factor loading greater than .30 are presented in Table 2. As a whole, the one-factor
solution accounted for 32% of the initial variance and 37% of the extracted variance. The
factor was named engagement, as all items reflected engagement.

Item Analysis

The 45 items that were identified in the student sample as having a factor loading
above .30 were given to the second sample of 541 working individuals described
previously. Data was cleaned by plotting the time it took to take the survey. Figure 2
shows a plot of the time to take the survey. Participants that completed the survey in less
time than the first initial drop off of time in the graph, ten minutes, were discarded from
analyses. This left a usable sample of 353 participants. Items parameters were calibrated
using Multilog 7.03 (Thissen, 2002). Items were chosen on the basis of discrimination
($a_i$) parameters and item difficulty ($b_i$) parameters. Items that did not demonstrate
adequate discrimination and item difficulty parameters were discarded from further
analyses. The remaining items were rank ordered by the last thresholds to determine what
items to include in the scale, depending on where the scale lacks information on the latent
trait. Twelve items were chosen that effectively covered the latent trait. To effectively
assess the latent trait items must have item difficulty thresholds that assess both low and high levels on the latent traits. For example, the item “I have a lack of attention while working” in Table 3 assess the lower level of the latent trait, with a lower threshold of -2.51. Conversely, the item “I get immersed in my work” assesses the higher end of the latent trait with an high item difficulty parameter of 2.38.

Initially items demonstrated poor fit, with adjusted chi-square triplet scores averaging above 7. In addition, the chi-square singles and doubles scores demonstrated items were grouping together because they were similar. Items such as “I have a lack of attention while working” and “I feel absorbed while working” demonstrated high chi-square indices because they are both assessing absorption and because the items did not have many responses in the lower response options. Upon examination of the items, it was determined that the scale should be collapsed into a scale with 5 Likert type response options. This was assessed by reviewing the response frequencies for the items. Some items did not have any endorsement in the bottom three categories, (i.e. Never, Very Rarely, and Rarely). This is typical in some scales such as the MOAQ which tends to have a high positive skew. The low responding in the bottom categories can disrupt the chi-square fit indices. All 45 items were collapsed into 5 response categories by collapsing the bottom three response categories. Upon collapsing the items the chi-square fit indices were all below 1, which is considered acceptable (Lahuis et al., 2009).

Upon collapsing the bottom three response options, analyses were rerun. The analyses demonstrated 33 items were effective in assessing the latent trait of engagement in the second sample. Table 3 is a review of the items and their corresponding parameters. A 12 item scale was chosen from the item pool. Items were chosen on three
criteria. First, items had to have adequate alpha and beta parameters. No items were chosen with an alpha parameter greater than 3 or less than 1, as these items demonstrate extremities on answering. Indeed, even after the items were collapsed, some items still demonstrated poor functioning because of few responses in a category. Twelve items did not effectively measure the whole continuum of the latent trait, as they had extreme alpha parameters. Figure 3 is an example of an item that functions adequately. Figure 4 is an example of an item with extreme alpha parameters. In the latter example, an individual high on the latent trait, for example a theta value of 2.8, has no probability of endorsing the item below the highest endorsement. This is theoretically incorrect, as the individual should have a small probability of endorsing at least the next response option. Second, items were chosen that represent both cognitive and affective aspects of engagement. Lastly, items were chosen in terms of reverse coded items. It was imperative to create a scale that has both positively and negatively worded items to avoid acquiescence bias. The final scale had chi-square triplets fit indices of less than one. The final 12 item scale including items and item parameters is in Table 4.

Reliability and Validity

The means, standard deviations, and internal consistency reliability estimates calculated for the scales in the study are reported in Table 5. An internal consistency analysis was run on the 12 item scale to determine if the scale has adequate reliability. Results are presented on the diagonal of Table 5. The alpha coefficient score (.89) was acceptable and comparable to other engagement scales (UWES, .96).

To provide evidence for scale validity, correlations were computed between the WWES and the previously mentioned criteria. The correlations, as well as the means,
standard deviations and alpha coefficients are presented in Table 5. All scales had reliabilities above 0.70, which is considered adequate (Nunnally, 1978). Hypothesis 1 proposed the WWES and the UWES would be positively correlated, but not so high as to indicate convergent validity. Pearson product correlations were run with the UWES to provide evidence for convergent validity. The WWES correlated with the UWES ($r = .89$), indicating the scales are measuring the same constructs.

To determine the difference in amount of information the scales provide, the UWES and WWES were combined and calibrated using Multilog. The TIF were to be assessed to determine the differences in information each assess across the latent trait. However, the items on the UWES had alpha parameters ranging from 3 to 5. A review of the item responses demonstrated that even after collapsing the bottom categories, there was still a low percentage of responses in the lower response options. The poor item functioning of the UWES indicates the scale would not have adequate fit indices. The poor fit of the scale indicates the TIF supplied from any IRT program output would be erroneous. As a result of the poor fit, TIF were not compared.

Hypothesis 2 proposed the subscale of the AWS would be positively correlated with the WWES, but only moderately, so as to provide discriminant validity. Pearson product correlations were run with the AWLS, the UWES and the WWES. All six subscales of the AWS significantly correlated with the WWES (workload $r = .16$, control $r = .50$, reward $r = .53$, community $r = .45$, fairness $r = .40$, values $r = .57$). The low to moderate correlations between the AWS and the WWES indicate the engagement scale is not measuring perceptions of the workplace.
Hypothesis 3 proposed emotional exhaustion would be negatively correlated with the WWES, but only moderately, so as to provide discriminant validity. Results indicate the WWES shares significant overlap with the emotional exhaustion component of burnout ($r = -.65$). Although this is a high correlation between the two constructs, it is considered discriminant validity because the measures did not correlated with each other at a .80 level or higher (Tabachnick & Fidell, 2007).

Hypothesis 4 proposed the PA subscale of the PANAS would be positively correlated with the WWES, but only moderately, so as to provide discriminant validity. The PA subscale correlated highly with the WWES ($r = .76$), indicating the variables share a large amount of variance, but are distinct constructs. The correlation coefficient demonstrates discriminant validity. This indicates the scale is not measuring PA. In addition, hypothesis 4 proposed the NA subscale of the PANAS would be negatively correlated with the WWES, but only moderately. The moderate correlation ($r = -.41$) between the NA subscale and the WWES demonstrates the scales have discriminant validity.

Hypothesis 5 proposed job satisfaction would be positively correlated with the WWES, but only moderately, so as to provide discriminant validity. Results indicate the WWES shares considerable overlap with job satisfaction ($r = .76$). However, although the constructs appear to have considerable overlap, the constructs do not demonstrate convergent validity. As mentioned earlier, to effectively demonstrate convergent validity the constructs must be correlated with each other more than .80.
Discussion

The primary goal of the current study was to create a reliable and valid measure of work engagement based on a comprehensive conceptualization of the construct, and to provide evidence of construct and criterion validity. Research on work engagement has identified that it is an important construct to explore, as it is conceptually different from other constructs such as organizational commitment (Schaufeli & Hallberg, 2006; Macey & Schneider, 2008). However, our knowledge has been limited by weaknesses in the measurement of the engagement construct. The focal article by Macey and Schneider (2008) provided a basis for a theoretical framework of engagement. Their conceptualization proposed three aspects of engagement, trait, state, and behavioral engagement. State engagement, more specifically work engagement, was the focus of the current study because trait and behavioral engagement do not capture the construct of engagement theoretically and because behavioral engagement is difficult to measure. The Wright Work Engagement Scale (WWES) was created to measure the state of work engagement. The items included in the scale were written to assess work engagement.

The Construct of Engagement

The current study hypothesized the construct of engagement would be multidimensional and would include aspects of dedication, competence, absorption, energy, performance self-esteem, and meaningfulness of work. Analyses demonstrated the construct of engagement is unidimensional, and is defined as a positive affective and cognitive state characterized by absorption, energy, and fulfillment as can be seen in the items in Table 5. Only one factor was present in the current study, and the factor did not include performance self-esteem or perceived competence. However, the current scale
emphasizes both the cognitive and affective aspects of engagement. The emphasis on both affective and cognitive is an aspect of engagement that previous scales did not emphasize, as they were solely affective scales.

Psychometric Properties of WWES

The psychometric evidence in the two samples indicates engagement is a single factor construct. Indeed, the high alpha coefficient demonstrates a single underlying construct. Furthermore, significant correlations were found for the WWES and the construct and criterion validity of the scale. In addition, research on previous measures of engagement, such as the UWES, have suggested the construct is a unipolar construct (Shimazu et al., 2008). While the construct validity of any scale involves numerous samples and studies, the results presented are very promising and provide initial support for the validity of the scale.

The use of the WWES is preferable to the UWES for six reasons. First, the WWES was created with an item pool with a greater than 2:1. Indeed, the item ratio in the current study was 10:1, well above the accepted standards (De Vellis, 2003; Fishman & Galguera, 2003; Hambleton et al., 1993). Second, the scale was not created from another scale, as is the case with the UWES. The items in the current study were created with engagement in mind and were not a rewording of a previous scale, such as the MBI. Third, the WWES contains three negatively worded items; this prevents acquiescence bias. This prevents the construct from being confounded with the individual’s tendency to agree, preventing issues in content and criterion validity (Spector, 1992). Fourth, the WWES assesses both affective and cognitive aspects of work engagement, unlike the UWES. Items 2, 3, and 4 from the final scale are clearly cognitive items as they asses
beliefs rather than emotions or moods. Fifth, the current scale was created with IRT, which is a nonlinear approach to scale development. Lastly, after collapsing the response options for both the WWES and UWES, the WWES had adequate alpha and beta parameters in IRT. The UWES did not have adequate responses across the items, which led to large alpha parameters, indicating the model would have poor fit.

Convergent and Discriminant Validity

The WWES showed sufficient convergent validity with the UWES. The scales correlated with each other with a correlation of .89, above the criterion of .80 set by previous researchers. This indicates the scales are measuring the same latent construct. In addition, the correlations with other variables were similar for the two scales. The WWES had stronger correlations with exhaustion, workload, fairness, values, PA and NA. However, the differences in correlations were small and were not tested for significance.

In addition, the WWES demonstrated adequate discriminant validity. Given the moderate to high correlations with the AWS, the WWES can be assumed to be a separate construct from how one perceives the work environment. The WWES was correlated strongest with the perception of match with organizational values dimension of the AWS. This finding supports Bono and Judge’s (2003) hypothesis that engagement is a result of employees perception of fit with the values of the company.

The WWES also demonstrated discriminant validity with the PANAS. Specifically, PA had a particularly strong relationship with the WWES. Although trait PA shared a large amount of variance with engagement, it does not indicate they are the same constructs. In addition, the NA subscale of the PANAS had a moderate correlation with
the WWES. This indicates that NA is conceptually different from work engagement. These findings are of particular importance, as previous researchers have suggested PA may be trait engagement (Macey & Schneider, 2008). Although affect accounted for significant variance, the correlations indicate they are separate constructs. It is worth noting though, positive affect accounted for approximately 55% of the variance. This is in contrast to previous personality variables that accounted for only 3-10% of the variance in previous engagement scales, as mentioned earlier. This is not surprising as several reasons for this conceptual overlap may account for this shared variance.

First, participants may have been primed by the previous questions of engagement and job satisfaction to recall more positive emotions. Participants in both studies completed two questionnaires on engagement, and a job satisfaction scale prior to completing the PANAS. These scales may have primed the participants to remember more positive memories as they were active in their memory. Second, both the engagement scales and the PANAS contain questions regarding affect, trait PA measures general tendencies to experience emotions and moods. These general moods include those experienced while at work and while not at work. As such, there may be considerable overlap between the two constructs. Third, researchers have suggested affect may bias responses on attitude questionnaires (Burke, Brief, & George, 1993). Specifically, PA may lead to response distortion and response inconsistency in positive attitude measures such as job satisfaction and engagement, whereas NA distorts responses in negative attitude measures such as stress and burnout. Lastly, common method bias may have exaggerated the correlations in the current study.
Lastly, job satisfaction shared a large amount of variance with engagement. The current study demonstrated job satisfaction is a separate variable from engagement, as the two constructs correlated .74, indicating discriminant validity. This suggests, as many researchers have, that engagement and job satisfaction are strongly related to each other, but they are separate constructs.

**Implications**

The current study demonstrates that engagement construct consists of one dimension, consisting of positive cognitive and affective state characterized by absorption, energy, and fulfillment. The scale developed in the current study addresses both the affective and cognitive aspects of work engagement. The WWES was developed with theory in mind prior to constructing the scale and has adequate psychometric properties, both in classical test theory and IRT. The current scale is advisable over other previous scales because it contains both positive and negatively worded items, unlike the UWES. In addition, the UWES did not demonstrate adequate psychometric qualities in IRT. Despite the differences in psychometric properties in IRT, the WWES had similar correlations with the AWS, affect, job satisfaction, and burnout as the UWES.

**Limitations**

Several limitations of the current study should be noted. The first limitation is the reliance on self-report measures to assess work engagement. A common criticism of self-report measures is shared biases, such as affect, may inflate the relationship between variables. Although this is a criticism of all the engagement scales in the literature, it is still notable and cross validation studies, such as comparing scores on the WWES with coworker or supervisor ratings of engagement, should be conducted. The second
limitation is samples were largely Caucasian. Although the effects of race were not explored in the current sample, caution should be used when generalizing to minority populations. The third limitation is that individuals in the second sample were from a database of online participants. There may specific differences in the sample as compared to individuals who do not have a computer. The engagement process may be dynamic in nature and may be better captured by a longitudinal design. Despite this limitation, the results are promising and consistent with previous research and theory on engagement, lending confidence to the results.

Future Research

Future research should explore the test-retest reliability of the scale. The cross-sectional design of the current study does not lend itself to test-retest reliability. Research should explore whether engagement is stable over time as theory suggests. In addition, research should focus on the validation of the construct with additional criteria such as proactive personality, empowerment, and organizational stressors among other variables. In addition, research should also focus on work related outcomes such as performance and supervisor ratings. Future research should also explore the role of engagement with work-family conflict and workaholism. The current study focused on variables commonly studied in the stress literature, but should explore other viable constructs such as performance. Lastly, research should explore the validity of the relationship between criteria of engagement by investigating possible moderators.
References


Table 1. *Comparison of Organizational Constructs and Work Engagement*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Affective or Cognitive</th>
<th>Context or Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Engagement</td>
<td>Positive state of absorption, energy, and fulfillment.</td>
<td>AC</td>
<td>CN</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>Appraisal, affective reaction, or attitude towards one’s job.</td>
<td>AC</td>
<td>CN/CX</td>
</tr>
<tr>
<td>Work Satisfaction</td>
<td>Sense of gratification with one’s work.</td>
<td>A</td>
<td>CN</td>
</tr>
<tr>
<td>Job Involvement</td>
<td>Psychological identification with the job.</td>
<td>C</td>
<td>CX</td>
</tr>
<tr>
<td>Work Involvement</td>
<td>Normative belief about the value of work in one’s life.</td>
<td>C</td>
<td>CN</td>
</tr>
<tr>
<td>Organizational Commitment</td>
<td>Psychological attachment to an organization or its goals.</td>
<td>A</td>
<td>CX</td>
</tr>
<tr>
<td>Empowerment</td>
<td>Feelings of meaning, competence, self-determination, and impact</td>
<td>A</td>
<td>CX</td>
</tr>
<tr>
<td>Subjective Performance</td>
<td>Perceptions of task and contextual performance</td>
<td>C</td>
<td>CX/CN</td>
</tr>
</tbody>
</table>

A = Affective, C = Cognitive, CX = Context, CN = Content
Table 2.  
Factor Loadings from the Exploratory Factor Analysis in the Student Sample

<table>
<thead>
<tr>
<th>Item</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prefer to do my duties and just go home.</td>
<td>0.308</td>
</tr>
<tr>
<td>My work is meaningful</td>
<td>0.322</td>
</tr>
<tr>
<td>I feel worn out while working</td>
<td>0.338</td>
</tr>
<tr>
<td>I lose track of time while working</td>
<td>0.350</td>
</tr>
<tr>
<td>I like challenges while working</td>
<td>0.351</td>
</tr>
<tr>
<td>I am sluggish while working</td>
<td>0.351</td>
</tr>
<tr>
<td>My work is compelling</td>
<td>0.354</td>
</tr>
<tr>
<td>My work inspires me</td>
<td>0.358</td>
</tr>
<tr>
<td>I can work for long periods of time</td>
<td>0.360</td>
</tr>
<tr>
<td>I feel emotionally numb</td>
<td>0.370</td>
</tr>
<tr>
<td>I contribute something meaningful while working</td>
<td>0.375</td>
</tr>
<tr>
<td>I want to do well while working</td>
<td>0.378</td>
</tr>
<tr>
<td>I find my work rewarding</td>
<td>0.379</td>
</tr>
<tr>
<td>My work motivates me</td>
<td>0.389</td>
</tr>
<tr>
<td>My work is worthy of attention</td>
<td>0.394</td>
</tr>
<tr>
<td>I feel a sense of fulfillment most of the day</td>
<td>0.402</td>
</tr>
<tr>
<td>While working, I do not have much energy</td>
<td>0.410</td>
</tr>
<tr>
<td>My work is important</td>
<td>0.429</td>
</tr>
<tr>
<td>I feel absorbed while working</td>
<td>0.505</td>
</tr>
<tr>
<td>Working stimulates me</td>
<td>0.517</td>
</tr>
<tr>
<td>I feel irritated while working</td>
<td>0.532</td>
</tr>
<tr>
<td>My work improves my skills and abilities</td>
<td>0.555</td>
</tr>
<tr>
<td>I find my work engrossing</td>
<td>0.574</td>
</tr>
<tr>
<td>I wish I was in a different profession.</td>
<td>0.585</td>
</tr>
<tr>
<td>My work consumes me</td>
<td>0.594</td>
</tr>
<tr>
<td>I get immersed in my work</td>
<td>0.652</td>
</tr>
<tr>
<td>I feel enthusiastic while working</td>
<td>0.656</td>
</tr>
<tr>
<td>I feel energized while working</td>
<td>0.660</td>
</tr>
<tr>
<td>The work I do is an important part of who I am</td>
<td>0.668</td>
</tr>
<tr>
<td>I enjoy a challenge while working</td>
<td>0.682</td>
</tr>
<tr>
<td>I feel engaged while working</td>
<td>0.684</td>
</tr>
<tr>
<td>My work is fascinating</td>
<td>0.696</td>
</tr>
<tr>
<td>I have a lack of attention while working</td>
<td>0.701</td>
</tr>
<tr>
<td>My work is captivating</td>
<td>0.708</td>
</tr>
<tr>
<td>I feel detached while working</td>
<td>0.714</td>
</tr>
<tr>
<td>I prefer to do my duties and just go home</td>
<td>0.728</td>
</tr>
<tr>
<td>My work occupies my full attention</td>
<td>0.734</td>
</tr>
<tr>
<td>I feel immersed while working</td>
<td>0.765</td>
</tr>
<tr>
<td>Sometimes I forget to take breaks while working</td>
<td>0.770</td>
</tr>
<tr>
<td>Doing my work gives me a sense of importance</td>
<td>0.772</td>
</tr>
<tr>
<td>I sometimes forget to take breaks while working</td>
<td>0.772</td>
</tr>
<tr>
<td>The work I perform is meaningful</td>
<td>0.782</td>
</tr>
<tr>
<td>I often daydream while working</td>
<td>0.799</td>
</tr>
<tr>
<td>I feel frustrated while working</td>
<td>0.800</td>
</tr>
</tbody>
</table>

72
Table 3
IRT Item Parameters for Items in the Working Sample

<table>
<thead>
<tr>
<th>Item</th>
<th>a</th>
<th>b₁</th>
<th>b₂</th>
<th>b₃</th>
<th>b₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel irritated while working*</td>
<td>0.75</td>
<td>-2.57</td>
<td>-0.29</td>
<td>1.22</td>
<td>3.44</td>
</tr>
<tr>
<td>I feel detached while working*</td>
<td>0.79</td>
<td>-2.34</td>
<td>-0.34</td>
<td>1.41</td>
<td>3.70</td>
</tr>
<tr>
<td>I prefer to do my duties and just go home.*</td>
<td>0.80</td>
<td>-2.73</td>
<td>-1.14</td>
<td>0.34</td>
<td>2.82</td>
</tr>
<tr>
<td>I lose track of time while working*</td>
<td>0.83</td>
<td>-3.86</td>
<td>-2.57</td>
<td>-1.23</td>
<td>0.37</td>
</tr>
<tr>
<td>I feel frustrated while working*</td>
<td>0.91</td>
<td>-4.93</td>
<td>-3.19</td>
<td>-1.95</td>
<td>0.30</td>
</tr>
<tr>
<td>Sometimes I forget to take breaks while working*</td>
<td>0.96</td>
<td>-3.04</td>
<td>-1.81</td>
<td>-0.87</td>
<td>0.45</td>
</tr>
<tr>
<td>I often daydream while working.*</td>
<td>0.99</td>
<td>-2.15</td>
<td>-0.81</td>
<td>0.39</td>
<td>1.82</td>
</tr>
<tr>
<td>I have a lack of attention while working*</td>
<td>1.04</td>
<td>-2.51</td>
<td>-1.25</td>
<td>-0.02</td>
<td>1.98</td>
</tr>
<tr>
<td>I feel worn out while working*</td>
<td>1.05</td>
<td>-1.92</td>
<td>-0.21</td>
<td>1.13</td>
<td>3.06</td>
</tr>
<tr>
<td>I feel emotionally numb*</td>
<td>1.07</td>
<td>-2.49</td>
<td>-1.00</td>
<td>0.29</td>
<td>1.66</td>
</tr>
<tr>
<td>My work consumes me.</td>
<td>1.12</td>
<td>-3.38</td>
<td>-1.65</td>
<td>-0.37</td>
<td>0.90</td>
</tr>
<tr>
<td>I want to do well while working</td>
<td>1.29</td>
<td>-3.38</td>
<td>-2.51</td>
<td>-0.43</td>
<td>0.95</td>
</tr>
<tr>
<td>I can work for long periods of time</td>
<td>1.30</td>
<td>-2.84</td>
<td>-1.05</td>
<td>0.48</td>
<td>2.30</td>
</tr>
<tr>
<td>I wish I was in a different profession.</td>
<td>1.33</td>
<td>-1.52</td>
<td>-0.87</td>
<td>-0.02</td>
<td>0.51</td>
</tr>
<tr>
<td>I am sluggish while working</td>
<td>1.34</td>
<td>-2.37</td>
<td>-0.43</td>
<td>0.63</td>
<td>2.26</td>
</tr>
<tr>
<td>While working, I do not have much energy*</td>
<td>1.42</td>
<td>-1.49</td>
<td>-0.04</td>
<td>0.82</td>
<td>2.40</td>
</tr>
<tr>
<td>I enjoy a challenge while working</td>
<td>1.49</td>
<td>-1.65</td>
<td>-0.20</td>
<td>0.76</td>
<td>2.40</td>
</tr>
<tr>
<td>I feel absorbed while working</td>
<td>1.57</td>
<td>-1.20</td>
<td>-0.10</td>
<td>0.78</td>
<td>2.33</td>
</tr>
<tr>
<td>My work occupies my full attention</td>
<td>1.76</td>
<td>-1.39</td>
<td>-0.29</td>
<td>0.80</td>
<td>2.20</td>
</tr>
<tr>
<td>I find my work engrossing.</td>
<td>1.86</td>
<td>-2.38</td>
<td>-1.53</td>
<td>-0.38</td>
<td>0.52</td>
</tr>
<tr>
<td>My work is compelling</td>
<td>1.88</td>
<td>-2.28</td>
<td>-1.33</td>
<td>-0.63</td>
<td>0.32</td>
</tr>
<tr>
<td>I get immersed in my work</td>
<td>1.99</td>
<td>-1.04</td>
<td>-0.01</td>
<td>0.88</td>
<td>2.38</td>
</tr>
<tr>
<td>My work is worthy of attention</td>
<td>2.09</td>
<td>-1.49</td>
<td>-0.62</td>
<td>0.53</td>
<td>1.75</td>
</tr>
<tr>
<td>I contribute something meaningful while working</td>
<td>2.17</td>
<td>-1.48</td>
<td>-0.71</td>
<td>0.29</td>
<td>1.39</td>
</tr>
<tr>
<td>I feel vigorous while working</td>
<td>2.19</td>
<td>-1.38</td>
<td>-0.38</td>
<td>0.47</td>
<td>1.39</td>
</tr>
<tr>
<td>My work is important</td>
<td>2.22</td>
<td>-1.37</td>
<td>-0.68</td>
<td>0.29</td>
<td>1.34</td>
</tr>
<tr>
<td>The work I perform is meaningful</td>
<td>2.24</td>
<td>-1.17</td>
<td>-0.40</td>
<td>0.46</td>
<td>1.53</td>
</tr>
<tr>
<td>I feel energized while working</td>
<td>2.32</td>
<td>-2.27</td>
<td>-1.63</td>
<td>-0.82</td>
<td>0.19</td>
</tr>
<tr>
<td>My work improves my skills and abilities</td>
<td>2.33</td>
<td>-1.25</td>
<td>-0.38</td>
<td>0.49</td>
<td>1.77</td>
</tr>
<tr>
<td>I feel immersed while working</td>
<td>2.47</td>
<td>-2.17</td>
<td>-1.61</td>
<td>-0.70</td>
<td>0.15</td>
</tr>
<tr>
<td>My work is fascinating</td>
<td>2.60</td>
<td>-1.80</td>
<td>-1.12</td>
<td>-0.44</td>
<td>0.42</td>
</tr>
<tr>
<td>My work is captivating</td>
<td>2.60</td>
<td>-1.08</td>
<td>-0.34</td>
<td>0.55</td>
<td>1.42</td>
</tr>
<tr>
<td>I feel a sense of fulfillment most of the day</td>
<td>2.62</td>
<td>-0.74</td>
<td>0.02</td>
<td>0.92</td>
<td>2.09</td>
</tr>
<tr>
<td>I feel enthusiastic while working</td>
<td>2.72</td>
<td>-1.40</td>
<td>-0.62</td>
<td>0.19</td>
<td>0.99</td>
</tr>
<tr>
<td>My work is meaningful</td>
<td>2.79</td>
<td>-1.09</td>
<td>-0.56</td>
<td>0.39</td>
<td>1.41</td>
</tr>
<tr>
<td>My work inspires me</td>
<td>2.79</td>
<td>-0.71</td>
<td>0.30</td>
<td>1.08</td>
<td>2.11</td>
</tr>
<tr>
<td>The work I do is an important part of who I am</td>
<td>2.85</td>
<td>-0.85</td>
<td>-0.15</td>
<td>0.62</td>
<td>1.74</td>
</tr>
<tr>
<td>Doing my work gives me a sense of importance</td>
<td>2.85</td>
<td>-1.11</td>
<td>-0.34</td>
<td>0.56</td>
<td>1.78</td>
</tr>
<tr>
<td>I find my work rewarding</td>
<td>2.86</td>
<td>-0.89</td>
<td>-0.24</td>
<td>0.63</td>
<td>1.65</td>
</tr>
<tr>
<td>I feel engaged while working</td>
<td>3.01</td>
<td>-1.09</td>
<td>-0.22</td>
<td>0.70</td>
<td>2.05</td>
</tr>
<tr>
<td>Working stimulates me</td>
<td>3.15</td>
<td>-1.54</td>
<td>-0.77</td>
<td>0.06</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Note: * = reverse scored item
Table 4  
*IRT Item Parameters for The Wright Work Engagement Scale in the Working Sample*

<table>
<thead>
<tr>
<th>Item</th>
<th>a</th>
<th>b₁</th>
<th>b₂</th>
<th>b₃</th>
<th>b₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel emotionally numb*</td>
<td>1.07</td>
<td>-2.49</td>
<td>-1.00</td>
<td>0.29</td>
<td>1.66</td>
</tr>
<tr>
<td>2. I wish I was in a different profession.*</td>
<td>1.33</td>
<td>-1.52</td>
<td>-0.87</td>
<td>-0.02</td>
<td>0.51</td>
</tr>
<tr>
<td>3. My work is worthy of attention</td>
<td>2.09</td>
<td>-1.49</td>
<td>-0.62</td>
<td>0.53</td>
<td>1.75</td>
</tr>
<tr>
<td>4. I contribute something meaningful while working</td>
<td>2.17</td>
<td>-1.48</td>
<td>-0.71</td>
<td>0.29</td>
<td>1.39</td>
</tr>
<tr>
<td>5. I feel a sense of fulfillment most of the day</td>
<td>2.62</td>
<td>-0.74</td>
<td>0.02</td>
<td>0.92</td>
<td>2.09</td>
</tr>
<tr>
<td>6. While working, I do not have much energy*</td>
<td>1.42</td>
<td>-1.49</td>
<td>-0.04</td>
<td>0.82</td>
<td>2.40</td>
</tr>
<tr>
<td>7. I feel absorbed while working</td>
<td>1.57</td>
<td>-1.20</td>
<td>-0.10</td>
<td>0.78</td>
<td>2.33</td>
</tr>
<tr>
<td>8. I have a lack of attention while working*</td>
<td>1.04</td>
<td>-2.51</td>
<td>-1.25</td>
<td>-0.02</td>
<td>1.98</td>
</tr>
<tr>
<td>9. I can work for long periods of time</td>
<td>1.30</td>
<td>-2.84</td>
<td>-1.05</td>
<td>0.48</td>
<td>2.30</td>
</tr>
<tr>
<td>10. I find my work engrossing.</td>
<td>1.86</td>
<td>-2.38</td>
<td>-1.53</td>
<td>-0.38</td>
<td>0.52</td>
</tr>
<tr>
<td>11. I get immersed in my work</td>
<td>1.99</td>
<td>-1.04</td>
<td>-0.01</td>
<td>0.88</td>
<td>2.38</td>
</tr>
<tr>
<td>12. I enjoy a challenge while working</td>
<td>1.49</td>
<td>-1.65</td>
<td>-0.20</td>
<td>0.76</td>
<td>2.40</td>
</tr>
</tbody>
</table>

Note: * = reverse scored item
Table 5
Means, Standard Deviations, and Correlation Matrix
For Variables in the Working Sample.

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>SD</th>
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<th>2</th>
<th>3</th>
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<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. WWES</td>
<td>57.12</td>
<td>10.68</td>
<td>(0.89)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. UWES</td>
<td>43.47</td>
<td>12.60</td>
<td>(0.84)</td>
<td>(0.84)</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>3. Exhaustion</td>
<td>15.61</td>
<td>3.92</td>
<td>(0.84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Workload</td>
<td>20.46</td>
<td>4.20</td>
<td>(0.72)</td>
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<td></td>
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</tr>
<tr>
<td>5. Control</td>
<td>10.83</td>
<td>2.64</td>
<td>(0.78)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6. Reward</td>
<td>14.12</td>
<td>3.76</td>
<td>(0.89)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. Community</td>
<td>18.25</td>
<td>3.90</td>
<td>(0.85)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>8. Fairness</td>
<td>19.32</td>
<td>5.10</td>
<td>(0.85)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>9. Values</td>
<td>17.80</td>
<td>3.90</td>
<td>(0.82)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Positive Affect</td>
<td>35.10</td>
<td>8.27</td>
<td>(0.93)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Negative Affect</td>
<td>16.53</td>
<td>6.20</td>
<td>(0.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Job Satisfaction</td>
<td>15.99</td>
<td>5.10</td>
<td>(0.95)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Figure 1.
Scree Plot for Factors in the Student Sample.
Figure 2

Histogram of Time Taken to Complete the Survey in the Working Sample
Figure 3
Plot of ICC for an Item with an Acceptable Alpha Parameter
Figure 4
Plot of ICC for an Item with an Unacceptable Alpha Parameter
APPENDIX A

The purpose of this survey is to discover how various students view their studies. Below there are statements of work-related feelings. When you think about your work overall, how often do you feel the following? Please note that work in this context refers to the general tasks you complete (i.e. a cook's general tasks are preparing food, prepping food, etc.) Please use the scale provided below to report how often you feel the following.

1 2 3 4 5
Never Rarely Occasionally Frequently Every Day

1. I feel emotionally numb.*
2. I wish I was in a different profession.*
3. My work is worthy of attention.
4. I contribute something meaningful while working.
5. I feel a sense of fulfillment most of the day.
6. While working, I do not have much energy.*
7. I feel absorbed while working.
8. I have a lack of attention while working.*
9. I can work for long periods of time.
10. I find my work engrossing.
11. I get immersed in my work.
12. I enjoy a challenge while working.
Affective Items

I feel detached at work.*
I feel enthusiastic at work.
My work inspires me.
I take pride in my work.
I feel frustrated at work.*
I feel emotionally numb at work.*
I feel irritated at work.*
I feel annoyed at work.*
I feel energized at work.
I enjoy my work.
I like my work.
I feel aggravated at work.*
I feel hopeless at work.*
I feel happy at work.
I feel lighthearted at work.
I feel vigorous at work.
I consider my work:
Worthwhile  Useless
I enjoy my tasks at work.
I prefer not to be disturbed at work.
I feel a sense of fulfillment most of the day.
I perceive my work as positive.
I want to do well at my work.
I am competent at my work.
I feel tired at work.*
At work, I do not have much energy.*
I feel worn out at work.
I am anxious at work. *
It is easy for me to focus at work.
I would recommend my type of work to someone like me.
I tend to lose my self in my work.
My self-concept includes aspects of my work.
The work I do is an important part of who I am.
I discuss positive aspects of my work with others.
I discuss negative aspects of my work with others.*
I get upset if someone criticizes the work I have done.
I spend time at work aimlessly surfing the internet. *
I socialize extensively with coworkers during work hours. *
I do not notice small things in my environment when working.
I feel absorbed while working.
When I am at work, I wish I were anywhere else.
I wish I were doing a different kind of work. *
While at work I am generally in a good mood.
I often find myself talking about what a good day I had at work.
I often find myself talking about what a bad day I had at work.*
I lose track of time while working.

I do not look forward to going to work.*

My work enhances my quality of life.

I enjoy putting in extra effort at work.

While working, I tend ignore small incidents around me.

My days off from work do not seem to come often enough *

I can barely stand going to work. *

I can only work for short spurts. *

I get distracted from my work easily. *

My work stimulates me.

I feel energized at work.

I stay focused while working.

I have a lack of attention while working. *

I often daydream at work. *

I often get absorbed in my work.

I feel engaged at work.

I don’t like being at work. *

Challenges at work are threatening.

I invest my time in keeping up with the latest developments in my work.*

I am sluggish at work. *

My work is dull. *

I can work for long periods of time.

I get bored at work. *
At work, I prefer to do my duties and just go home. *

My work engrosses me.

My work is fascinating.

My work is captivating.

I feel immersed in my work.

Sometimes I forget to take breaks when working.

I watch the clock for the time to leave work. *

I often forget what time it is at work.

I sometimes forget to take breaks at work.

I feel hollow at work. *

I find my work engrossing

My work holds my attention.

I often get immersed in my work.

My work consumes me.

My work occupies my full attention.

I feel withdrawn at work. *
APPENDIX C

_Cognitive Items_

My work is too complex for me.*

My work is meaningful to my employer.

My work performance is above average.

Some aspects of my job are confusing to me.

I can complete any task given to me at work

I would feel comfortable training someone in my type of work.

When problems arise while working, I can handle most of them.

The work I complete is above average.

The work I perform is meaningful.

Others think my work is meaningful.

I do my work only because it is assigned to me. *

I neglect certain aspects of my work. *

I am careless with my work. *

I enjoy a challenge at work.

My work does not mean that much overall. *

I am efficient at my work.

I typically have problems I cannot solve at work.

My work is important.

My work is meaningful.

In the long run, my work does not matter. *

I find my work rewarding.
I would recommend my job to someone else like me.

My work is intriguing.

I do not understand my work. *

If my work is wrong, I still hand it in. *

My work motivates me.

I have the necessary skills to complete my tasks.

My work gives me opportunities to use my abilities.

I am competent in my work.

I am hard working.

In regards to my work I consider myself a:

Expert               Beginner

I like challenges at work.

I am a good match with my work.

I have the knowledge necessary to perform my job.

My work improves my skills and abilities.

I am overly critical of my work. *

I wish I was in a different profession.

I am resourceful at work.

I can think of solutions to problems at work.

I often have a “mental block” at work. *

My work is worthy of attention.

I speak positively about my work.

I am responsible for my work.

If my work is poor, I tend to blame others. *
I am not confident in my work.*

I do not need affirmations from others that my work is performed well.

The quality of my work does not matter.*

If I have a less than desirable product at work, I often blame others.*

I don’t care about the quality of my work.*

Challenges at work are opportunities.

Challenges at work are burdens.*

I contribute to something meaningful at work.

My work is pointless.*

My work is compelling.

I am effective at work,

I am efficient at work.

My work is a waste of time.*

My work is a waste of my abilities.*

My work is just a way to earn money.*

Doing my work makes me feel useless.*

Doing my work gives me a sense of importance.*

(Note: * = negatively scored item)