A PSYCHOMETRIC STUDY OF WORK

ENGAGEMENT IN AN AMERICAN

SAMPLE

By

EVIE M. MUILENBURG-TREVINO

Bachelor of Arts in Psychology
Oral Roberts University
Tulsa, Oklahoma
2003

Master of Human Relations
University of Oklahoma
Tulsa, Oklahoma
2006

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Dissertation Approved:

Dale R. Fuqua
_____
Dissertation Adviser

Diane Montgomery
_____

Janice Miller
_____

Robert Davis
_____

A. Gordon Emslie
_____
Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Work engagement is defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, Gonzalez-Romá, & Bakker, 2002, p. 74). Engaged individuals are energetic about their work, feel connected to their work, and are better able to deal with job demands (Schaufeli & Salanova, 2007b). Vigor is characterized by energy, mental resilience, the willingness to invest one's effort, and persistence (Schaufeli, Salanova et al., 2002). Dedication is characterized by "a sense of significance, enthusiasm, inspiration, pride, and challenge" (Schaufeli, Salanova et al., 2002, p. 74). Absorption is characterized by being engrossed in one's work, to the extent to which time passes quickly and it is difficult to detach oneself from work (Schaufeli, Salanova et al., 2002).

Interest in studying work engagement originated from research in job burnout, a frequently examined construct in the 1970s (Maslach, Schaufeli, & Leiter, 2001). Burnout, defined as a state of exhaustion in which an individual is cynical about occupational values and doubtful about his or her performance abilities (Maslach, Jackson, & Leiter, 1996), was a popular construct because it captured the realities of individuals' experiences in the workplace (Maslach et al., 2001). The study of work engagement coincided with the emergence of positive psychology (Schaufeli & Salanova, 2007b). Rather than concentrate

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on the negative approach of burnout, which focuses on alleviating symptoms and problems, researchers shifted to a more positive approach of work engagement, which focuses on facilitating health and well-being (Lopez, Snyder, & Rasmussen, 2006).

Engaged employees are healthy and productive workers. A recent Gallup (2005) poll indicates that employees' level of work engagement is related to their physical health and psychological well-being. In addition, engaged employees are generally more productive in the workplace. Unfortunately, 24.7 million (19%) workers in the United States are actively disengaged, defined as those who are fundamentally disconnected from their jobs; the economic cost of actively disengaged employees is between $292 billion and $355 billion a year in productivity loss (Gallup, 2001). Further, actively disengaged employees are less loyal, less personally satisfied, and more stressed than their counterparts. In addition, these employees miss 3.5 more days each year than their colleagues, accounting for 86.5 million days (Gallup, 2001). Due to the social and economic impacts of disengagement, the study of work engagement has become an area of prime focus in organizational and social psychology.

Because of the importance of the construct, the Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003) was developed to measure the underlying dimensions of work engagement including vigor, dedication, and absorption. Because the UWES is available in 17 languages (Schaufeli & Salanova, 2007b), score responses have been psychometrically evaluated in over ten countries. Factor validity studies indicate scores on the UWES are best represented by three factors across cultures (Schaufeli, Bakker, & Salanova, 2006; Schaufeli, Martinez, Marques-Pinto, Salanova, & Bakker, 2002; Schaufeli, Salanova et al., 2002); however, not all items are invariant across countries (Schaufeli et al.,

2006; Schaufeli, Martinez et al., 2002). The structure of UWES responses has not been examined in an American sample. Finally, internal consistency reliability estimates of UWES responses for 2 samples are as follows: vigor (α = .78 and .79), dedication (α = .84 and .89) and absorption (α = .73 and .72) (Schaufeli, Salanova et al., 2002).

A review of studies that examine work engagement reveals that the majority of research concerns its environmental correlates. The Job Demands-Resources (JD-R) model has been the predominant avenue from which correlates of engagement have been examined. In this model, working conditions can be grouped into two categories: job demands and job resources (Bakker & Demerouti, 2007; Bakker, Demerouti, de Boer, & Schaufeli, 2003; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Health impairment (burnout) and motivation (engagement) are two psychological processes triggered by job demands and resources, respectively (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner et al., 2001; Schaufeli & Bakker, 2004). The health impairment process is energy-depleting and one in which employees' energy resources are drained due to extreme job demands, whereas the availability of resources stimulates employee motivation (Schaufeli & Bakker, 2004).

While there is ample research on the environmental impacts of engagement, few researchers have examined the relationship between personality characteristics and work engagement. Not only may work engagement differ situationally, but it may differ individually. One must question why some individuals demonstrate signs of work engagement while others show little or no signs while working under similar conditions. Perhaps other causes, such as personality, are the reason for these differences. In addition, understanding personality and its relationship with work engagement is important because it contributes to the theoretical basis of the construct. Since environmental influences,

predispositional factors, and behavior all function in a reciprocal relationship with each other (Bandura, 1978), work engagement may be better understand when all these elements are examined. The Job Demands-Resources model primarily explains work engagement as a function of environmental factors. As a result, predispositional variables have not been adequately addressed. The Big Five factors are one way of examining personality and are used in the present study because they represent the basic dimensions underlying the personality traits in natural languages and in psychological questionnaires (Costa & McCrae, 1992). Personality can be described by five factors, labeled the Big Five personality dimensions: neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1992; McCrae & Costa, 1984; McCrae & John, 1992). Only two studies have examined the relationship between personality traits and engagement. Langelaan, Bakker, van Doornen, and Schaufeli (2006) examined whether engagement and burnout can be discriminated on the basis of neuroticism and extroversion. Results indicated that engaged employees had lower levels of neuroticism and higher levels of extraversion, whereas burned-out employees had higher levels of neuroticism only. Hallberg, Johansson and Schaufeli (2007) examined how "Type A" behavior relates to burnout and engagement. Findings indicated that work engagement was related to the achievement striving aspect of "Type A" behavior and burnout related to the irritability/impatience aspect. In order to understand how individual differences impact work engagement, it is critical to examine all five components of the Big Five in relation to work engagement.

<div align="center">Statement of the Problem</div>

The psychometric properties of scores on the UWES (Schaufeli & Bakker, 2003) have been evaluated since the scale's development. The initial problem is that while UWES

responses have been studied in multiple countries, there has been no investigation of its structural validity and reliability in an American sample. Furthermore, it has been demonstrated that UWES items are not invariant across countries. This is problematic because of the scale's continued use in the United States, thus making it essential to examine the dimensionality and reliability of UWES responses in an American sample.

In addition, there is ample research on the environmental correlates of work engagement, but little research on the relationship between personality characteristics and the dimensions of work engagement. One must question why some individuals demonstrate signs of work engagement while others show little or no signs while working under similar conditions. Perhaps other causes, such as predispositional characteristics, can explain some of these differences.

Purpose of the Study

The purpose of the present study was to examine the psychometric properties of the 17-item UWES scores in an American sample. Specifically, the structure was examined by means of confirmatory factor analyses to determine if a three-factor structure exists. Exploratory factor analysis techniques were used to determine the underlying factors of the UWES. In addition, the internal consistency reliability estimates of the UWES scores were assessed. Finally, the goal was to investigate how the dimensions of the UWES relate to the Big Five personality characteristics, utilizing multiple regression and correlation.

Significance of the Study

The study of work engagement, which emerged from research in burnout, arose out of a dislike for trends in research that examined human life from a negative, diseased-state; this movement is known as positive psychology. Rather than examine burnout, conceived as the

opposite of work engagement, researchers focused their attention on work engagement in an effort to facilitate optimal functioning and building strengths rather than merely identifying psychopathology and weakness (Lopez, Snyder, & Rasmussen, 2006). The UWES (Schaufeli & Bakker, 2003) was developed to examine the three dimensions of work engagement: vigor, dedication, and absorption. Because the structural validity and reliability of UWES scores have not been evaluated in the United States, this study is essential, if the instrument is to continue in regular use. The ability to accurately and consistently measure work engagement is of great importance.

In addition, the examination of personality characteristics and their relationship with dimensions of work engagement has been studied little. Understanding this relationship has wide-ranging effects for employees, organizations, and society as a whole. Engaged employees are healthy and hard-working individuals. Not only are they physically and psychologically healthier, they are more productive (Gallup, 2001; Gallup, 2005). Due to the social, personal, and economic costs of disengagement, the study of work engagement is an important topic. In order to understand issues related to engagement, it is essential that the instrument with which it is measured demonstrates adequate structural validity and reliability.

<div align="center">Research Questions</div>

The research questions guiding this study include:

1. Does the three-factor structure of scores on the 17-item UWES exist in an American sample?

2. What are the underlying factors of the 17-item UWES in an American sample?

3. What are the internal consistency reliability estimates of the UWES dimensions?

4. How are the dimensions of the UWES related to the Big Five personality characteristics?

<center>Definition of Terms</center>

The *Big Five Personality* model includes neuroticism, extroversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1992). Neuroticism is defined by traits of anxiety, angry hostility, depression, self- conscientiousness, impulsiveness, and vulnerability. Extraversion includes traits of warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions. Openness is defined with the characteristics of fantasy, aesthetics, feelings, actions, ideas, and values. Agreeableness includes the traits of trust, straightforwardness, altruism, compliance, modesty, and tended-mindedness. Conscientiousness is defined with the characteristics of competence, order, dutifulness, achievement striving, self-discipline, and deliberation (Costa & McCrae, 1992).

Burnout is defined as a state of exhaustion (emotional exhaustion) in which an individual is cynical about occupational values (cynicism) and doubtful about his or her performance abilities (lack of professional efficacy) (Maslach et al., 1996). Emotional exhaustion is a signal of distress when work conditions are emotionally demanding. Cynicism reflects an indifference to work or a distant attitude towards work. Professional efficacy emphasizes occupational abilities and accomplishments (Maslach et al., 1996).

The *Job Demands-Resources* model suggests that working conditions can be grouped into two categories: job demands and job resources (Bakker et al., 2003; Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner et al., 2001). Job demands are the physical, psychological, social, or organizational components that require cognitive and emotional exertion (Bakker & Demerouti, 2007). Job resources are the physical, psychological, social,

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or organizational components that function as work goals, reduce job demands, or facilitate personal growth and development (Bakker & Demerouti, 2007).

Positive Psychology has the goal of bringing balance to psychology. Because scientific and professional psychology has focused on identifying and treating psychopathology and problems, there is little known about human strengths. Positive psychology considers human strengths to be as real as human weaknesses. The goal is to have a more balanced approach, which includes examining both strengths and weaknesses (Lopez et al., 2006).

Work Engagement is defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova et al., 2002, p. 74). Schaufeli, Salanova et al. describe vigor as being energetic, mentally resilient, willing to invest in one's work, and unrelenting in the presence of difficulties. Dedication is described as being heavily involved in one's work and experiencing a sense of meaning, excitement, inspiration, pride, and challenge. Absorption is being totally concentrated and gladly engrossed in one's work in such a way that time passes quickly and it is difficult to detach oneself from work (Schaufeli, Salanova et al., 2002).

<center>Organization of the Study</center>

Chapter one established the foundation from which this study will be carried out. To begin, an introduction of the study was provided. Following was a discussion of a statement of the problem and purpose of the study. The significance of the study was noted. Finally, research questions and a definition of relevant terms were given.

In chapter two, a literature review is provided. Specifically, a brief history of positive psychology and the origins of work engagement are presented. In addition, the relationship

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between engagement and burnout are discussed. The psychometric properties of scores on the UWES and correlates of work engagement are provided. Also given is an overview of the Big Five personality characteristics. Finally, a summary is provided.

Presented in chapter three is the design and methodology of this study. The participants and measures are discussed. In addition, data collection procedures and methods for data analysis are provided.

Chapter four provides a discussion of study results. The structural validity and reliability of scores on the 17-item UWES in an American sample are provided. Findings for how the dimensions of the UWES are related to the Big Five personality are also discussed.

In chapter five, a discussion of the findings is presented. Limitations and recommendations for future research are also discussed.

CHAPTER II

REVIEW OF LITERATURE

The present study was designed to examine the psychometric properties of the

Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003) in an American

sample. Specifically, the factor structure and reliability was examined. In addition, the

purpose of this study was to investigate how the dimensions of the UWES relate to the Big

Five personality characteristics. The first section of the literature review will provide a

history of positive psychology, the research from which work engagement arose. Second, the

origins of engagement will be presented including the works of Kahn (1990), Maslach and

Leiter (1997) and Leiter and Maslach (1999), and Schaufeli, Salanova, Gonzalez-Romá, and

Bakker (2002). This section includes a discussion of the relationship between work

engagement and burnout. The psychometric properties of scores on the UWES are discussed.

Also presented is a discussion of the correlates of work engagement. In the third section, an

overview of the Big Five personality characteristics is provided. Finally, a summary of the

literature is presented.

A Brief History of Positive Psychology

In the past 10 years, positive psychology has arisen out of a need for a reverse of the

trends in research which examine human life from a negative, diseased-state. Because of the

focus on identifying psychopathology and weakness in human existence, there is more

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known about resolving problems and alleviating symptoms than facilitating optimal

functioning and building strengths (Lopez et al., 2006). Since World War II, psychology has

mainly concerned itself with healing; consequently, there is little known about how "normal"

people thrive under benign conditions (Seligman & Csikszentmihalyi, 2000). Seligman

(1998) noted,

> How has it happened that social science views the human strengths and virtues-
>
> altruism, courage, honesty, duty, joy, health, responsibility, and good cheer-as
>
> derivative, defensive, or downright illusions, while weakness and negative
>
> motivations such as anxiety, lust, selfishness, paranoia, anger, disorder, and sadness
>
> are viewed as authentic?" (p. 6).

A science focused on resolving problems and alleviating symptoms is not inherently bad, but

a balanced approach, which includes identifying and building strengths, is also useful.

Focusing on the latter allows psychologists to understand ways in which individuals' quality

of life and overall well-being can be improved, as well as the conditions that make life more

meaningful such as hope, creativity, wisdom, courage, responsibility, spirituality, and

perseverance (Seligman & Csikszentmihalyi, 2000). The study of positive psychology

provides individuals with the opportunity to thrive rather than merely survive. Thus, the goal

of positive psychology is to shift the focus from a total concentration on fixing and repairing

to also include building and strengthening (Seligman, 2005).

Seligman and Csikszentmihalyi (2000) noted that a psychology focused on positive

subjective experiences, individual experiences and group experiences is compelled to

improve individuals' quality of life and prevent pathology. The subjective level concerns the

value of subjective experiences such as well-being and satisfaction in past experiences, hope

and optimism in future experiences, and flow and happiness in present experiences. Individual experiences include the ability to love, work, persevere, forgive, be original, and obtain wisdom. Group experiences consist of civic responsibilities, responsibility, nurturance, and work ethic (Seligman & Csikszentmihalyi, 2000).

In order to understand the importance of positive psychology, a representative sampling of empirical studies is provided in the following paragraphs. To begin, optimism, which arose out of research in learned helplessness, is described as an explanatory style in which people make interpretations about causes of events (Buchanan & Seligman, 1995; Peterson & Steen, 2005; Seligman, 1991). Optimistic people attribute problems to unstable, specific, and external causes while pessimistic people make attributions to stable, global and internal causes (Buchanan & Seligman, 1995). An optimistic outlook is associated with good health, positive mood, perseverance, problem solving, achievement, popularity, and long life (Peterson & Steen, 2005).

Hope is defined as belief that individuals can find pathways to their desired goals and in turn become motivated to work toward those goals using newly discovered avenues (Snyder, Rand, & Sigmon, 2005). Hope is associated with overall health (Farone, Fitzpatrick, & Bushfield, 2008; Mattioli, Repinski, & Chappy, 2008), well-being (Mattioli et al., 2008), quality of life, spiritual well-being (Pipe, Kelly, LeBrun, Schmidt, Atherton, & Robinson, 2008), academic achievement, and positive affect (Ciarrochi, Heaven, & Davies, 2007).

As described by Bandura (1997), self-efficacy is defined as individuals' beliefs about their capabilities of managing their behaviors to produce desired outcomes. In essence, what people believe to be the truth about their abilities is one of the most important contributing

factors to their success (Maddux, 2005). Individuals' beliefs about their self-efficacy impacts their psychological adjustment, physical health, and self-regulation (Maddux, 2005).

Forgiveness, a construct that has been ignored by social scientists in the last 300 years, is defined as a prosocial change in a sufferer's thoughts, emotions, and/or behaviors towards the transgressor (McCullough & vanOyen Witvliet, 2005). Forgiveness is positively related to perceived physical health (Wilson, Milosevic, Carroll, Hart, & Hibbard, 2008) and negatively related to depression, shame, and psychological maltreatment (Webb, Colburn, Heisler, Call, & Chickering, 2008).

Finally, interest in organizational burnout has shifted to the study of work engagement in the past decade. Engaged employees are typically energetic, mentally resilient, dedicated to their work, and enjoy the challenges of work (Schaufeli, Salanova et al., 2002). In addition, they are generally absorbed in their work to the extent that time passes quickly and they find difficulty pulling themselves away from their work (Schaufeli, Salanova et al., 2002). Work engagement is positively related to psychological well-being, job satisfaction, intent to remain (Koyuncu, Burke, & Fiksenbaum, 2006), and organizational based self-esteem (Mauno, Kinnunen, & Ruokolainen, 2007).

As indicated by the preceding studies, the study of positive psychology provides avenues from which social scientists can understand the positive attributes and strengths of individuals. Looking at the "bright side" of life can facilitate the growth and optimal functioning of individuals so they have more opportunity to flourish.

<center>Work Engagement</center>

Engagement began with the work of Kahn (1990), then grew with Maslach and Leiter (1997), and continues more presently with Schaufeli, Salanova, Gonzalez-Romá, and Bakker

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(2002). Though it has evolved through the years, the study of engagement has always focused on the importance of optimal functioning of individuals in the workplace.

Kahn (1990) introduced the constructs of personal engagement and disengagement. Individuals can use varying levels of their physical, cognitive, and emotional selves in role performances at work. Personal engagement is defined as the use and expression of the "preferred self" in behaviors "that promote connections to work and to others, personal presence (physical, cognitive, and emotional) and active, full role performances" (Kahn, 1990, p. 700). Kahn explained that when placed in optimal conditions, individuals will choose to exercise such dimensions of themselves which allow them to express their real identities, thoughts, and feelings; additionally, the use and expression of one's "preferred self" causes one's "self to role" identity to be more alive.

Personal disengagement is the removal and defense of one's "preferred self" which promotes a "lack of connections, physical, cognitive, and emotional absence, and passive, incomplete role performance" (Kahn, 1990, p. 701). Rather than express one's preferred self, personally disengaged individuals detach their "preferred self" from their "self to role" identity. While Kahn presented a theoretical perspective of engagement, the construct was not operationalized and thus no measure was created (Schaufeli, Salanova et al., 2002).

Maslach and Leiter (Leiter & Maslach, 1999; Maslach & Leiter, 1997) described engagement as the antipode of burnout. At one end of the continuum is burnout while engagement lies at the opposite with energy, involvement, and effectiveness being the three dimensions in the continuum (Maslach & Leiter, 1997). Low levels of energy, involvement and effectiveness are characteristic of burnout whereas high levels of the three dimensions are characteristic of engagement. Leiter and Maslach (1999) noted that individuals are

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anywhere along this continuum at any given point. In terms of burnout experiences in work life, Maslach and Leiter (1997) described six areas including workload, control, rewards, community, fairness and values. An imbalance between an employee and his or her work setting is the cause of burnout and can be understood in regard to some or all of the six areas of work life.

The Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996) is a 16-item instrument which measures the three dimensions of the burnout-engagement continuum: energy is measured by the exhaustion subscale, involvement is measured by the depersonalization (cynicism) subscale, and effectiveness is measured by the professional efficacy scale. Unfortunately, it is not possible to examine the relationship between burnout and engagement with the MBI since the constructs are defined as opposite ends of a continuum and measured with a single instrument.

Schaufeli, Salanova et al. (2002) considered engagement and burnout as opposite constructs that should be measured with different instruments. Work engagement is defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova et al., 2002, p. 74). Vigor is described as being energetic, mentally resilient, willing to invest in one's work, and unrelenting in the presence of difficulties. Dedication is characterized by "being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge" (Schaufeli, Salanova et al., 2002, p. 74). Absorption is described as "being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work" (Schaufeli, Salanova et al., 2002, p. 75). Rather than a fleeting state of mind, engagement is "a more persistent and pervasive affective-cognitive

state that is not focused on any particular object, event, individual, or behavior" (Schaufeli et al., 2006, p. 701). In a longitudinal study that examined the correlates of engagement, Mauno, Kinnunen, and Ruokolainen (2007) found that work engagement was stable over a two-year period, supporting the proposition that the construct is an enduring state rather than a momentary frame of mind.

The Utrecht Work Engagement Scale (UWES) was developed by Schaufeli and Bakker (2003) and reflects the underlying three dimensions of work engagement: vigor, dedication, and absorption. Engagement and burnout are conceptually considered opposites; however, the measurement and factor structure of the constructs differ. Thus, engagement is operationalized separately from burnout (Schaufeli, Salanova et al., 2002). This scale and its properties are reviewed more properly in the subsequent section.

Relationship between Engagement and Burnout

The relationship between burnout and engagement has been studied extensively. Exhaustion and vigor are placed on a continuum called "energy," while cynicism and dedication are labeled "identification" along another continuum (Schaufeli & Bakker, 2001, as cited in Schaufeli & Salanova, 2007b). Engaged individuals are high in energy and identification, whereas individuals who score low on these two continuums are considered burned-out. The relationship between lack of professional efficacy (the third dimension of burnout) and absorption is weaker and thus not conceived as its opposite; rather, it is a distinct component of work engagement (Schaufeli & Salanova, 2007b). In addition, exhaustion and cynicism appear to define the core of burnout while lack of professional efficacy seems to measure some peripheral content (Schaufeli & Salanova, 2007b).

In a study that examined the structures of engagement and burnout, Schaufeli, Martinez et al. (2002) found that all scales were significantly and negatively related. A one-factor solution which assumed that all scales fit a general well-being construct did not fit the data. The model that best fit the data was comprised of a core burnout factor (exhaustion and cynicism) and an extended engagement factor (vigor, dedication, absorption, and efficacy). This is an interesting finding since the efficacy scale, which was developed as a measure of burnout, had a better fit on the engagement factor. The factors correlated negatively in the two samples (r = -.47 and -.62).

Schaufeli and Salanova (2007a) examined factor structures of scores on engagement and burnout measures in Spanish and Dutch samples. However, instead of using the efficacy scale, which consisted of reverse scoring items, they used inefficacy items in addition to the traditional items of exhaustion and cynicism. Results indicated that the alternate burnout model including the inefficacy scale had a better fit to the data than did the efficacy scale; thus, the third dimension of burnout was better represented by inefficacy items rather than by reversed-scored efficacy items. In addition, Schaufeli and Salanova examined efficacy and inefficacy scales with engagement and burnout by means of confirmatory factor analyses. Findings indicated that a two-factor model comprising burnout (exhaustion, cynicism, and inefficacy) and engagement (vigor, dedication, absorption, and efficacy) fit the data best when errors between cynicism and dedication, and between inefficacy and efficacy were allowed to correlate. Engagement and burnout factors correlated significantly and negatively (r = -.58, -.46, -.62, -.20).

Psychometric Properties of UWES Scores

The UWES (Schaufeli & Bakker, 2003) was originally developed with 24 self-report items; seven unsound items were subsequently removed, resulting in a total of 17 items which measured the following correlated scales: vigor (6 items), dedication (5 items) and absorption (6 items). A shortened 9-item version was also developed with each subscale comprised of 3 items (Schaufeli et al., 2006).

Internal consistency reliability estimates have been reported for responses on the UWES. For the 17-item scale, Schaufeli, Salanova et al. (2002) reported reliability estimates for each subscale: vigor (α = .78 and .79), dedication (α= .84 and .89) and absorption (α = .73 and .72). Reliability estimates for the 9-item subscales ranged from .60 to .90 (Schaufeli et al., 2006). Across ten countries, reliability estimates for vigor ranged from .60 to .80 (median = .77) with two estimates lower than .70. For dedication, estimates ranged from .70 to .90 (median = .85). Estimates for absorption ranged from .66 to .86 (median = .78) with one estimate lower than .70. Overall, reliability estimates across countries ranged from .85 to .92.

In regard to factor structure, the UWES was designed to measure three dimensions of engagement. Previous studies have investigated the structure of UWES scores. Schaufeli, Salanova et al. (2002) tested one-factor, two-factor and three-factor models of engagement in a sample of Spanish students and employees. Although the scales were strongly correlated (mean *r* = .63 and .70), the three-factor solution fit the data best. Schaufeli, Martinez et al. (2002) ran a confirmatory factor analysis with a sample of university students from Spain, Portugal, and the Netherlands. A three-factor model fit the data after three items were removed and some error terms were allowed to correlate; however, not all items were

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invariant across all three countries (Schaufeli, Martinez et al., 2002). Schaufeli et al. (2006) examined the structure of UWES scores on a sample of employees from ten countries: Australia, Belgium, Canada, Finland, France, Germany, the Netherlands, Norway, South Africa and Spain. A one-factor model fit the data reasonably well, but a three-factor solution had superior fit. However, neither model was invariant across all countries in the sample; specifically, structure coefficients and covariances between factors differed across samples.

While a three-factor model seems to best represent the UWES, the psychometric properties of UWES scores have not been examined in an American sample. Furthermore, because of the lack of invariance across samples in regard to the factor structure, it is essential to examine the structure of scores on the UWES in an American sample.

Correlates of Engagement

The Job Demands-Resources (JD-R) model has predominantly been the avenue from which correlates of engagement have been examined. The JD-R model proposes that working conditions can be grouped into two categories: job demands and job resources (Bakker et al., 2003; Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner et al., 2001). Job demands are the physical, psychological, social, or organizational components that require cognitive and emotional exertion; examples of job demands are role overload, job strain, and task difficulty, all of which extract a psychological cost (Bakker & Demerouti, 2007). Job resources are the physical, psychological, social, or organizational components that either function as work goals, reduce job demands, or facilitate personal growth and development; examples include pay, benefits, role clarity, and task identity (Bakker & Demerouti, 2007).

An assumption of the JD-R model is that health impairment (burnout) and motivation (engagement) are two psychological processes triggered by job demands and resources,

respectively (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004; Demerouti, Bakker, Nachreiner et al., 2001). As explained by Schaufeli and Bakker (2004), the health impairment process is an energy-depleting process by which employees' energy resources are drained due to extreme job demands causing burnout and health problems. On the other hand, the availability of resources stimulates employee motivation either intrinsically or extrinsically. Job resources contribute to intrinsic motivation by encouraging employee growth, learning, and development; extrinsic motivation is another source by which resources play an instrumental role in achieving work goals (Schaufeli & Bakker, 2004).

Demerouti, Bakker, Nachreiner et al. (2001) further explained the dual psychological process. Extreme job demands lead to overtaxing and eventually exhaustion. A lack of resources further exacerbates feelings of exhaustion and contributes to withdrawal behaviors. Disengagement is the long-term effect. The opposite is also true: job resources have motivational value and lead to engagement, low cynicism, and high performance (Bakker & Demerouti, 2007). Thus, job resources are positively related to engagement and negatively related to burnout, and job demands are positively related to burnout.

Schaufeli and Bakker (2004) examined the JD-R model of work engagement and burnout by means of structure equation modeling in a sample of 1,698 employees from four organizations. Schaufeli and Bakker hypothesized that (1) burnout mediates the relationship between high levels of job resources and health problems, (2) engagement mediates the relationship between job resources and low levels of intent to turnover, and (3) various cross-links between the energy and motivation processes are present. Hypotheses were tested simultaneously across the four samples. Caution should be used in the interpretation of findings as causal since a cross-sectional design was used. Results indicated that engagement

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mediated the relationship between job resources and turnover intention, while burnout

mediated the relationship between job demands and health problems. In addition,

engagement was related to job resources, whereas burnout was related to job demands and a

lack of job resources. Finally, engagement was negatively related to turnover intention and

burnout was positively related to health problems and turnover intention. As evidence

suggests, engagement and burnout have similar functions in different processes; engagement

mediates the motivational process while burnout mediates the energetic process, thus

confirming the energy-depleting and motivational processes previously described. Other

studies have also supported the JD-R model and its explanation of work engagement (e.g.

Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Hakanen, Bakker, & Demerouti,

2005; Schwartz, 2008).

Because work engagement is positively related to job resources, any aspects of work

that reduce job demands, function as work goals, and/or stimulate growth, learning, and

development may be considered resources. Further, the more job resources that are available,

the more engaged employees will feel (Schaufeli & Salanova, 2007b), leading to an upward

spiral (Llorens, Schaufeli, Bakker, & Salanova, 2007). The following paragraphs provide

empirical reports of correlates of work engagement.

In a study with 286 Turkish managers and professionals, Koyuncu, Burke and

Fiksenbaum (2006) examined potential correlates of work engagement. Specifically, they

hypothesized that (1) work experiences including support, reward/recognition, and workload

are positively related to engagement, and (2) engagement is positively related to work

outcomes and indicators of psychological well-being. A limitation of the study is that internal

consistency reliability estimates for some instrument responses were less than .70; in

addition, all respondents were female, which may limit the generalizability of findings. Using hierarchical regression analyses, work engagement, work outcomes and psychological well-being were examined. First, engagement was regressed on three predictors, of which the first two predictors served as control variables: demographic characteristics, work-situation characteristics (i.e. organizational level, job tenure), and work and career experiences. Results indicated that individuals with higher levels of control, reward/recognition, and value fit were more engaged; those with higher workloads had higher levels of absorption. In the second analysis, three work outcomes were regressed on four predictors (demographics, work situation characteristics, work experience and work engagement). In all cases, engagement accounted for a significant increment of variance. Higher levels of job satisfaction were reported by those with higher levels of absorption and dedication; in addition, those with higher levels of absorption had less intent to quit. In the final analysis, four psychological well-being measures were regressed on the same four predictors. Work engagement accounted for a significant increment of variance in all cases. Higher levels of vigor were reported by those with more positive psychological well-being in three of four cases. Overall, these findings indicate that engagement is related to positive work and individual well-being outcomes.

In a two-year longitudinal study with 409 Finnish health care personnel from seven hospitals, job and organizational correlates of work engagement were investigated using the JD-R model (Mauno et al., 2007). A study limitation is that the sample was predominantly women (88%), which may limit the generalizability of findings. Hierarchical regression analyses were computed to examine each dimension of work engagement. The engagement measure explained a significant amount of variance. Job resources, including job control and

organizational based self-esteem were the best lagged predictors of work engagement; in essence, this means that high levels of job control and organizational-based self-esteem at time 1 were observed with high levels of work engagement at time 2. Job demands had slightly less predictive value than job resources. High levels of time demands had a lagged relationship with absorption. In addition, high work-to-family conflict at time 1 was observed with lower levels of vigor at time 2. Finally, job insecurity had a lagged relationship with decreased dedication.

Llorens et al. (2007) conducted a two-wave longitudinal study with a three-week time lag which examined the relationships between task resources, efficacy beliefs, and work engagement in a sample of 110 university students. Structural equation modeling was used to examine the relationship among variables. Model one, the *stability model* (M1) which had no cross-lagged structural paths, was compared with three other models: (1) the *causality model* (M2) which included cross-lagged paths from task resources at time one to efficacy beliefs at time two, and from efficacy beliefs at time one to engagement at time two, (2) the *reversed causation model* (M3), which included cross-lagged paths from engagement at time one to efficacy beliefs and task resources at time two and from efficacy beliefs at time one to task resources at time two, and (3) the *reciprocal model* (M4), which included reciprocal paths among task resources, efficacy beliefs, and engagement. Measurement errors of corresponding indicators were allowed to covary from time one to time two. Results indicated that model 4, the *reciprocal model*, had the best fit to the data. Specifically, this means that task resources had a positive effect on efficacy beliefs and a lagged effect on engagement; in other words, the higher task resources an individual perceived, the higher his or her efficacy beliefs were, which in turn impacted his or her level of engagement. In

addition, efficacy beliefs had a mediating role between engagement and task resources; those with higher levels of engagement also had higher self-efficacy beliefs, which resulted in higher perceptions of task resources. Llorens et al. concluded that their findings support the notion that a spiral gain model exists between task resource, efficacy beliefs, and work engagement.

As can be seen from the preceding empirical reports, correlates of work engagement have been examined in both cross-sectional and longitudinal study designs. In addition, the model of job demands and resources provides the framework from which these relationships have largely been explored. Because work engagement has a positive relationship with job resources, those aspects of work that reduce job demands, function as work goals, and/or stimulate growth, learning, and development may be considered resources (Schaufeli & Salanova, 2007b). In the preceding studies, correlates of work engagement include job control, reward and recognition, value fit, job security, job satisfaction, intent to stay, positive psychological well-being, organizational based self-esteem, and efficacy beliefs.

Big Five Personality Characteristics

While there is extensive research on the environmental correlates of work engagement, few researchers have examined the relationship between predispositional characteristics and work engagement. Some research has been conducted with burnout and personality. However, a study which examines the relationship between personality and work engagement is warranted since the constructs are operationalized differently.

Understanding predispositional characteristics and their relationship with work engagement is important because it contributes to the theoretical basis of the construct. Bandura (1978) explains behavior as a process of reciprocal determinism in which there is a

continuous reciprocal interaction among behavior, personal factors, and environmental influences (See Figure 1). Determinism means "the production of effects by events" rather than a predetermined manner independent of the individual (Bandura, 1978, p. 345). In interacting with the environment, individuals do not simply react to external stimulation; rather, external factors affect behavior through internal processes. These internal processes in part determine what will be observed, how it will be interpreted, and how it will be used in the future. Because individuals can think reflectively and plan behavior in advance, they can alter their environment. Hence, behavior is not only influenced by the environment, but the environment is partially shaped by the individual. In addition, internal personal factors and behavior also interact in a reciprocal process (Bandura, 1978). For example, individuals' optimistic expectations impact how they behave, and the environmental consequences created by their behaviors then change their expectations.

Figure 1

The Model of Reciprocal Determinism (Bandura, 1978)
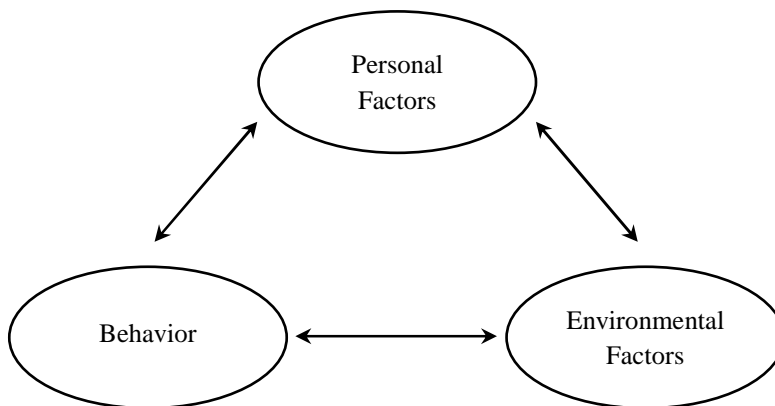
Since environmental influences, predispositional factors, and behavior all function in a reciprocal relationship with each other (Bandura, 1978), the study of work engagement

should include all three elements. The Job Demands-Resources model primarily explains work engagement as a product of environmental factors. However, the environment is not solely responsible for shaping or controlling the extent to which individuals are engaged in their work. Personal factors also function as reciprocal determinants of work engagement behaviors and contribute in shaping the environment. For these reasons, a triadic reciprocal model that examines environmental, predispositional, and behavioral factors may better explain work engagement.

Personality may be used as a general indicator of predispositional variables. Individuals enter the workplace with their own set of personality characteristics. The question remains as to why some individuals exhibit signs of work engagement while others show little or no signs of work engagement when working under similar conditions. Perhaps personality plays a role in the engagement process.

The Big Five factor model is considered a well-developed model of examining personality (Costa & McCrae, 1992). These factors are used in the present study because they represent the basic dimensions underlying the personality traits in natural languages and in psychological questionnaires (Costa & McCrae, 1992). The Big Five personality dimensions can be divided into five factors: neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1992; McCrae & Costa, 1984; McCrae & John, 1992).

Neuroticism measures the continuum between emotional adjustment or stability and emotional maladjustment or neuroticism (Costa & McCrae, 1992). Individuals who have a tendency to experience negative affects including fear, embarrassment, sadness, anger, and guilt are at the high end of the neuroticism domain. In addition, those who are at the high end of neuroticism are more likely to have irrational ideas, less able to control impulses, and less

able to cope with stress due to their negative emotions interfering with adaptation processes. Individuals scoring at the low end of neuroticism are emotionally stable (Costa & McCrae, 1992).

Extraverted individuals are sociable, like people, prefer groups, and enjoy excitement and stimulation; in addition, they are cheerful, upbeat, optimistic, assertive, active and talkative (Costa & McCrae, 1992). Introversion, on the other hand, can be described as the absence of the aforementioned traits; however, it is not the opposite of extroversion. Introverts are reserved, independent, and even-paced rather than unfriendly, followers, or sluggish (Costa & McCrae, 1992).

Individuals who are open to experience are imaginative, sensitive, attentive to inner feelings, intellectually curious, and independent of judgment (Cost & McCrae, 1992). Open individuals are willing to entertain new ideas and unconventional values; additionally, they experience positive and negative emotions more strongly than closed individuals. It is important to note that individuals who are open to experience are not necessarily unprincipled or uncontrolled. Those who are closed to experience are more conventional and conservative; they prefer familiar ideas and values. However, while they are politically and socially conservative, closed individuals are not necessarily intolerant or authoritarian. Although openness may seem healthier and better adjusted, the position of openness or closedness is dependent on the situation. Both open and closed individuals are valuable in society (Costa & McCrae, 1992).

Agreeableness is the tendency to be fundamentally altruistic (Costa & McCrae, 1992). In essence, agreeable individuals are sympathetic to others and have a desire to help others; in return, they believe others will be helpful. Disagreeable or antagonistic individuals,

on the other hand, are self-centered, skeptical of others, and competitive. While agreeableness seems socially preferable, characteristics of the opposing continuum provide the basis for which individuals are able to critically and skeptically think and fight for their ideas. Both agreeable and disagreeable individuals are beneficial in society (Costa & McCrae, 1992).

Individuals who are conscientious have greater self-control; they enjoy planning, organizing, and completing tasks (Costa & McCrae, 1992). Conscientious individuals are purposeful and determined, which explains why they tend to have academic and occupational achievements. However, these behaviors may lead to excessive meticulousness, compulsive orderliness or workaholic behavior. Individuals who are low in conscientiousness are not necessarily amoral; rather, they are more relaxed in applying their principles and working toward goals (Costa & McCrae, 1992).

At present, only two studies have examined the relationship between engagement and personality. The first study provides an evaluation of how individuals differed in their levels of engagement and burnout in relation to the personality traits of neuroticism and extroversion (Langelaan et al., 2006). The second study provides an examination of how engagement and burnout related to "Type A behavior" (Hallberg et al., 2007).

Langelaan et al. (2006) examined whether engagement and burnout can be discriminated on the basis of neuroticism and extroversion in a sample of Dutch employees. Discriminant analyses were used to investigate how different patterns of personality discriminate burned-out (n = 93) and engaged (n = 118) individuals from their non-burned-out (n = 96) and non-engaged (n = 87) counterparts. Engagement and burnout were measured by vigor and dedication scales, and exhaustion and cynicism scales, respectively. Logistic

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regression analyses were used to control for the influence of differences in regards to demographic variables. For the analysis, which discriminated engaged employees from non-engaged employees, the discriminant function had a canonical correlation of .68 with group membership, which was statistically significant (p < .001). Of the total sample, 84.4% could be classified correctly. Findings indicated that engaged employees were characterized by lower levels of neuroticism (loading = -.49) and higher levels of extraversion (loading = .35). The analysis, which discriminated burned-out employees from non-burned-out employees, was statistically significant (p < .001) and had a canonical correlation of .71. Also, 85.2% of the sample could be classified correctly. Burned-out employees had higher levels of neuroticism (loading = .81); however, they were not characterized by low levels of extraversion (loading = -.18). Results remained the same after controlling for age, gender, and educational level.

Engagement and burnout have also been examined in relation to "Type A behavior" in a sample of 329 employees (Hallberg et al., 2007). Type A behavior was differentiated into two factors: achievement striving was characterized as energetic, fast, powerful, enterprising, enthusiastic, ambitious, eager to discuss, individualistic, talkative, extraverted, and strong; and irritability/impatience was characterized as aggressive, tense, easily annoyed, self-assertive, easily irritated, and loud. Hierarchical regression analyses were used to examine all hypotheses. Results indicated that work engagement was related to the achievement striving aspect of Type A behavior and burnout was related the irritability/impatience aspect. While Type A behavior is not a component of the Big Five personality characteristics, achievement striving is positively correlated with conscientiousness ($r = .60$; p < .01), extraversion ($r = .21$; p < .01), and openness ($r = .16$; p

< .05) and irritability/impatience is positively correlated with neuroticism ($r = .28$; p < .01) and negatively correlated with agreeableness ($r = -.17$; p < .05) (Bruck & Allen, 2003).

As evidence suggests, there is little research in the area of personality characteristics and work engagement. In order to understand the relationship between individual differences and work engagement, it is critical to examine all five components of the Big Five in relation to engagement.

<div align="center">Summary</div>

Work engagement arose out of the positive psychology movement which called for a more balanced approach of concentrating not only on fixing and repairing, but also on building and strengthening (Seligman, 2005). Thus, attention moved from research in burnout to increased focus on work engagement.

The UWES was developed to measure the underlying dimensions of work engagement including vigor, dedication, and absorption (Schaufeli, Salanova et al., 2002) and is the most widely used instrument which measures work engagement. Although the 3-factor structure of scores on the UWES has been examined in multiple countries, score responses have not been evaluated in an American sample. Because of its continued use, it is imperative to examine its dimensionality in the United States.

In addition, a limitation to the work engagement literature is an overemphasis on environmental variables. As a result, predispositional variables have not been adequately addressed. The question remains as to why some individuals exhibit signs of work engagement while others show little or no signs of work engagement when working under similar conditions. Perhaps personality plays a role in the work engagement continuum.

CHAPTER III

METHODOLOGY

In this chapter, a description of participants, instruments and their psychometric properties, procedures, and methods of data analysis is presented. The present research was part of a larger organizational study comprised of measures not presented in this study. The protocol for this study was approved by the university's human subject review board (FILE: ED094; See Appendix A for the Institutional Review Board Approval).

Participants

Participants in the present study were employees from non-profit organizations in Oklahoma. Initially, the sample was drawn from employees associated with the Oklahoma Center for Nonprofits (OCN). Due to a low response of 98 respondents, another sample was drawn from employees associated with Tulsa Area United Way (TAUW), which resulted in 129 questionnaires completed. Thus, a total of 227 participants completed the questionnaire from the two organizations.

Demographic information was collected from participants including age, gender, marital status, race/ethnicity, education, and work status. Table 1 presents the demographic variables of participants. The mean age and mean years worked for participants from OCN (mean = 47.2 and 3.5) and TAUW (mean = 46.5 and 3.3) was similar. In regard to gender, 87.8% of participants from OCN and 79.8% of participants from TAUW were female.

Marital status was similar for each organization with the majority of participants being married (67.3% and 69.0%). Additionally, the majority of participants from OCN and TAUW were White (90.8% and 80.6%). In regard to educational background, most participants were either college graduates or post graduates. Finally, 87.8% of participants from OCN and 95.3% of participants from TAUW were full-time employees. It is unfortunate that the sample size from each organization was small; however, the demographic variables from each sample are comparable.

Table 1

Demographic Variables of Participants

	OCN: N (%)	TAUW: N (%)
Gender		
Male	12 (12.2%)	26 (20.2%)
Female	86 (87.8%)	103 (79.8%)
Marital Status		
Married	66 (67.3%)	89 (69.0%)
Single	12 (12.2%)	17 (13.2%)
Separated	3 (3.1%)	1 (0.8%)
Divorced	15 (15.3)	19 (14.7%)
Widowed	2 (2.0%)	3 (2.3%)

Race/Ethnicity		
White	89 (90.8%)	104 (80.6%)
Black/African American	3 (3.1%)	9 (7.0%)
American Indian	2 (2.0%)	3 (2.3%)
Hispanic/Latino	2 (2.0%)	5 (3.9%)
Education		
Less than 12th grade	0	0
HS/GED	5 (5.1%)	4 (3.1%)
Vocational school	2 (2.0%)	4 (3.1%)
Some college	17 (17.3%)	23 (17.8%)
College graduate	33 (33.7%)	56 (43.4%)
Post graduate	41 (41.8)	42 (32.6%)
Work Status		
Full-time	86 (87.8%)	123 (95.3%)
Part-time	12 (12.2%)	5 (3.9%)

Note. OCN = Oklahoma Center for Nonprofits, N = 98; TAUW = Tulsa Area United Way,

N = 129

Design

The purpose of the present study was to examine the psychometric properties of the 17-item UWES scores in an American sample. To begin, descriptive statistics were computed to examine statistical assumptions. The structure of UWES scores was examined by means of confirmatory factor analyses (CFA) to determine if a one-factor or three-factor structure exists. Structural equation modeling (SEM) was employed using the LISREL program 8.80 (Jöreskog & Sörbom, 2006) to test the one-factor model (M1) and correlated three-factor model (M2). Maximum likelihood estimation methods were used and the input for the data analysis was the covariance matrix of the items. Both absolute and relative indices were utilized to assess the goodness of fit for each model. The following absolute goodness of fit indices were calculated: (1) the χ^2 goodness of fit statistic; (2) the Root Mean Square Error of Approximation (RMSEA); and Goodness-of-Fit Index (GFI). A nonsignificant χ^2 value indicates the model fits the data; though, large sample sizes often lead to the rejection of the hypothesized model (Kline, 2005). For this reason, the use of relative goodness of fit indices is suggested (Bentler, 1990). RMSEA, a parsimony-adjusted index, values < .05 indicate approximate fit and values < .08 indicate reasonable error of approximation (Browne & Cudeck, 1992). GFI values > .90 indicate good fit (Kline, 2005). The following relative goodness of fit indices were calculated: (1) the Normed Fit Index (NFI); and (2) Comparative Fit Index (CFI). NFI and CFI values roughly > .90 indicate reasonably good fit (Hoyle, 1995).

Exploratory factor analysis was used to determine the underlying factors of the UWES. Specifically, a principal axis factor (PAF) analysis was computed with an oblique rotation. This rotation was chosen since factors are hypothesized to correlate (Schaufeli,

Salanova et al., 2002). An item analysis was used to estimate internal consistency reliability for item subsets. Additionally, internal consistency reliability estimates of the UWES dimensions and total scale were computed.

Finally, the relationship between dimensions of the UWES and of the Big Five personality characteristics was investigated. A series of regression analyses was used to determine the contributions of personality characteristics in predicting the three dimensions of work engagement. Specifically, forced-entry multiple regression analyses were computed, regressing each of the engagement dimensions and total scale score on the five personality characteristics.

<div align="center">Measures</div>

The instruments used in the first sample include a demographic questionnaire, the Utrecht Work Engagement Scale, and the NEO-Five Factor Inventory. Survey items are provided in Appendix A.

Demographic Information

Age, gender, race/ethnicity, and marital status were included in the questionnaire. Also included were questions on work status (full-time, part-time) and education level.

Utrecht Work Engagement Scale

Work engagement was assessed with the Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003). The 17-item self-report measure is grouped into three scales: 6 items measure vigor, 5 items measure dedication, and 6 items measure absorption. All items are presented in a 7-point Likert type response format ranging from 1-*never* to 7-*always*. Higher scores indicate stronger levels of engagement.

Originally, the scale included 24 items: vigor (9 items), dedication (8 items), and absorption (7 items) (Schaufeli, Salanova et al., 2002). After evaluation of the psychometric properties in two samples of Spanish participants, seven unsound items were eliminated, resulting in 17 items.

The psychometric properties of responses on the 17-item UWES are presented in the original study and manual. In a sample of Spanish students (N = 314) and employees (N = 619), internal consistency reliability estimates for UWES responses were reported for each subscale: vigor (α = .78 and .79), dedication (α = .84 and .89) and absorption (α = .73 and .72) (Schaufeli, Salanova et al., 2002). The UWES manual reported reliability estimates for vigor (α = .83), dedication, (α = .92) and absorption (α = .82) for a Dutch sample (N = 2,313) (Schaufeli & Bakker, 2003). Schaufeli and Salanova (2007a) reported reliability estimates for their sample of Dutch and Spanish participants (N = 1,099) ranging from .70 to .90 for each subscale. Reliability estimates ranging from .70 to .90 were also reported for each subscale for a four-sample study of Dutch employees (N=1,698) (Schaufeli & Bakker, 2004).

The structural validity of UWES scores was evaluated by Schaufeli, Salanova et al. (2002) by means of confirmatory factor analysis. In a Spanish sample, results indicated that although subscales were correlated (mean r = 63. and .70), a three-factor structure fit the data well. In another CFA, a three-factor model was superior to a one-factor model in a sample of university students from Spain, Portugal, and the Netherlands; however, not all items were invariant across countries (Schaufeli, Martinez et al., 2002).

Construct validity studies have focused primarily on the relationship between engagement and burnout. Schaufeli, Martinez et al. (2002) found that the UWES and

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Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996) scales were significantly and negatively correlated (r = -.47 and -.62). The model that fit the data best was comprised of a core burnout factor (exhaustion and cynicism) and an extended engagement factor (vigor, dedication, absorption, and professional efficacy). Schaufeli and Salanova (2007a) also reported a significant and negative relationship between the UWES and MBI (r = -.58, -.46, -.62, -.20). A two-factor model comprising burnout (exhaustion, cynicism, and inefficacy) and engagement (vigor, dedication, absorption, and professional efficacy) fit the data best.

NEO-Five Factor Inventory

The Big Five personality characteristics were evaluated using the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). The NEO-FFI is a 60-item instrument which is comprised of 12 items for each of the five dimensions: neuroticism, extroversion, openness, agreeableness, and conscientiousness. Items are presented in a 5-point Likert type response format ranging from 1-*strongly disagree* to 5-*strongly agree*. Higher scores indicate higher levels of a personality trait.

The NEO-FFI was developed as a shortened version of the 180-item NEO Personality Inventory (NEO-PI; Costa & McCrae, 1992). Principal components analysis was used to select twelve items from each domain which had the highest loading on the corresponding factor. Correlations between NEO-PI and NEO-FFI factors ranged from .75 to .89. The NEO-FFI approximately accounted for 85% as much variance in the convergent criteria when compared to the NEO-PI; some accuracy was exchanged for convenience and speed (Costa & McCrae, 1992).

The psychometric properties of responses on the NEO-FFI are presented in the manual and other studies. In a sample of employees (N = 1,539), internal consistency reliability estimates were reported for each subscale: neuroticism (α = .86), extroversion (α = .77), openness (α = .73), agreeableness (α = .68), and conscientious (α = .81) (Costa & McCrae, 1992). McCrae and Costa (2007) also reported reliability estimates: neuroticism (α = .86), extroversion (α = .79), openness (α = .78), agreeableness (α = .79), and conscientious (α = .82).

The validity of NEO-FFI responses was also examined. An adjective self-report checklist consisting of 300 person-descriptive adjectives (e.g. aggressive, emotional) that was based on the five-factor model was administered to 100 individuals (FormyDuval, Williams, Patterson, & Fogle, 1995). FormyDuval et al. (1995) indicated that correlations among NEO-FFI scales and the analogous adjective self-report checklist factors were significantly correlated. Convergent correlations were reported as following: neuroticism (r = .58), extroversion (r = .52), openness (r = .25), agreeableness (r = .62), and conscientious (r = .60),

<center>Procedure</center>

Employees from non-profit organizations were invited to participate in this study by reason of their association with either the Oklahoma Center for Nonprofits or Tulsa Area United Way. After approval from the executive director or vice president of the organizations, an email was sent to employees that described the purpose of the study and invited them to participate voluntarily. An electronic questionnaire that included demographic information, the 17-item Utrecht Work Engagement Scale, and the 60-item NEO-Five Factor Inventory was included in the email as a link. After accepting the informed

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consent, individuals were directed to a web-based questionnaire. Responses were collected

electronically using ZIPSurvey, a secure web-based software. Completion of the

questionnaire took approximately 30-40 minutes.

CHAPTER IV

RESULTS

This chapter includes an analysis of several psychometric properties of the Utrecht Work Engagement Scale (UWES) in an American sample. An overview of the descriptive statistics is provided followed by the results to the four research questions posited in the study. The research questions include:

1. Does the three-factor structure of scores on the 17-item UWES exist in an American sample?

2. What are the underlying factors of the 17-item UWES in an American sample?

3. What are the internal consistency reliability estimates of the UWES dimensions?

4. How are the dimensions of the UWES related to the Big Five personality characteristics?

The first research question concerning the three-factor structure of the UWES in an American sample was addressed by computing confirmatory factor analyses using the LISREL program 8.80 (Jöreskog & Sörbom, 2006). The second research question was addressed by computing a principal axis factor analysis to examine the underlying factor structure of the UWES. Following these analyses, the third research question was addressed by examining the internal consistency of UWES scores. Finally, a series of regression analyses were computed to address the fourth research question, which concerned the

relationship between personality characteristics and the three dimensions of work

engagement.

Descriptive Statistics

The variables used in the present study were scores from the UWES and NEO-FFI. Confirmatory factor analysis procedures were used with UWES variables while regression analyses were computed with NEO-FFI variables. All statistical methodologies require certain statistical assumptions are met. In order to determine the extent to which data met these assumptions, descriptive statistics for variables in the present study were examined (see Table 2).

Table 2

Descriptive Statistics for Variables

Total Scale Subscale	Mean	SD	Min	Max	Range	Skewness (SE)	Kurtosis (SE)
Work Engagement							
Vigor	33.32	5.00	18	42	24	-.62 (.17)	-.00 (.34)
Dedication	29.08	4.78	14	35	21	-.78 (.17)	-.10 (.33)
Absorption	31.75	5.31	10	41	31	-.55 (.17)	.45 (.33)
NEO-FFI							
Neuroticism	27.77	7.28	12	48	36	.26 (.17)	-.26 (.33)
Extroversion	44.25	6.25	28	58	30	-.20 (.17)	.02 (.33)

Openness	41.03	6.69	27	57	30	-.12 (.17)	-.46 (.34)
Agreeableness	47.47	5.25	30	60	30	-.49 (.17)	.34 (.33)
Conscientiousness	48.24	5.89	30	60	30	-.36 (.17)	.43 (.33)

Note. N = 204

Means and standard deviations can be examined to ensure the data are generally in the expected range. This process allows the researcher to identify major coding errors and potential problems with the sample. Variables in the present study fall within the accepted range when compared to other samples for UWES items (e.g. Seppälä et al., 2008) and NEO-FFI items (e.g. Costa & McCrae, 1992).

The assumption of univariate normality was assessed by examining the skewness and kurtosis statistics for variables. There is slight skewness for variables, but all are within the normal range of +/- 1.00 (de Vaus, 2002). This indicates that a relatively symmetric distribution is present. In regard to kurtosis, Stevens (2002) comments that the effect of kurtosis on the level of significance is slight, with the exception of platykurtic distributions which attenuate power. There were no platykurtic distributions for variables in the present study.

A large sample is another important factor in SEM because of sampling error. There are some general guidelines for determining an adequate sample size; although, there is disagreement among researchers as to what constitutes an adequate sample size. Kline (2005) states that samples less than 100 are considered small, while samples between 100 and 200 are medium, and samples larger than 200 are considered large. In addition, model complexity should also be considered since more complex models require larger samples. Another

guideline is to have the ratio of number of cases to the number of variables be 10:1 or 20:1

(Kline, 2005). In the present study, the sample size was 205, providing a ratio of 12:1.

Finally, missing data can be problematic if not dealt with appropriately. In the present

study, 217 observations were present for UWES items; however, 12 cases were missing and

subsequently deleted listwise. Listwise deletion, rather than an imputation method, was

chosen since there were so few missing cases (5.5%). Thus, 205 cases were retained for

analyses. For the NEO-FFI, 24 cases had missing data and were subsequently deleted

listwise, resulting in 194 cases.

<div align="center">Confirmatory Factor Analyses</div>

Samples

Two samples (n = 98, n = 129) were used in the present study due to a small sample

size. To determine the level of similarity between the factor structures of the samples, a

three-factor model was tested on each sample. Fit indices were similar for each sample (see

Table 3). In addition, an examination of factor loadings and factor intercorrelations indicates

that both loadings and intercorrelations were comparable for each sample. Because of the

similarity among fit indices, loadings, and intercorrelations, the two samples were combined

into one dataset for subsequent analyses.

Table 3

Confirmatory Factor Analyses of the UWES on Two Samples

Sample	χ^2	*df*	RMSEA	GFI	NFI	CFI
OCN	252.19	116	.12	.74	.91	.94
TAUW	294.56	116	.12	.77	.91	.95

Note. OCN = Oklahoma Center for Nonprofits; TAUW = Tulsa Area United way; χ^2 = chi-square; *df* = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; GFI = Goodness-of-Fit Index; NFI = Normed Fit Index; CFI = Comparative Fit Index

Model Fit

Confirmatory factor analyses (CFA) were performed to test the fit of the two proposed models. The one-factor model did not fit the data well. Fit indices are presented in Table 4. The chi-square was statistically significant, and while this may be due to a large sample size, other fit indices suggest poor fit. The RMSEA was unacceptably high indicating that the population covariance matrix differed considerably from the model-implied covariance matrix (Kline, 2005). In addition, the GFI was low suggesting that the proportion of explained variance in the model was poor (Kline, 2005). NFI and CFI values were acceptable. Factor loadings ranged from .29 to .89 with two items less than .40 (See Figure 2). The squared multiple correlations (SMC) were used to determine the amount of variance each item shared with the underlying construct. Higher values indicate a stronger relationship between the items and construct; an acceptable cutoff value is .50. For the one-factor model, 9 (53%) items had SMC values < .50. Fit indices, squared multiple correlations, and standardized residuals indicate the 17-item measure is not represented by a one-factor model.
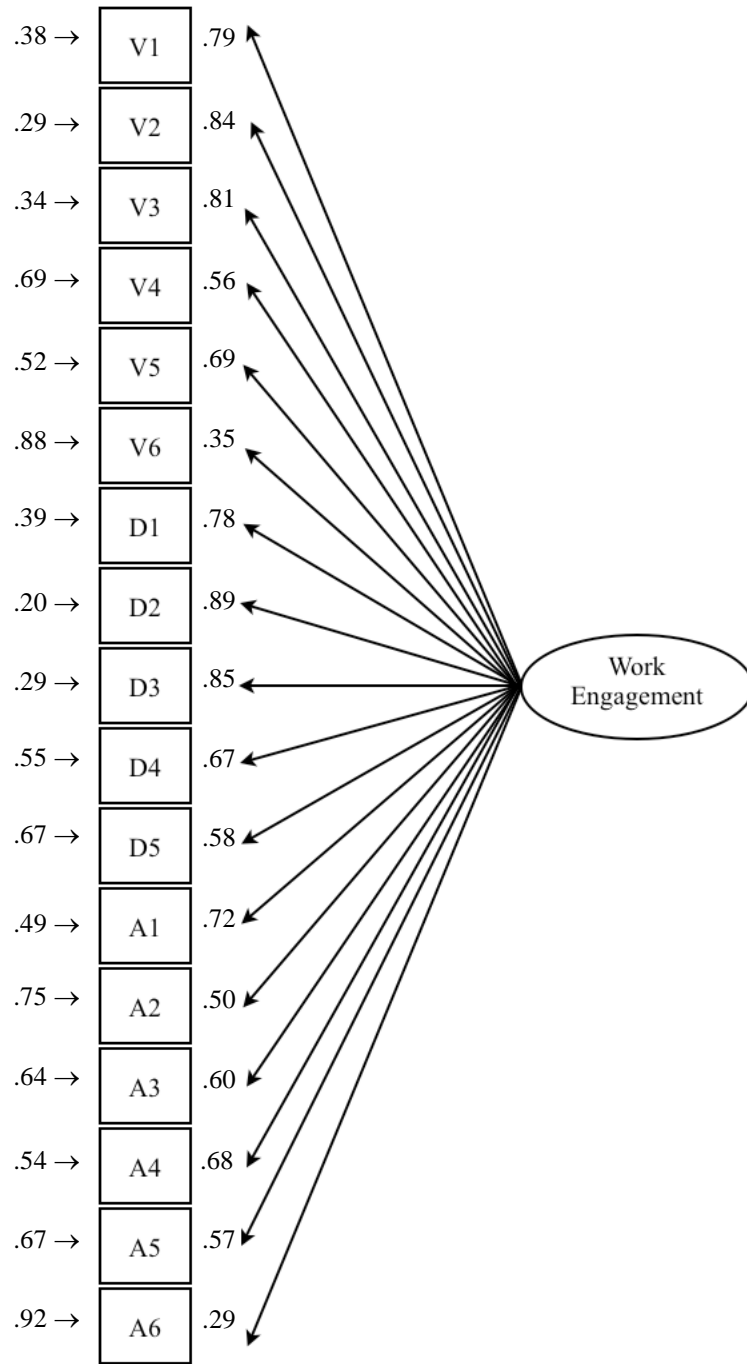
Table 4

Confirmatory Factor Analyses of the UWES Scores

	$?^2$	*df*	RMSEA	GFI	NFI	CFI	$\Delta\chi^2$ (Δdf)
1-Factor	600.14	119	.14	.74	.92	.94	
3-Factor	390.28	116	.11	.82	.94	.96	209.86 (3), $p < .001$

Note. χ^2 = chi-square; *df* = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; GFI = Goodness-of-Fit Index; NFI = Normed Fit Index; CFI = Comparative Fit Index

Figure 2

One-Factor Model of the 17-item UWES

The correlated three-factor model had an improved fit over the one-factor model as indicated by the chi-square difference test (see Table 4). However, overall the model did not meet the guidelines for acceptable fit. The RMSEA was larger than the cutoff value and the GFI was low indicating misfit. While NFI and CFI values were within the accepted range, the inconsistency among fit indices suggests that fit is poor. Factor loadings ranged from .36 to .91 with one item less than .40 (See Figure 3). Seven (41%) items had SMC values < .50. Fit indices, squared multiple correlations, and standardized residuals indicate the 17-item measure is not represented by a three-factor model.

Figure 3

Three-Factor Model of the 17-item UWES
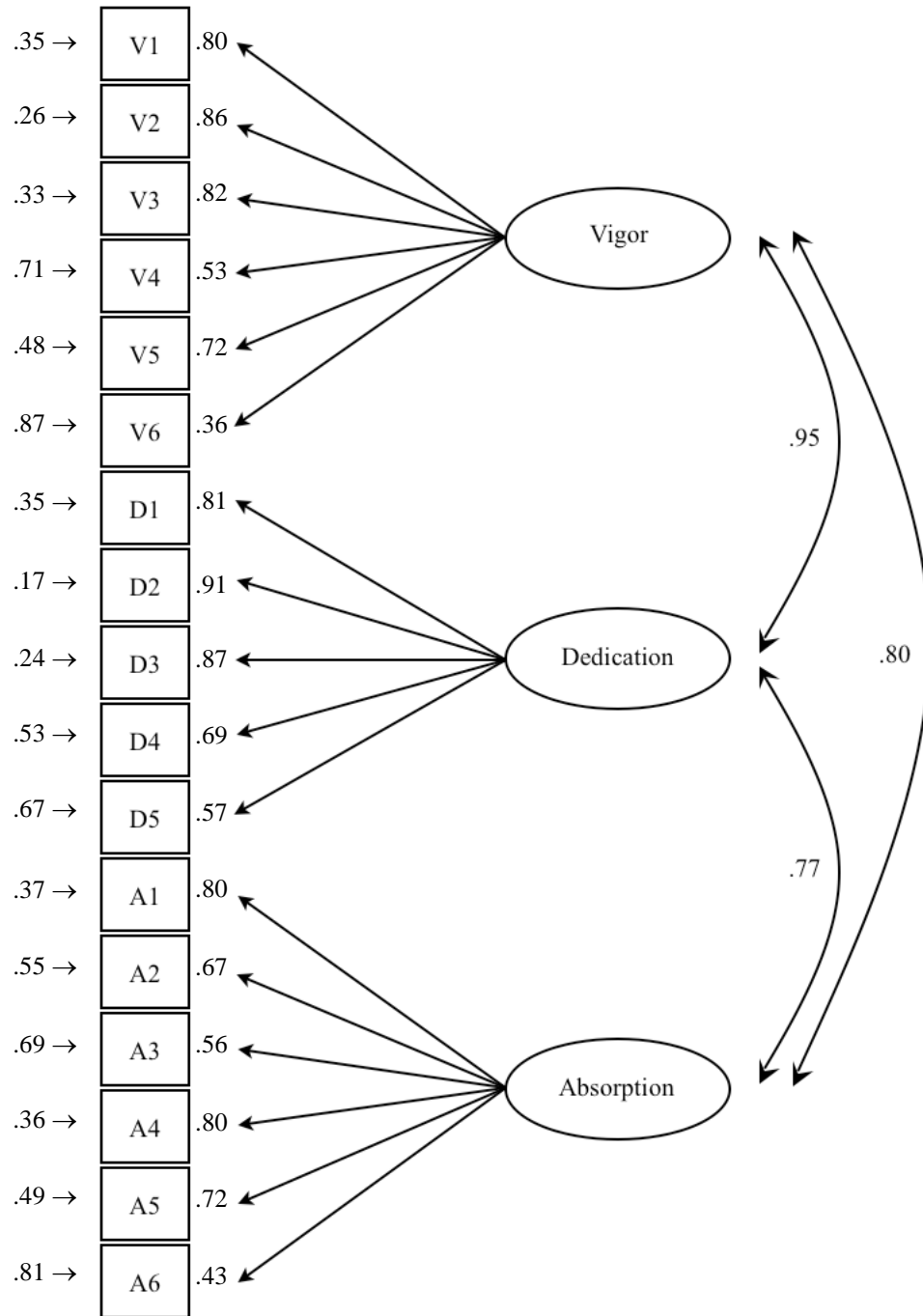
In an effort to improve the model fit, modification indices were examined in the three-factor model. Based on modification indices, three paths were examined and added. These include paths from item D2 to vigor, from item A3 to vigor, and from item V4 to absorption (see Figure 4). After examination of these items, it seemed reasonable that they could cross-load. For example, item D2 states, "I am enthusiastic about my job." It is not surprising that this item about being enthusiastic would load on vigor. Item A3, which states "I feel happy when I am working intensely" loaded on vigor. Finally, item V4, which states "I can continue working for long periods at a time" loaded on absorption. The resulting model had improved fit compared to the original three-factor model as evidence by the chi-square difference test (see Table 5). The RMSEA approached an adequate cutoff, but was still large. However, NFI and CFI values were acceptable. While the revised three-factor model had an acceptable fit, results should be interpreted with caution since the use of modification indices can capitalize on chance and findings may not generalize across samples (Heck & Thomas, 2000; MacCallum, Roznowski, & Necowitz, 1992; Wegener & Fabrigar, 2000). This is particularly true with samples less than 500, as is the case in the current study (MacCallum et al., 1992).

Figure 4

Revised Three-Factor Model of the 17-item UWES
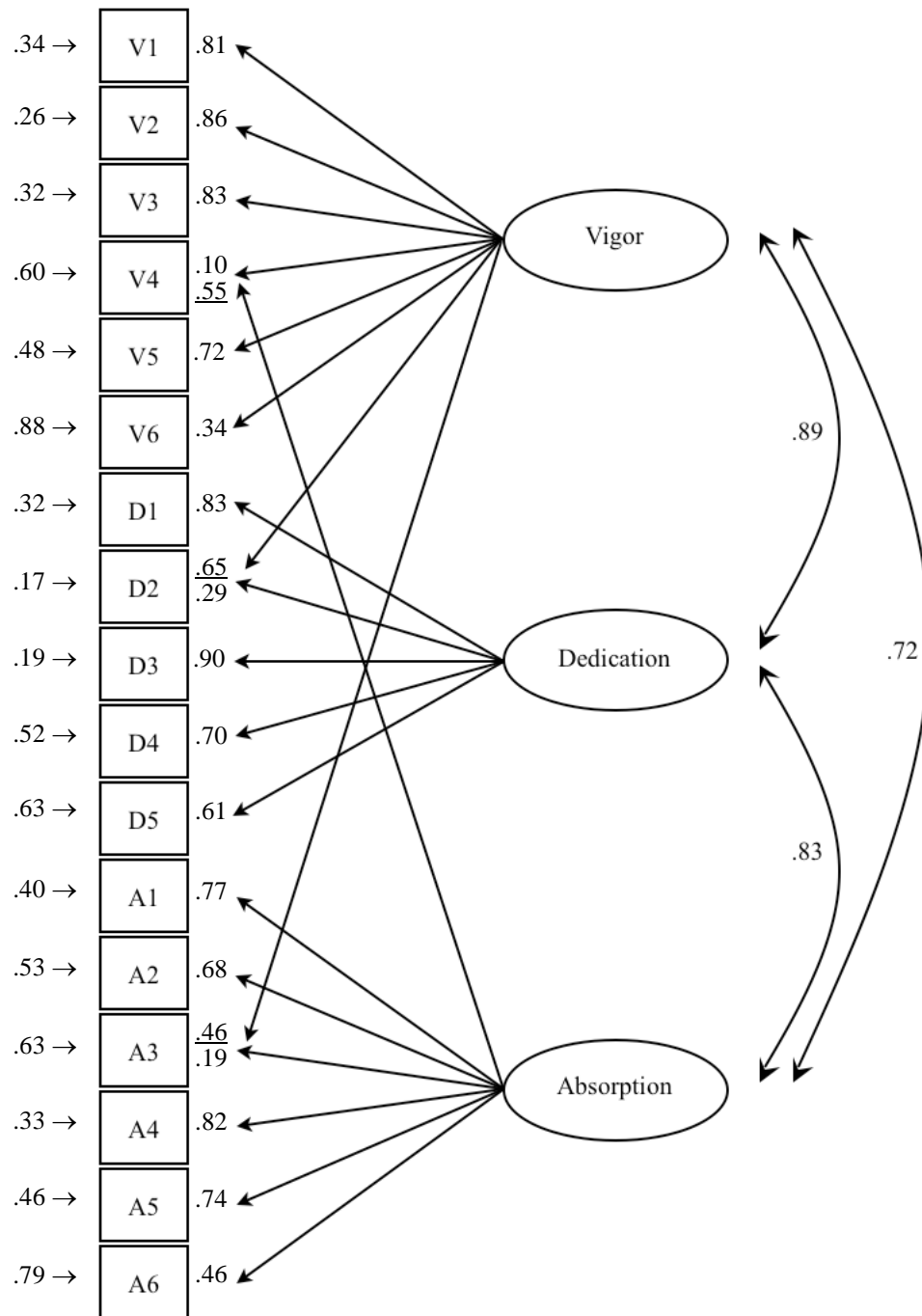
Note. Underlined values indicate loadings of added paths.

Table 5

Confirmatory Factor Analyses of UWES Scores

	$?^2$	*df*	RMSEA	GFI	NFI	CFI	$\Delta\chi^2$ (Δdf)
3-Factor	390.28	116	.11	.82	.94	.96	
3-Factor (r)	283.55	113	.09	.86	.95	.97	106.73 (6), *p* < .001

Note. χ^2 = chi-square; *df* = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; GFI = Goodness-of-Fit Index; NFI = Normed Fit Index; CFI = Comparative Fit Index; r = revised

For the final analyses, two-factor models were examined because of the substantial intercorrelations among factors. A two-factor model with vigor and dedication collapsed into one factor and absorption as the second factor was examined. In the present study, vigor and dedication had a large correlation in the original three-factor model (*r* = .95). The two-factor model was not an improvement over the three-factor model and demonstrated poor fit (χ^2 = 403.41, *df* = 118; RMSEA = .11; GFI = .81; NFI = .94; CFI = .95). Another two-factor model, which collapsed vigor and absorption into one factor and allowed dedication to be the second factor, was tested. Schaufeli, Salanova et al. (2002) tested this two-factor model due to high intercorrelations among vigor and absorption subscales in their study. Again, the model had poor fit and was not an improvement over the three-factor model (χ^2 = 572.91, *df* = 118; RMSEA = .14; GFI = .75; NFI = .93; CFI = .94).

Exploratory Factor Analysis

Due to the inconclusive findings from the CFA, a principal axis factor analysis was computed. An oblique rotation was utilized because the factors were highly correlated. The

K1 or eigenvalue greater than 1 criterion (Kaiser, 1974), scree test (Cattell, 1966), and parallel analysis (Horn, 1965) were compared to estimate the number of factors to retain. Both the K1 rule and scree test have been shown to be capable of overestimating the number of factors they generate (Zwick & Velicer, 1986). Parallel analysis has been demonstrated to be the most accurate method of factor retention (Hayton, Allen, & Scarpello, 2004). In parallel analysis, both sample size and the number of variables are used with Monte Carlo simulation to create correlation matrices of random variables; random eigenvalues are then compared with sample eigenvalues to determine the number of factors to retain. Factors with sample eigenvalues greater than the random eigenvalues are retained (Hayton et al., 2004).

An acceptable level of correlation existed among UWES items, as indicated by Bartlett's Test of Sphericity (Bartlett, 1954) χ^2 (136, $N = 205$) = 2195.41, p < .001. In addition, the Kaiser-Meyer-Olkin (KMO) (Kaiser, 1974), which was .93, demonstrated sample adequacy was high. The UWES scale was determined as appropriate for principal axis factoring as evidenced by the test of sphericity and sampling adequacy.

Results from the principal axis factor analysis indicate three eigenvalues greater than 1; however, the third eigenvalue was 1.05. Assessment of the scree plot suggests two factors should be retained. Parallel analysis also indicates two factors should be retained accounting for 58.68% variance.

As informed by the parallel analysis, a principal axis factor analysis was computed again using a forced two-factor solution with oblimin rotation with delta set at 0. Table 6 presents the structure coefficients and communalities of the 17-items from the two-factor solution. The communalities ranged from .13 to .84. Factors one and two accounted for 49.07% and 9.61% variance, respectively, yielding a total of 58.68% variance. The

correlation between factors was also substantial ($r = .56$). Based on the structure matrix, 14

items had loadings $> .40$ on both factors. One item had a loading $< .40$, thus not meeting the

criteria for item retention. With such a large number of items not achieving simple structure,

a unidimensional structure may be a better representation of UWES scores.

Table 6

Structure coefficients and Communalities (h^2) for the 17-item UWES

| | | | | | Pattern Matrix | | Structure Matrix | |
| | Random | Sample | SS | | | | | |
Item	Eigenvalue	Eigenvalue	Loading	h^2	Factor 1	Factor 2	Factor 1	Factor 2
V1	1.52	8.34	7.97	.63	.81	-.02	.79	.43
V2	1.42	1.63	1.19	.73	.86	-.01	.85	.48
V3	1.33	1.05	.50	.67	.82	.00	.82	.46
V4	1.27	.95		.39	.30	.40	.53	.57
V5	1.19	.72		.56	.83	-.17	.74	.30
V6	1.14	.67		.13	.34	.04	.36	.23
D1	1.08	.52		.61	.77	.02	.78	.45
D2	1.03	.49		.84	.95	-.06	.91	.48
D3	.97	.45		.70	.74	.15	.83	.57
D4	.93	.39		.45	.59	.13	.66	.46

D5	.88	.36	.41	.27	.45	.53	.60
A1	.83	.33	.58	.45	.41	.68	.66
A2	.78	.29	.46	.09	.63	.44	.67
A3	.73	.27	.36	.51	.14	.59	.43
A4	.68	.22	.67	.26	.65	.62	.79
A5	.63	.19	.60	.09	.72	.50	.77
A6	.57	.14	.32	-.14	.64	.21	.55

Note. N = 205. A parallel analysis was computed using Watkins (2000) Monte Carlo software with 100 replications. Underlined values indicate acceptable loadings.

A final principal axis factor analysis was computed with a one-factor solution. Items 16 and 17 were not retained in the final analysis due to low item-total correlations of .34 and low communalities of .32 and .13. Table 7 presents the structure coefficients and communalities. The communalities ranged from .31 to .76. With a single factor accounting for 54.05% variance, all items had structure coefficients ≥ .55. A unidimensional structure is also supported by high item-total correlations, ranging from .54 to .83. Internal consistency reliability was acceptable ($\alpha = 0.94$). Based on these results, the UWES may be best represented by a single dimension, which measures a general sense of work engagement.

Table 7

Structure coefficients and Communalities (h^2) for the 15-item UWES

Item	Sample Eigenvalue	SS Loading	h^2	Factor 1
V1	8.11	7.65	.59	.77
V2	1.36		.69	.83
V3	.89		.63	.80
V4	.72		.34	.58
V5	.65		.45	.67
D1	.52		.58	.76
D2	.46		.76	.87
D3	.40		.70	.84
D4	.38		.46	.68
D5	.33		.36	.60
A1	.32		.54	.73
A2	.28		.31	.55
A3	.24		.37	.61
A4	.19		.52	.72

| A5 | .14 | | .37 | .61 |

Internal Consistency Reliability

A reliability analysis was conducted to examine the internal consistency reliability of UWES scores. Internal consistency estimates for scores on the total scale and for each subscale were ≥ .80. The overall coefficient alpha for the 17 items was .93 compared to .94 for the 15-item version. The coefficient alpha for vigor was .84 with item-total correlations ranging from .37 to .78. Furthermore, examination of the "alpha if item is deleted" suggested removing items would generally decrease the final reliability estimate; an exception occurred with the deletion of item V6 increasing the reliability estimate to .86. The coefficient alpha for dedication was .88 with item-total correlations ranging from .56 to .83. Examination of the "alpha if item is deleted" indicated removing items would generally decrease the final reliability estimate. The coefficient for absorption was .80 with item-total correlations ranging from .39 to .72. Examination of the "alpha if item is deleted" suggested removing items would generally decrease the final reliability estimate; however, deletion of item A6 would increase the reliability estimate to .82. Items V6 and A6 were the same items with low communalities and item-total correlations that were removed in the EFA.

Big Five Personality Characteristics

The relationship between dimensions of the UWES and of the Big Five personality characteristics was investigated. Bivariate relationships between UWES scores and personality characteristics were examined. Table 8 presents the Pearson correlations of study variables. Vigor, dedication, and absorption were intercorrelated. Vigor and dedication had the largest correlation while dedication and absorption had the smallest correlation. In

addition, statistically significant correlations were present between UWES total scores and neuroticism, extroversion, agreeableness, and conscientiousness. Each of the UWES subscales, namely vigor, dedication, and absorption, were significantly correlated with neuroticism, extroversion, agreeableness, and conscientiousness. Neuroticism was the only variable with a negative correlation among UWES scales. Openness did not have a statistically significant relationship with vigor, dedication, or absorption.

Table 8

Correlations of UWES and NEO-FFI Scores

Variable	1	2	3	4	5	6	7	8	9
1 UWES	.93								
2 Vigor	.91**	.84							
3 Dedication	.91**	.66**	.88						
4 Absorption	.87**	.54**	.48**	.80					
5 Neuroticism	-.43**	-.51**	-.40**	-.30**	.83				
6 Extroversion	.43**	.48**	.45**	.32**	-.34**	.79			
7 Openness	.03	.07	.04	.05	-.02	.12*	.78		
8 Agreeable	.15*	.18**	.15*	.13*	-.26**	.36**	.07	.75	
9 Conscientious	.21**	.28**	.12*	.17**	-.34**	.28**	-.10	.25**	.82

Note. N =189. *p ? .05, **p ? .01, Cronbach alpha reliability estimates are in the diagonal

A series of regression analyses was used to determine the relationship between personality characteristics and the three dimensions of work engagement. Specifically, three forced-entry regression analyses were computed, regressing each of the engagement dimensions on the five personality characteristics. In an additional analysis, the work engagement total scale was regressed on the five personality variables.

The first regression equation was obtained by regressing the 6-item vigor scale on neuroticism, extroversion, openness, agreeableness, and conscientiousness with simultaneous entry. The regression equation was significant [$F(5, 183) = 21.50, p$? .001] with the predictors accounting for 37% of variance in vigor. Results indicate that neuroticism ($r = -.51; p$? .01) and extroversion ($r = .48; p$? .01) were the only predictors that made a significant contribution.

In the second analysis, the 5-item dedication scale was regressed on the five personality variables with simultaneous entry. The predictors accounted for 28% of variance in dedication, which was statistically significant [$F(5, 185) = 14.56, p$? .001]. Neuroticism ($r = -.40; p$? .01) and extroversion ($r = .45; p$? .01) were the predictors that made a significant contribution.

In the third regression analysis, the 6-item absorption scale was regressed on neuroticism, extroversion, openness, agreeableness, and conscientiousness with simultaneous entry. The regression equation was significant [$F(5, 183) = 6.24, p$? .001] with neuroticism ($r = -.30; p$? .01) and extroversion ($r = .32; p$? .01) being the predictors that made a significant contribution to the equation. The predictors accounted for 15% of variance in absorption.

In the final analysis, the 17-item work engagement scale was regressed on the five personality variables with simultaneous entry. The predictors accounted for 30% of variance in work engagement, which was statistically significant [$F(5, 179) = 15.57$, $p ? .001$]. Again, neuroticism ($r = -.43$; $p ? .01$) and extroversion ($r = .43$; $p ? .01$) were the only predictors that made a significant contribution.

<div align="center">Summary</div>

Upon examining the factor structure of UWES scores, results from the confirmatory factor analyses indicate that one-factor and three-factor models had poor fit, but a revised three-factor model fit the data. Given that modification indices were utilized in the revised model and because the sample size was not large, results are not expected to generalize to other samples and are thus interpreted with great caution. On the other hand, results from the principal axis factor analysis support a unidimensional structure of the UWES with a reduced 15-item measure.

Internal consistency estimates ranged from .80 to .88 for UWES subscales. The overall coefficient alpha for the 17-item UWES was .93 compared to an overall internal consistency of .94 for the 15-item version. The relatively high reliability estimate for the total score is consistent with a unidimensional construct.

The relationships between dimensions of the UWES and of the Big Five personality characteristics were investigated by computing correlations among scales and conducting a series of regression analyses. Results from the regression analyses indicate significant relationships between personality characteristics and vigor, dedication and absorption subscales and the total work engagement scale. Specifically, personality characteristics

accounted for 37% of variance in vigor, 28% of variance in dedication, 15% of variance in absorption, and 30% of variance in overall work engagement.

CHAPTER V

DISCUSSION

In the last decade, work engagement has become an area of interest in organizational

and social psychology. Arising from research in burnout, researchers shifted from a negative

outlook of how individuals survive in the workplace to a positive viewpoint of how average

people can thrive in their working environments (Lopez et al., 2006). Merely existing is not

good enough; rather, an overarching goal may be to learn ways in which employees can be

increasingly happy and fulfilled in their workplace.

Engaged employees are typically happy, healthy and productive workers (Gallup,

2005) while actively disengaged employees are less loyal, less personally satisfied, and more

stressed than their counterparts (Gallup, 2001). While the exact nature of the cause and effect

sequence among variables is debatable, there are social and economic reasons to study work

engagement. Because of the importance of the construct, the Utrecht Work Engagement

Scale (UWES; Schaufeli, Salanova et al., 2002) was developed to measure the underlying

dimensions of work engagement including three subscales: vigor, dedication, and absorption.

The Job Demands-Resources (JD-R) model has primarily been the avenue from

which correlates of engagement have been examined. The JD-R model proposes that working

conditions can be grouped as job demands or job resources (Bakker et al., 2003; Bakker &

Demerouti, 2007; Demerouti, Bakker, Nachreiner et al., 2001). There have been many

studies on the environmental correlates of work engagement. While the environmental factors of work engagement are important, individual factors are also central to understanding the construct. Few researchers have examined the relationship between personality characteristics and work engagement.

UWES scores responses have been evaluated psychometrically in over ten countries. A three-factor structure generally consisting of the three-subscales has been found across cultures (Schaufeli, Bakker, & Salanova, 2006; Schaufeli, Martinez, Marques-Pinto, Salanova, & Bakker, 2002; Schaufeli, Salanova et al., 2002). Also, internal consistency reliability estimates have been found to range from .88 to .95 for the total scale and .66 to .92 for subscale estimates (Schaufeli & Bakker, 2003).

The purpose of the present study was to examine the psychometric properties of the 17-item UWES scores in an American sample. The first two research questions dealt with the factor invariance of the underlying dimensions of the UWES. While UWES item responses have been studied in multiple countries, there has been no investigation of its factor invariance in an American sample. In addition, evidence indicates that UWES items are not invariant across cultures (e.g. Schaufeli, Martinez et al., 2002). Because the scale is presently used in the United States, it is essential to examine the dimensionality of UWES responses in an American sample.

Internal consistency reliability estimates were addressed in the third research question. Reliability estimates were examined for both total and subscales of UWES responses. In addition, an item analysis was used to estimate internal consistency reliability for item subsets.

The final research question addressed the relationship between the Big Five personality characteristics and work engagement. Individual factors as they relate to work engagement have not been extensively studies. Understanding the relationship between personality and work engagement will contribute to the theoretical basis of work engagement, as well as further evaluate the validity of the construct.

Summary of Findings

In regard to the structure of the UWES, results from the confirmatory factor analyses indicated that a one-factor and initial three-factor model had poor fit, but a revised three-factor model had improved fit. Because modification indices were utilized in the revised model and because the sample size is small, findings cannot be expected to generalize to other samples and should be interpreted with great caution. Alternatively, results from the principal axis factor analysis of the items support a unidimensional factor structure with a reduced 15-item version of the UWES. Two items were eliminated from the original scale after examination of low communalities and item-total correlations.

Internal consistency estimates ranged from .80 to .88 for UWES subscales. The total scale reliability estimate for the 17-item UWES was .93 compared to an internal consistency estimate of .94 for the 15-item version. The high total scale reliability is consistent with but not indicative of a one-dimensional factor structure. Examination of the "alpha if item is deleted" suggested removing items would generally decrease the final reliability estimate. Lastly, item-total correlations ranged from .37 to .83.

Finally, the relationships between dimensions of the UWES and of the Big Five personality characteristics were investigated by computing a series of regression analyses. Results indicate statistically significant relationships between personality characteristics and

vigor, dedication and absorption subscales and the total work engagement scale. The R^2

ranged from .15 to .37 for subscales and was .30 for the total scale. Specifically, neuroticism

(r = -.30 to -.51) and extroversion (r = .32 to .48) were the predictors that made a statistically

significant contribution to the equation with similar correlations found among total and

subscale equations.

<div align="center">Discussion of Findings</div>

Research Question One

There has been some question whether a one-factor model or correlated three-factor

model better represents the UWES. Empirical research reveals that while both models

typically demonstrate acceptable fit, the three-factor solution generally has improved fit (e.g.

Schaufeli et al., 2006; Schaufeli & Bakker, 2003). However, in light of the findings in the

current study of moderate-to-large intercorrelations among factors and lower internal

consistency reliability estimates among subscales compared to the total scale estimate, a one-

factor model should be considered for practice. Furthermore, it may be prudent to utilize the

15-item scale that was determined in the exploratory factor analysis to measure the

unidimensional construct.

In the current study, a three-factor revised model had acceptable fit. Because

modification indices were used to revise the three-factor model to include three additional

paths, the solution may have poor replication. However if, indeed, a three-factor solution

exists, researchers should consider problems associated with multicollinearity due to high

correlations among the dimensions when the three subscales are entered simultaneously as

predictors in a regression analysis (Schaufeli et al., 2006). To deal with this issue, the total

scale score should be used (Schaufeli & Bakker, 2003). When using structural equation

modeling, the three factors may be used as separate indicators since latent variables are considered true scores and are thus free of measurement error (Schaufeli & Bakker, 2003; Schaufeli et al., 2006; Seppälä et al., 2009). Still, the large intercorrelations among latent variables may create problems when applying the general linear model. This solution is for pragmatic purposes and leaves the question unanswered as to a one or three factor structure of work engagement.

In regard to the use of modification indices, MacCallum et al. (1992) note that unless the sample size is very large (N > 500), modifications are typically idiosyncratic to a given sample. Other samples would likely produce a different series of modification indices. Furthermore, because data-driven modification specifications can be highly influenced by chance sample characteristics, cross-validation is unlikely with small-to-moderately sized samples. Finally, MacCallum et al. (1992) reported that modifications based on sample data may not be consistent with those that would be found in the population. For these reasons, MacCallum et al. (1992) recommend the use of multiple a priori models rather than data-driven modification indices. Based on these recommendations, the initial three-factor model demonstrated poor fit in the current study and should not be considered valid for an American sample. In addition, the revised three-factor model cannot be trusted to generalize to other samples.

Because of the restrictive interpretability of modification indices in conjunction with a moderate sample size in the current study, the conclusion of a revised three-factor model is made with great caution. Future research with a larger sample size is warranted to further determine the factor structure of the UWES in an American sample. Results from the current

study suggest that the 15-item total scale with a one-dimensional factor structure would be the safest in applied use.

Research Question Two

Results from the principal axis factor analysis indicate that a single dimension may best represent the UWES. When a two-factor solution was computed, 14 items loaded on both factors suggesting a unidimensional factor structure. Further support for a unidimensional structure was found with high item-total correlations. A relatively high reliability estimate for the total scale with use of the 15-item (α = .94) or 17-item (α = .93) version would also be consistent with a single dimension.

Two items with low communalities and item-total correlations were deleted in the final one-factor solution, resulting in a 15-item scale. These items, A6 and V6, were also determined to be weak in other research (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001). The 15-item scale was reported in the UWES manual with a high reliability estimate (α = .92) and high intercorrelations among subscales: vigor-dedication (r = .76 to .77), dedication-absorption (r = .69 to .80), and vigor-absorption (r = .67 to .76) (Schaufeli & Bakker, 2003).

For pragmatic purposes, a shortened version of the UWES could be useful when work engagement is utilized as a single dimension. Schaufeli and Bakker (2003) reduced the number of items on the original UWES to include 9 items. Construction of the 9-item scale was based on data from ten countries. However, psychometric properties of the shortened scale have yet to be examined in an American sample.

Only one study in the empirical literature was found in which an exploratory factor analysis was computed on the UWES. Sonnentag (2003) computed a principal components

analysis and did not find a clear factor solution and therefore used the total scale score. However, the rotation type, extraction method, item-total correlations, and factor coefficients were not reported, giving rise to questions about the validity of their conclusions. However, their exploratory study appears to be in agreement with this study that a general factor may best represent the UWES.

Research Question Three

The internal consistency reliability estimates of UWES scores were examined in the present study. Internal consistency estimates were .84 for vigor, .88 for dedication, and .80 for absorption. The internal consistency estimate for the total scale score was also relatively high for the 17-item (α = .93) and 15-item (α = .94) versions. Total and subscale estimates are similar to those reported in the UWES manual for the international database: 17-item total scale (α = .93), 15-item total scale (α = .92), vigor (α = .82), dedication, (α = .89) and absorption (α = .83) (Schaufeli & Bakker, 2003).

The relatively high reliability estimate for the total scale is consistent with a unidimensional construct. Internal consistency reliability "is a function of the extent to which items in a test have high communalities and thus low uniqueness. It is also a function of interrelatedness, although one must remember that this does not imply uni-dimensionality or homogeneity" (Cortina, 1993, p. 100). While a high internal consistency does not always indicate unidimensionality, it can be used to determine the extent to which items are interrelated and thus concur that a scale is a single dimension given that reliability increases as inter-item correlations become larger and decreases as a function of multidimensionality (Netemeyer, Bearden & Sharma, 2003). In other words, a large alpha indicates that greater variance can be attributed to a general factor rather than specific items (Cortina, 1993). In the

current study, the high internal consistency of the total scale and results from the exploratory factor analysis suggest the UWES is best represented by a single dimension.

Research Question Four

Results from the current study indicate that personality and work engagement are indeed related. Correlation coefficients were statistically significant among work engagement dimensions and neuroticism (r = -.30 to -.51), extroversion (r = .32 to .48), agreeableness (r = .13 to .18), and conscientiousness (r = .12 to .28). Openness was not significantly correlated (r = .03 to .07). The regression equations were statistically significant with neuroticism and extroversion making a statistically significant contribution (R^2 = .15 to .37).

In a similar study, Langelaan et al. (2006) examined whether engagement could be discriminated on the basis of neuroticism and extroversion. Consistent with findings from the present study, it was reported that engaged employees were characterized by lower levels of neuroticism and higher levels of extraversion.

In the current study, neuroticism had a negative relationship with total work engagement and with each subscale. These findings indicate that individuals who scored high in neuroticism had lower levels of work engagement. This may be in part due to the inability of these individuals to cope with their work environment. Individuals high in neuroticism tend to experience negative emotions such as fear, sadness, embarrassment, anger, guilt, and disgust (Costa & McCrae, 1992). In addition, individuals high in neuroticism tend to experience more stress (van den Berg & Feiz, 2003; Bolger & Schilling, 1991), perceive situations more negatively (Bolger & Schilling, 1991), and cope less effectively with stressful situations (Tai & Lui, 2007). Suls, Martin, and David (1998) found that those with higher neuroticism display an increased sensitivity to negative events and exhibited more

distress with daily problems. It was reported in another study that individuals high in neuroticism reacted more severely to job demands (Parkes, 1990). Experiencing stress is an individualistic process whereby there is a distinct discrepancy between demands placed on an individual and his or her capacity or perceived capacity to respond (Burrows & McGrath, 2000). When confronted with the daily hassles of work, individuals with high neuroticism may have a greater stress response to negative experiences and be less able to effectively cope with job demands. When coupled with a lack of job resources, job demands can lead to disengagement (Bakker & Demerouti, 2007); thus, it is not surprising that neuroticism is tied to lower levels of work engagement. The exact role of predispositional characteristics of the individual in relation to job demands and disengagement is unknown and thus deserves further study.

Extroversion had a positive relationship with total work engagement and with vigor, dedication, and absorption subscales, which indicates that individuals who scored high in extroversion had higher levels of work engagement. Individuals high in extroversion tend to be sociable, assertive, active, talkative, and cheerful, and prefer excitement and stimulation (Costa & McCrae, 1992). These individuals are also optimistic, energetic, and upbeat (Costa & McCrae, 1992). Specifically, the characteristics of sociable, talkative, and assertive indicative of extroversion could assist individuals in communicating with supervisors and coworkers. It is reasonable to believe that increased communication could reduce job demands by helping them acquire job resources such as support and feedback. Finally, individuals high in extroversion are optimistic and cheerful. Optimistic individuals report less stress, due in part to their ability to more effectively cope with job demands (Totterdell,

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Wood, & Wall, 2006). As previously noted, the ability to cope with job demands may lead to increased work engagement.

While the regression equations were statistically significant in the current study, findings should not be used for prediction or selection purposes. Internal consistency reliability estimates ranged from .75 to .83 for personality factors indicating that measurement error is present which attenuates the relationship. The standard error of estimates ranged from .36 to .50 for personality factors. Because of the underestimation of the regression equation, the exact relationship between personality and work engagement cannot be determined. While results are not intended for prediction or selection purposes, findings may be used to obtain a general understanding of the constructs.

It is also important to note that openness, agreeableness, and conscientiousness did not make a significant contribution to the regression equation. The theoretical implications of these findings are important. While some dimensions of personality do relate to the construct of work engagement at a meaningful level, clearly some dimensions do not. In fact, there is sufficient independence between personality and work engagement to conclude that work engagement is largely independent of personality except for the already noted exceptions. The research implications for the explication of the construct appear to be that while personality needs to be considered, it plays a limited role with some dimensions of personality maintaining independence of the work engagement construct.

There is much to learn about personality as it relates to work engagement. The present study provides some initial research on their relationship and illustrates the need to further examine these individual factors. Indeed, behavior is a function of both environment and predispositional factors (Bandura, 1978).

Limitations

There are several limitations that should be discussed. First, the sample was fairly homogenous, nonrandom, and cross-sectional in nature. The majority of participants were female (79.8% and 87.8%), married (69.0% and 67.3%), and White (80.6% and 90.8%), with at least some college background (93.8% and 92.9%). Homogenous samples can be problematic because of range restriction issues. However, the findings reported here are fairly consistent with findings from heterogeneous samples.

Second, the initial sample size was small which created the need for an additional sample. A total of 217 responses were generated when the two samples were combined. Because of missing observations 12 cases were deleted, resulting in 205 responses. A larger sample of 500 or more participants is preferred. This is particularly true since modification indices were utilized in the three-factor revised model.

Another limitation pertains to the nature of the participants; they were employees from non-profit organizations. Responses from non-profit employees may differ from individuals who are employed by for-profit organizations. For example, non-profit and for-profit organizations differ in their economic interest and decision-making in the organization. Because the goals of non-profit organizations are generally based on helping the community, employees may have different motives for working for the organization. Individuals may be passionate about the organization's cause and driven by intrinsic motives to serve the community. Because of the differences that may exist between non-proft and for profit employees, it is recommended that study results be compared to those of for-profit organizations.

Finally, the geographic location of respondents may have affected study conclusions. Respondents were from the Midwestern United States, specifically Oklahoma. It is impossible to know if a more diverse sample would have produced different results. Thus, results from this study should be compared to those in other regions of the United States.

Future Research

Based on findings from the current study, several recommendations for further investigation have been developed. The question still remains whether a single or three dimensional structure better represents the UWES in an American sample, although findings from the current study suggest a unidimensional structure. Therefore, future research should focus on the factor structure of work engagement in the United States.

Also of interest is the predictive, incremental validity of the work engagement subscales. It is unclear whether there are different antecedents and consequences of each of the dimensions. In order to determine if a differentiation between vigor, dedication, and absorption is preferred, further research is warranted. For example, the impact of workload on work engagement subscales is unknown. Perhaps individuals who have high levels of vigor are able to handle increased workload since these individuals are generally energetic, mentally resilient, willing to invest in one's work, and unrelenting in the presence of difficulties (Schaufeli, Salanova et al., 2002, p. 74). Other antecedents and consequences of interest include communication, organization commitment, psychological well-being, and physical health, to name only a few. In addition, understanding if antecedents and consequences differ across countries would help determine if there are cultural differences in work engagement.

The sample in the current study consisted of employees from non-profit organizations. A relevant concern is the degree of similarity in UWES factor structures between non-profit and for-profit organizations. Once the factor structure is established, researchers could examine whether levels of work engagement differ between the non-profit and for-profit sector and subsequently examine other job-related variables. Additionally, the level of work engagement among occupational group (i.e. blue-collar workers, white-collar workers, farmers, physicians, etc.) has been studied in other countries with statistically significant differences present (Schaufeli & Bakker, 2003). An examination of work engagement invariance across divergent occupational groups (i.e. blue-collar workers, white-collar workers, farmers, physicians, etc) in the US is needed. Further, differences that might be detected across occupational groups may not generalize across culture; this matter requires additional research.

Research in burnout spurred the study of work engagement due to a desire for a positive outlook on organizational behavior. The relationship between burnout and engagement has been studied extensively. The scales have been shown to be negatively correlated and comprised of two core factors (burnout and engagement) rather than a general single factor (e.g. Schaufeli, Martinez et al., 2002; Schaufeli & Salanova, 2007a). In order to determine if the same relationship exists in an American sample, further examination is needed.

The current study was among the first to examine individual differences in work engagement; thus, further study and extension would potentially be of great value. In addition, research examining other variables and personality in relation to work engagement would be valuable. For instance, it is unknown whether varying personality types respond

differently to environmental factors (i.e. feedback and support). Perhaps individuals with varied predispositions accept different types of feedback and support of which could help or hinder their level of work engagement.

Conclusion

Work engagement is an important construct as it relates to individuals' well-being at the workplace. The current study provided some insight into the factor structure of the UWES in an American sample. Based on findings from this study, work engagement is best represented by a general factor and measured with the 15-item version of the UWES. Because this is the first study that examined the factor structure in an American study, further examination is needed. In addition, personality demonstrated itself to be an important factor in work engagement. This means that individual factors are indeed important to the understanding of the construct and further study is recommended.

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APPPENDIX A

SURVEY ITEMS

Work Engagement Survey for Non-Profit Organizations

The purpose of this survey is to assess views and attitudes related to your organization. The information provided will be used to improve the organization. All responses will remain anonymous. There is no obligation to answer any of the questions. Please read each item and select the best response that reflects your answer.

What is your gender? ○ Female ○ Male

What is your age? _____

What is your work status? ○ Full-time ○ Part-time

What is your race/ethnicity? (check all that apply)

○ White   ○ Asian

○ Black/African American   ○ Hispanic/Latino

○ American Indian   ○ Other

What is your marital status?

○ Married   ○ Single

○ Divorced   ○ Widowed

○ Separated

What is your educational background?

○ Less than 12th grade   ○ Some College

○ HS/GED   ○ College Graduate

○ Vocational School   ○ Post Graduate

Utrecht Work Engagement Scale

Schaufeli, W., & Bakker, A. (2003). *Utrecht Work Engagement Scale: Preliminary manual*. Occupational Healthy Psychology Unit, Utrecht University.

The following statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, choose the "never" statement. If you have had this feeling, indicate how often you felt it by choosing the statement that best describes how frequently you feel that way.

1 – Never
2 – Almost Never
3 – Rarely
4 – Sometimes
5 – Often
6 – Very Often
7 - Always

1. At my work, I feel bursting with energy.
2. I find the work that I do full of meaning and purpose.
3. Time flies when I'm working.
4. At my job, I feel strong and vigorous.
5. I am enthusiastic about my job.
6. When I am working, I forget everything else around me.
7. My job inspires me.
8. When I get up in the morning, I feel like going to work.
9. I feel happy when I am working intensely.
10. I am proud of the work that I do.
11. I am immersed in my work.
12. I can continue working for very long periods at a time.
13. To me, my job is challenging.
14. I get carried away when I'm working.
15. At my job, I am very resilient, mentally.
16. It is difficult to detach myself from my job.
17. At my work, I always persevere, even when things do not go well.

NEO-Five Factor Inventory

Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R professional manual: Revised NEO Personality Inventory (NEO PI-R) and NEO Five Factor Inventory (NEO-FFI).* Lutz, FL: Psychological Assessment Resources.

NEO-FFI items are copy write protected and reproducing of items is prohibited. For a copy of items, contact the Publisher, Psychological Assessment Resources, Inc. 16204 North Florida Avenue, Lutz, Florida 33549, from the NEO Five-Factor Inventory by Paul Costa and Robert McCrae, Copyright 1978, 1985, 1989, 1991, 2003 by PAR, Inc.

APPPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL

Oklahoma State University Institutional Review Board

Date: Wednesday, January 14, 2009

IRB Application No   ED094

Proposal Title: Work Engagement: A Psychometric Study

Reviewed and   Exempt
Processed as:

Status Recommended by Reviewer(s): Approved   Protocol Expires: 1/13/2010

Principal
Investigator(s):

Evie Muilenburg-Trevino   Dale Fuqua
1505 W. 117th Ct.   444 Willard
Jenks, OK 74037   Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.
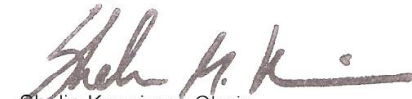
✔ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Shelia Kennison, Chair
Institutional Review Board

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VITA

Evie M. Muilenburg-Trevino

Candidate for the Degree of

Doctor of Philosophy

Thesis: A PSYCHOMETRIC STUDY OF WORK ENGAGEMENT IN AN AMERICAN
SAMPLE

Major Field: Educational Psychology (Research, Evaluation, Measurement, and Statistics)

Biographical:

Personal Data: Born in Houston, Texas, the daughter of Bill and Jeanette
Muilenburg, and sister to John, Daniel, and PJ Muilenburg. Married on June
24, 2006 to Jess Trevino, with Kaden Michael born on March 4, 2009.

Education: Graduated from Morris High School, Morris, Oklahoma, in May 1999.
Completed the requirements for the Bachelor of Arts in Psychology at Oral
Roberts University, Tulsa, Oklahoma, in May 2003. Completed the
requirements for the Master of Human Relations at the University of
Oklahoma, Tulsa, Oklahoma in May 2006. Completed the requirements for
the Doctor of Philosophy in Educational Psychology (Research, Evaluation,
Measurement, and Statistics) at Oklahoma State University, Stillwater,
Oklahoma in December 2009.

Experience: Employed by the University of Oklahoma, Center of Applied Research
for Non-Profit Organizations as a Graduate Research Assistant, 2005 to
2006. Employed by Oklahoma State University, Department of Applied
Health and Human Services as a Graduate Teaching Assistant and Graduate
Research Assistant, 2006 to 2007. Employed by the University of
Oklahoma, Center of Applied Research for Non-Profit Organizations as a
Research Specialist, 2007 to present.

Professional Memberships: American Educational Research Association.

Name: Evie M. Muilenburg-Trevino   Date of Degree: December, 2009

Institution: Oklahoma State University   Location: Stillwater, Oklahoma

Title of Study: A PSYCHOMETRIC STUDY OF WORK ENGAGEMENT IN AN
AMERICAN SAMPLE

Pages in Study: 89   Candidate for the Degree of Doctor of Philosophy

Major Field: Educational Psychology

Scope and Method of Study: The purpose of the present study was to examine the
    psychometric properties of the 17-item UWES scores in an American sample.
    Specifically, the structure was examined by means of confirmatory factor
    analyses to determine if a three-factor structure exists. Exploratory factor analysis
    techniques were used to determine the underlying factors of the UWES. In
    addition, the internal consistency reliability estimates of the UWES scores were
    assessed. Finally, the relationship between the Big Five personality characteristics
    and work engagement was examined.

Findings and Conclusions: In regard to the structure of the UWES, results from the
    confirmatory factor analyses indicated that a one-factor and initial three-factor
    model had poor fit, but a revised three-factor model had improved fit. Because
    modification indices were utilized in the revised model and because the sample
    size is small, findings cannot be expected to generalize to other samples and
    should be interpreted with great caution. Alternatively, results from the principal
    axis factor analysis of the items support a unidimensional factor structure with a
    reduced 15-item version of the UWES. Internal consistency estimates ranged
    from .80 to .88 for UWES subscales. The total scale reliability estimate for the
    17-item UWES was .93 compared to an internal consistency estimate of .94 for
    the 15-item version. Finally, the relationships between dimensions of the UWES
    and of the Big Five personality characteristics were investigated by computing a
    series of regression analyses. Results indicate statistically significant relationships
    between personality characteristics and vigor, dedication and absorption subscales
    and the total work engagement scale. Specifically, neuroticism and extroversion
    were the predictors that made a statistically significant contribution to the
    equation with similar correlations found among total and subscale equations.

ADVISER'S APPROVAL: _____Dale R. Fuqua_____