ABSTRACT

Title of dissertation: THE WORK ADDICTION INVENTORY:
LATENT STRUCTURE, CRITERION-
RELATED VALIDITY, AND TYPOLOGICAL
CONSIDERATIONS

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The purpose of the study is to validate the Work Addiction Inventory (WAI). The WAI is designed to assess individuals' addiction to work via self-report. Data were collected from 244 working professionals employed on at least a part-time (20 hours per week) basis. Results failed to replicate the three factor model found in the initial validation study (Bryan, 2009). A follow up exploratory factor analysis on the first half of the sample retained 15 items and suggested that the WAI consists of two underlying factors. This two-factor structure was found to cross-validate in a confirmatory factor analysis on the second half of the sample. The WAI subscale and total scores showed adequate internal consistency reliabilities. Convergent and discriminant validity was initially supported by relationships of the WAI scores to an existing measure of workaholism, a work engagement scale, and average hours worked per week. Also, WAI scores formed several clusters suggesting evidence of three workaholic types. Finally, evidence was found to suggest that the WAI accounts for unique variance beyond an existing measure of workaholism in predicting average hours worked per week and burnout In conclusion, psychometric properties of the WAI were partially supported by findings of the study.

THE WORK ADDICTION INVENTORY: LATENT STRUCTURE, CRITERION-RELATED VALIDITY, AND TYPOLOGICAL CONISDERATIONS

by

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CHAPTER 1

Introduction

The term "workaholism" first appeared in a book by Oates (1971) who defined

workaholism as "the compulsion or the uncontrollable need to work incessantly" (p.11).

However, over time the term has become synonymous with working "long and hard" and

has generally been used to describe both positive and negative behaviors that impact

individuals, families, and organizations. From a positive perspective, organizations often

characterize workaholism as a high level of commitment to work or to a career (Korn et

al., 1998; Machlowitz, 1980; Sprankle & Ebel, 1987).   However, workaholism has also

been characterized negatively and associated with overcommitment to work, with

potential adverse consequences for individual workers and others (Naughton, 1987;

Robinson, 1989).

Despite the growing interest in work addiction as part of popular culture,

empirical exploration of the construct has been limited over the past 40 years. In 2007,

Ng, Sorenson, and Feldman identified only 131 studies on workaholism in the scientific

business literature. More recently, my own literature search on PsycINFO (June, 2011)

resulted in 192 theoretical and empirical articles and unpublished manuscripts identified

using *workaholism* as a keyword. In comparison, a June 2011 Google search on

workaholism resulted in 615,000 "hits" demonstrating the popularity of the topic among

the general public. The large discrepancy between popular press and scholarly articles on

work addiction suggests that scientific interest in workaholism is lagging behind public

interest. The popularity of the topic reflects its appeal and suggests that workaholism

deserves further systematic investigation (Burke, 1997; Spence & Robbins, 1992). As a result, researchers in the field continue to explore the meaning, antecedents, and outcomes of workaholism.

Definitions

Presently, a single, widely accepted definition of workaholism does not exist (Seybold & Solomon, 1994). However, proposed definitions have considered both behaviors and attitudes related to the construct. One of the most popular definitions focuses on the number of hours worked. For example, Mosier (1983) suggested that workaholics were those who work at least 50 hours per week, and Brett and Stroh (2003) stated that workaholics work on average between 50 and 60 hours per week. This type of definition is more prevalent in Western cultures, particularly the United States, where the typical work week is between 35 and 40 hours.

Although time spent on work activities remains prominent in how workaholism is conceptualized by laypersons and many researchers, other definitions focus on attitudes. Machlowitz (1980) originally suggested that workaholics consistently devote more time and thought to their work than is demanded by the situation, making attitudes toward work, rather than time spent, what sets workaholics apart from other workers. Similarly, Cherrington (1980) defined workaholism as an irrational commitment to excessive work. A few, multifaceted definitions have also been introduced. For example, Scott, Moore, and Miceli (1997) defined workaholism as consisting of three behavioral patterns: (a) spending discretionary time in work activities; (b) thinking about work when not at work; and (c) working beyond organizational or economic requirements. Spence and Robbins (1992) suggested that workaholism could be conceived as a three-part construct including

work involvement, internal drive, and enjoyment. Snir and Zohar (2000) defined

workaholism as the steady and considerable allocation of time to work-related activities

and thoughts. All three of these definitions emphasized workaholic cognitions, an aspect

that was missing from preceding definitions.

By contrast, Robinson (1989) defined workaholism as the overindulgence in and

preoccupation with work that manifests itself through self-imposed demands, often to the

detriment of the workaholic's health, intimate relationships, and participation in child

rearing. Robinson defined workaholism from a family systems perspective, giving

particular consideration to relationships outside of the work environment.

Most definitions of workaholism only focus on a single component of the

construct such as attitude or behavior. However, increasing empirical research suggests

that work addiction might be a more complex construct, which has served as the basis for

the recent introduction of a comprehensive definition of workaholism. Responding to

Porter's (1996) recommendation to return to the origin of the term for future research,

Bryan (2009, p.33) proposed the following definition of workaholism: *The excessive*

engagement in work related activities and thoughts which significantly and negatively

interfere with an individual's normal mental, emotional, and/or physical health.

Although workaholism is assumed to stem from internal motives, it can be exacerbated

by environmental influences such as home and work life conditions.

Theoretical Beginnings

During the past four decades, several theories have been put forth to explain

workaholism. The most prominent theory, supported by existing literature,

conceptualizes workaholism as a form of addiction (Aziz & Zikar, 2006; Klaft & Kleiner,

1988; Minirth et al., 1981; Morris & Chaney, 1983; Oates, 1971). Addiction has been characterized as including compulsion and loss of self-control as well as continued engagement despite negative consequences (Smith & Seymore, 2004). Addiction has also been defined in more positive terms as having an excessive appetite, the satisfaction of which brings gratification and pleasure (Orford, 1985). The underlying premise of the addiction theory is that workaholics feel an uncontrollable, compulsive need to work. Although addiction is often thought of in terms of a physical dependence, workaholism generally refers to the psychological dependence on work.

Learning theory, a second theoretical model used to explain workaholism, suggests that excess working is a learned behavior. Advocates of this theory believe that workaholism is learned either as a child or as an adult through modeling or reinforcement. Learning theories, such as Bandura's (1977) social cognitive theory, emphasize the importance of social learning by observing the behaviors, attitudes, and emotional reactions of others. It also accounts for the direct and indirect effects of reinforcements and punishments. From this theoretical perspective, workaholism is learned from one's environment.

Other researchers subscribe to trait and personality theory (Machlowitz, 1980; Spruell, 1987), viewing workaholism as a tendency toward overworking which results from genetic characteristics and lifelong experiences. Workaholism, as viewed from the vantage point of trait and personality theory, suggests that the behavior of consistently overworking stems from individual traits. In his theory of personality, Allport (1975) stated that our personalities consist of many different traits or "dispositions" that ultimately shape our behavior. Supporters of trait and personality theory would argue

that workaholics are individuals who are innately predisposed to that condition via their personality.

Finally, family systems theory has also been proposed to explain workaholism (Robinson, 1998). From the family systems perspective, workaholism is not an individual issue, but rather one that involves the family system in both cause and treatment. Through this theoretical lens, workaholism is a characteristic of one or more of the family members. As such, a family with open or fluid boundaries tends to be affected by workaholism, which eventually influences how members of the family interact with one another.

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

Despite extensive coverage in the popular press for nearly forty years, limited empirical research on workaholism exists. However, in recent years there has been a surge in research interest in work addiction across several disciplines including business, sociology, and several specialty areas in psychology (e.g., industrial-organizational, counseling). This might be due to global economic and societal changes, including the increasing role that work plays in identity development and self-esteem. Most of the existing empirical literature has investigated the effects of workaholism on individuals, families, and organizations. However, there is a lack of consensus among researchers regarding a comprehensive definition, an underlying theory, and a valid measure of the workaholism construct.

The two leading measures used to assess workaholism are the Workaholism Battery (WorkBAT) (Spence & Robbins, 1992) and the Work Addiction Risk Test (WART) (Robinson, 1989). However, the original versions of these measures were

developed on the basis of different concepts and definitions. The WorkBAT is based on a triadic conception of workaholism, involving high Work Involvement (WI), high internal Drive (D), and low Enjoyment (E). Alternatively, the WART was proposed to consist of five factors: compulsive tendencies, control, impaired communications/self-absorption, inability to delegate, and self-worth.

Both the WorkBAT and the WART have been criticized for possessing questionable construct definitions and factor structures. In particular, it has been argued that one shortcoming of the Spence and Robbins (1992) scales is that they primarily assess attitudes or affect rather than behavioral tendencies (Mudrack & Naughton, 2001). This is best demonstrated by sample items such as "Much of my satisfaction in life comes from my job", "Most of the time my work is very enjoyable," and "I often feel there's something inside of me that drives me to work hard." The WART, on the other hand, was primarily developed from a family-therapy paradigm and mostly taps Type A behaviors which refer to life in general (e.g., speed of eating, talking, bodily movements) as opposed to work-specific behaviors (Porter, 1996). Although research suggests some similarities and overlap between characteristics of Type A personalities and adult workaholics, they appear to be two separate constructs and should be reflected as such in our measurement tools (Burke et al., 2004; Robinson, 1999).

If the element of addiction is to remain central to our understanding of workaholism, as it has from the earliest years of workaholism research (Ng et al., 2007; Oates, 1971; Porter, 1996; Seybold & Salomone, 1994), it is important that the workaholism construct reflect research findings on addiction, which places an emphasis on three overarching dimensions: affect, cognition, *and* behavior (Smith & Seymour,

2004). Neither the WorkBAT nor the WART were developed using such a multidimensional conception. Rather each emphasizes only one of these three dimensions. The WorkBAT appears to focus primarily on affect while the WART emphasizes behavior.

While the personal, social, and organizational costs of workaholism appear to be extensive, the lack of agreement on a definition has limited research in this area. This has been compounded by the lack of reliable and valid measures which are necessary to increase our understanding of workaholism (Mudrack & Naughton, 2001), to further investigate its causes and the outcomes, and to develop preventative treatments as well as effective interventions.

One of the first steps in establishing a systematic program of research into a new phenomenon is to develop, refine, and validate a measure, then use it to explore the parameters of the construct itself (Clark & Watson, 1995; McMillan, 2002). Therefore, the purpose of the current project is twofold: (a) to further validate and refine a new measure of workaholism, the Work Addiction Inventory (WAI), that is linked to the comprehensive definition of workaholism proposed by Bryan (2009) and (b) to investigate a workaholism typology using the WAI and Bryan's (2009) conceptualization of workaholism. The theory of workaholism as an addiction is the basis of the WAI which focuses on cognition, affect, and behavior (Oates, 1971; Porter, 1996). Although it is important to acknowledge the impact of workaholism on others in the home and work environments, the WAI is a self-report measure and collects data based primarily on the individual's perception rather than on externally assessed behaviors.

CHAPTER 2

Literature Review

In an effort to provide a comprehensive overview of workaholism, this literature review will open with a general discussion of addiction and related behaviors, demonstrating how workaholism and its antecedents and consequences fit into this classification. This is particularly relevant because addiction serves as the underlying theory of the WAI. In contrast, earlier measures of workaholism were grounded in a variety of other theories. Therefore, a brief review of those instruments, how they have been used to date, and existing validity issues and resulting typologies, will also be provided. This will be followed by an overview of the development and initial validation of the WAI, which serves as the foundation for this research study. Lastly, since one of the objectives of this research project is to explore the relationship between work addiction and other existing constructs, brief summaries of burnout, work engagement, and self-efficacy (i.e., social self-efficacy, worker role self-efficacy) and their relationships to work addiction have also been included in this literature review.

Addictive Behaviors

The DSM-IV-TR (APA, 2000) does not recognize the term "addiction," which has become increasingly identified with substance use. Instead, the DSM-IV-TR categorizes substance use disorders by problematic substance (e.g., alcohol) within separate groupings: abuse, dependence, withdrawal, and intoxication. Impulse control disorders (e.g., pathological gambling, pyromania, kleptomania) form a separate category (APA, 2000). Although categorized separately in the DSM-IV-TR and other medical

references, many of the above mentioned disorders share similar addictive behavioral features and core elements, including: (a) a craving state prior to behavioral engagement or a compulsive engagement; (b) impaired control over behavioral engagement; and (c) continued behavioral engagement despite adverse consequences (Shaffer, 1999).

The continuing debate over whether addictive disorders can include non-substance abuse conditions has led researchers to distinguish between *substance* (e.g., chemical or biological dependence) and *process* addictions, with the latter group describing non substance addictions such as sex, internet/computer use, and shopping. Addiction to work also fits into this category. Despite these opposing views, many researchers contend that an individual can become addicted to, dependent on, or compulsively obsessed with any activity, substance, object, or behavior that gives him or her pleasure (Miller, 1984).

Research suggests that both substance and process addictions share common characteristics such that (a) the individual becomes obsessed by the object, activity, or substance and will seek it out often to the detriment of personal relationships; (b) the person will compulsively engage in the activity, even if he or she does not want to; (c) upon cessation of the activity, withdrawal symptoms of irritability, craving, and restlessness will occur; (d) the person does not appear to have control over when, how long, or how much he or she will continue the behavior; and (e) he or she often denies problems resulting from his or her engagement in the behavior, even though others can see the negative effects (Engs, 1987). Many of these characteristics have been identified with the concept of workaholism and will be discussed further in the following section.
Antecedents and Outcomes of Workaholism

The lack of agreement on a common workaholism definition and theoretical model has resulted in limited investigation into the antecedents and consequences of workaholism. The small number of empirical studies that have been conducted in this area have primarily focused on the outcomes of workaholism, defined in a variety of ways, rather than the causes. However, there has been some discussion in the literature on why people become workaholics. It has been suggested that certain personality traits can predispose people to workaholism. It has also been suggested that individuals who become addicted to work are seeking a means of escape or control or trying to meet self-esteem needs (Canatrow, 1979; Machlowitz, 1980).

Antecedents of workaholism. The two leading personality traits that authors believe may play a major role in workaholism are Type A and obsessive-compulsive tendencies. A few researchers have even made reference to both constructs and workaholism. For example, Machlowitz (1980) commented that Type A behavior patterns correspond closely with obsessive-compulsive behavior and to the behavior of workaholics. Additionally, Schwartz (1982) observed that Type A individuals tend to be obsessive and are often addicted to work.

Type A Personality. Type A behavior has been described as impatience, competitiveness, time urgency, hostility, and overinvolvement in work (Savickas, 1990) as well as driven and hurried behavior (Friedman & Rosenman, 1974). Many researchers have considered the overlap between Type A behavior and workaholism (Burke, 1999; Ng et al., 2007; Robinson, 1999; Scott et al., 1997; Seybold & Solomon, 1994). It has been suggested that the two constructs are similar in that both describe the same high stress and are frequently associated with physical health problems (Robinson, 1999) and

are heavily work involved (Burke, 1999). It has also been posited that some types of workaholics and Type A's experience low satisfaction in work, relationships, and extra-curricula activities (Friedman & Rosenman, 1974; Porter, 1996; Scott et al., 1997).

In 1999, Robinson conducted a study with 363 adult students examining the relationship between work addiction and Type A behavior. Robinson (1999) found significant ($p < .05$) correlations of total WART scores to the Type A Self-report Inventory ($r = .37$) and the Jenkins Activity Survey: Type A Scale ($r= .50$). Results of an analysis of variance also showed that participants classified as high risk for work addiction based on the WART scored significantly higher on the Type A Inventory than did medium and low risk participants.

Burke (1999) also explored the relationship between work addiction and Type A behavior. Using Spence and Robbins' (1992) definition of workaholism (high work involvement, high internal drive, and low enjoyment) and the theory that personal beliefs and fears affect Type A behavior (Price, 1992), Burke investigated how workaholism related to each of the following beliefs: (a) one must constantly prove oneself through achievements or risk the fear of being judged unsuccessful and unworthy; (b) no universal principles exist, and; (c) resources, or things worth having, are in limited supply so one must strive against others to obtain one's fair share (Price, 1992). Responses from 530 Canadian MBA graduates resulted in all three beliefs being positively, significantly correlated with feeling Driven (D) and negatively, significantly correlated with work Enjoyment (E). More specifically, workaholics scored significantly higher on indices of "no moral principles" and "striving against others" than other worker types. Also, workaholics scored higher on the need to prove themselves than did "work enthusiasts"

(i.e., those who enjoy, are driven to and are highly committed to work without signs of compulsion). This may suggest that workaholism is a response to low self-worth and insecurity (Burke, 1999).

Obsessive-compulsive personality. Obsessive-compulsive traits may also play a role in workaholism. Obsessive-compulsive personality traits have been said to include obstinacy, parsimony, and orderliness (Freud, 1963) as well as perseverance, industriousness, ambition, and self-control (Pollak, 1979). Naughton (1987) suggested that some obsessive-compulsive individuals may simply choose to act out their personality orientation at work. Mudrack (2004) explored this theory in a study of job involvement, obsessive-compulsive personality traits, and workaholic behavioral tendencies. It is important to note that in this study, Mudrack (2004) used Scott et al.'s (1997) definition of workaholism which consists of three behavior patterns: spending discretionary time in work activities, thinking about work when not at work, and working beyond organizational and economic requirements. The researcher developed and used two scales. The first assessed non-required work, which was defined as how much time and energy individuals spend on thinking about ways to improve their work and on initiating projects. The second scale assessed the tendency to control others at work, which was defined as taking responsibility for others' work, fixing problems created by others, checking on the accuracy of others' work, and responding to crises in an active and intrusive manner.

Six traits (obstinacy, orderliness, parsimony, perseverance, rigidity, and superego) were used to represent the obsessive-compulsive personality (Mudrack, 2004). Based on responses from 278 full time workers in the Detroit metro area, Mudrack (2004) found

support for his hypotheses that non-required work scores would be highest in the presence of high job involvement, high obstinacy, and high superego.

The author used a hierarchical regression procedure to test his hypotheses. The first step was to regress scores of the non-required work scale onto three demographic variables: age, gender, and marital status. Second, both job involvement and one of the obsessive-compulsive traits (e.g, obstinacy, orderliness, superego, rigidity) were entered into the equation. Finally, the cross product of job involvement and the specific obsessive compulsive trait were entered into the equation. The demographic variables accounted for a small (4%) amount of the variance in non-required work scores; job involvement and obstinacy explained an additional 3% of the variance; and the job involvement x obstinacy interaction term also explained a small (2%) but significant ($p=.007$) amount of unique variation. Substituting superego for obstinancy produced a similar pattern of findings. Thus, the results of the hierarchical regression analyses showed that the interactions of (a) job involvement and obstinacy and (b) job involvement and superego each explained small but significant amounts of unique variance in non-required work, above and beyond that contributed by the other predictors.

Need to escape. While some authors have suggested that certain personality traits may predispose individuals to workaholism, others have proposed that workaholism results from a deficiency or problems in other areas of life such as a need to escape, maintain control, or enhance self-esteem. Bartolome (1983) distinguished between workaholics and non-workaholics by suggesting that workaholics try to escape their private lives through overcommitting to work, whereas non-workaholics who work a lot neglect their lives as they attempt to succeed. He highlighted "intent" (in terms of one's

attempt to escape versus one's attempt to succeed) as the key difference between the two groups. A similar idea was put forth by Minirth et al. (1981) who suggested that workaholics use busyness as a way to avoid intimacy with others and getting in touch with their own personal feelings. Machlowitz (1980) even suggested that workaholics' desire to escape might stem from a fear of failure, boredom, or laziness.

Need for control. Workaholism has also been linked to an individual's need to gain control in his or her life (Canatrow, 1979; Machlowitz, 1980). Some authors have stated that the issue of control is very important to workaholics (Machlowitz, 1980) and that working excessively allows workaholics to maintain control over one area of their lives (Robinson, 1996), particularly when they feel less in control of other areas.

Self-esteem. Developmental issues, particularly as they relate to self-image and self-esteem, have also been cited as a cause of workaholism. Self-esteem is the extent to which one likes oneself and feels one is a person of worth (Brockner, 1988). Thorne (1987) suggested that mishaps in early childhood development could make people lose a sense of control over their lives to the extent that work becomes like a drug. Machlowitz (1980) also suggested that workaholics, as children, probably viewed love from their parents as a condition of their success as children. Robinson (1999), a proponent of workaholism as a family systems problem, argued that work addiction is a learned behavior. Thus, adults dealing with low self-esteem issues may be more susceptible to workaholism, particularly if workaholic behaviors are validated and rewarded in their work environment.

Consequences of workaholism. In contrast to the limited empirical evidence supporting theories of antecedents for work addiction, there has been more research on

the consequences of workaholism. Findings indicate that consistent, excessive work is related to personal well-being, familial relationships, interpersonal relationships, and the professional environment. In exploring how workaholism relates to personal well-being, correlational studies suggest that people who overwork may suffer from high stress and anxiety (Booth & Friedman, 1987) as well as secondary addictions, such as smoking, eating, and alcohol (Kiechel, 1989). Workaholics may also have a lower sex drive compared to people who are not addicted to work (Machlowitz, 1980). Additionally, increases in general health complaints have also been documented in relation to workaholism (Kanai et al, 1996; Spence & Robbins, 1992).

Researchers have also suggested that excessive work may result in negative outcomes for people other than the worker, both inside and outside of the work environment. Workaholism can potentially impact the functioning of other family members as well as the workaholics' interpersonal relationships with family members. For example, it has been shown that children of workaholics have higher depression and parentification scores (Carroll & Robinson, 2000), anxiety (Carroll & Robinson, 2000; Robinson & Kelley, 1997), and increased feelings of loneliness and abandonment (Robinson, 2000) than children whose parents are not workaholics. Also, workaholics tend to experience a higher rate of marital failure than do non-workaholics (Klaft & Kleiner, 1988; L'Abate & L'Abate, 1981).

Previous studies have investigated the impact of workaholism on marriage from both the male and female perspective. Robinson, Carroll, and Flowers (2001) found that wives of male workaholics reported greater marital problems, less positive affect towards husbands, and higher external locus of control than spouses of non-workaholics.

Robinson, Flowers, and Ng (2002) examined husbands' perception of their marriages in respect to their wives' workaholic behaviors and found that workaholism was positively related to marital disaffection. Both studies used a definition of workaholism previously put forth by Robinson and Chase (2001), "a compulsive and progressive, potentially fatal disorder characterized by self-imposed demands, compulsive overworking, inability to regulate work habits, and overindulgence in work to the exclusion and detriment of intimate relationships and major life activities."

Researchers have also suggested that workaholics experience higher rates of work-family conflict (Bonebright et al., 2000; Buelens & Poelmans, 2004) and interrole or work-nonwork conflict (Greenhaus & Parasuraman, 1994) than non-workaholics, indicating that balancing multiple life roles may present more of a challenge for this group than for others.

Moving from the family to the work domain, it has been suggested that workaholic behavior may lead to burnout (Lowman, 1993; Nagy & Davis, 1985), destructive competitiveness, higher conflict, and decreased morale in the workplace, particularly within the teams to which the workaholic belongs (Porter, 1996; Spruell, 1987). There can also be an increase in inefficiency due to the workaholic's unwillingness to delegate responsibilities or to share the workload with co-workers. This can be detrimental to organizations in the short- and long-term, resulting in declines in individual performance, increases in health- and accident-related expenses, and higher turnover rates (Homer, 1985; Maslach & Jackson, 1981; Pines & Aronson, 1988).

Despite the potential negative impact of workaholism on individuals, families, and organizations, many companies encourage and reward workaholic behaviors.

Research has shown that workaholism is positively correlated with time commitment to work (Burke & Koksal, 2002; Spence & Robbins, 1992) and perfectionism (Spence & Robbins, 1992) as well as salary increase and promotion (Burke, 2001). As a result, workaholism has been labeled the "best dressed" (Robinson, 1998) and "most rewarded" (Spruell, 1987) addiction in America.

Most of the dialogue about antecedents and consequences of workaholism has been for the purpose of construct and theory development. Although researchers have begun to explore these areas empirically, early results only demonstrate correlational, rather than causal, relationships between workaholism and other constructs that have been conceptualized either as its precursors (e.g., Type A behavior) or outcomes.

Critique of Existing Workaholism Measures

Three published measures of workaholism have been examined empirically, the Work Addiction Risk Test (WART) (Robinson, 1989), the Workaholism Battery (WorkBAT) (Spence & Robbins, 1992), and the Dutch Work Addiction Scale (DUWAS) (Schaufeli et al., 2006).

WART. The WART (Robinson, 1989) was developed based on a definition of workaholism as the overindulgence in and preoccupation with work, often to the exclusion and detriment of the workaholic's health, intimate relationships, and participation in child rearing (Robinson, 1999). The measure consists of 25 self-report items using a 4 point Likert scale ranging from never true (1) to always true (4). Summing responses across all items results in a total score ranging from 25 to 100. The higher the score, the more one is considered to be addicted to work. Persons with scores above 67 are deemed as being at a high risk for workaholism. The WART was reportedly

constructed around five major symptoms of work addiction: overdoing, control-perfectionism, mental preoccupation-future reference, intimacy, and self-worth (Robinson & Post, 1994). Although used less frequently than the WorkBAT in empirical studies, the WART has been administered to undergraduate students, Workaholics Anonymous members, psychotherapists, adult students, and Dutch workers (Robinson, 1999; Robinson & Phillips, 1995; Robinson & Post, 1995).

A handful of studies have examined the validity and reliability of the WART. In a study of 151 graduate student participants, Robinson, Post, and Khakee (1992) reported a test-retest correlation coefficient of .83 over a two-week interval and an internal consistency reliability estimate of .85. In 1995, based on a study with 442 graduate counseling students, undergraduate sociology students, and Workaholics Anonymous attendees, Robinson and Post (1995) found split-half reliability coefficient estimates of .85 and an interitem reliability coefficient of .26, suggesting that the 25 items measure related but varied aspects of the construct.

Content validity has also been explored for the WART. In 1995, Robinson and Post randomly selected 32 psychotherapists from the North Carolina Directory of Licensed Marriage and Family Therapists. Respondents were asked to identify items related to work addiction. Ten statements unrelated to work addiction were added to the questionnaire. With a return rate of 63% (20 respondents), the sample's average percentage score of correctly identified items was 89, indicating that the test items have generally high content validity (Robinson & Post, 1995).

Additionally, researchers have explored the underlying dimensionality of the WART. Flowers and Robinson conducted a study including two different, previously

used samples (Robinson, 1999; Robinson & Post, 1997). The first sample consisted of 105 members of Workaholics Anonymous and registrants from a national self-help conference (Robinson & Post, 1997). The second sample, the comparison group, consisted of 363 graduate and undergraduate students (mean age of 22) at a large university in the southeast United States. The average WART score for the workaholic group was 73.91 (SD=10.35) and for the comparison group it was 59.92 (SD=7.77). The means of these two groups were significantly different (t=12.88, df=474, p<.001); the effect size of this difference was large (g=1.67).

A principal component analysis resulted in five factors, accounting for 52% of the total variance. Items with factor loadings greater than .40 were retained and factor labels were determined by Flowers and Robinson (2002) in consultation with two psychology experts. The Compulsive Tendencies factor was represented by 9 items. Sample items for this factor included "I seem to be in a hurry and racing against the clock" and "I find myself doing two or three things at a time such as writing memos and eating lunch while talking on the phone." The Control factor had 7 items and consisted of sample items such as "I get impatient when I have to wait for someone else or when something takes too long" and "I get irritated when I get interrupted while I am in the middle of something." Five items were grouped under the Impaired Communication/Self-Absorption factor. Sample items included "I ask the same question over, without realizing it, after I have been given the answer" and "I dive into projects to get a head start before all phases have been finalized." Only one item seemed to fit under Inability to Delegate, "I prefer to do most things for myself rather than ask for help." Two items were grouped under Self-Worth, "It is important that I see the concrete results of what I

do" and "I am more interested in the final results of my work than in the process." And one statement (item 14) did not have a correlation greater than .40 on any factor.

Criticisms of the WART include concerns about the instrument's validity and the inconclusive factor structure of the instrument (e.g., two of the factors are represented by only one or two items, suggesting that the factor structure may not be stable). To date, there have only been a handful of studies investigating the WART's validity, which may account for its limited use in the field by other researchers. Critics have also suggested that the measure over-represents Type A behavior. In fact, the WART has been found to correlate strongly with the Type A subscale of the Jenkins Activity Survey (r=.50, Robinson, 1999). Although this correlation is not so high as to suggest that the WART is only tapping Type A behavior, further examination of the distinctiveness of the two measures' underlying constructs is warranted.

There continues to be some debate over the dimensions in the WART. Flowers and Robinson's (2002) used discriminant analyses to examine the correct classification rate of scores on the WART and to explore which of the items accounted for the differences in the average score profiles of the workaholic and comparison groups. Using the five subscales found in the factor analysis (e.g., Compulsive Tendencies, Control, Impaired Communication/Self-Absorption, Inability to Delegate, and Self-Worth) as independent variables and group membership (e.g., workaholic group versus comparison group) as the dependent variable, Flowers and Robinson (2002) found a statistically significant function (Wilk's lambda=.61, X^2=220.28, p<.001) with a canonical correlation of .63.

Flowers and Robinson (2002) also performed a factor analysis, using loadings greater than .30 to identify the most important subscales for separating the groups. The factor analysis results of the WART suggest that workaholism, as defined by Robinson (1999), only has three dimensions: (a) Compulsive Tendencies, (b) Control, and (c) Impaired Communication/Self-Absorption, as opposed to the five dimensions previously suggested. Since factor analyses of the instrument have produced different results, further investigation of the WART's factor structure seem warranted.

WorkBAT. The WorkBAT, a 25 item self-report questionnaire, uses a 5-point Likert response scale ranging from strongly agree (1) to strongly disagree (5) (scored from 0 to 4) and was developed based on a triadic conception of workaholism, including the factors of Work Involvement (WI), internal Drive (D), and Enjoyment (E). Frequently used in empirical studies, the WorkBAT has been administered to various employee groups including social workers, Norwegian nurses, Japanese businessmen, high technology employees, Australian psychologists, and Turkish managers (Bonebright, Clay & Ankenman, 2000; Burgess, Burke, & Oberklaid, 2006; Burke, Matthiesen & Pallesen, 2006; Kanai et al., 1996; Spence & Robbins, 1992).

The WI scale measures a general attitude of psychological involvement with work and has yielded moderate internal consistency reliability estimates (alpha coefficients) ranging from .67 to .81 (Burke, 1999, 2001; Elder, 1991; Perez-Prada, 1996; Spence & Robbins, 1991). The eight items on this scale include "When I have free time I like to relax and do nothing serious" (reverse scored) and "Between my job and other activities I'm involved in, I don't have much free time". The WI scale scores range from 0 to 32.

The D scale measures an inner pressure that is maintained by internal fulfillment rather than by external requirements. The scale scores range from 0 to 28. This subscale has yielded internal consistency reliability estimates (alpha coefficients) ranging from .67 to .81 (Burke, 1999; Perez-Prada, 1996; Spence & Robbins, 1992) and consists of 7 items. The Drive scale includes items such as "I often feel that there is something inside me that drives me to work hard" and "I feel guilty when I take time off from work."

The E scale measures the level of pleasure derived from work, includes 10 items, and ranges in scores from 0 to 40. The subscale has high internal consistency reliability estimates (alpha coefficients) ranging from .84 to .89 (Kanai et al., 1996; Perez-Prada, 1996; Spence & Robbins, 1992). Examples of items on the scale are "My job is so interesting that it often does not seem like work" and "I lose track of time when I am engaged on a project".

Each of the three WorkBAT subscales is scored separately. Responses on each scale are summed, then reversed, so that high raw scores reflect high levels of Work Involvement, Drive, and Enjoyment, respectively. The sample-specific cutoff points for high and low categories of each scale are established by transforming raw scores into z scores and determining means for each subscale. Scores above the mean (positive z scores) are classified as "high" and those below the mean (negative z scores) as "low." When all high/low categories for each scale are combined, they result in a 6-level worker typology: nonenthusiastic workaholic, enthusiastic workaholic, relaxed worker, unengaged worker, work enthusiast, and disenchanted worker. According to Spence and Robbins (1992), "nonenthusiastic workaholics" is the subset of workers that uniquely

suffers from work addiction with high work involvement, high drive because of inner pressures, and low enjoyment of work.

The WorkBAT is the leading measurement instrument in this research area and has received some support for its reliability and validity. In 1999, Burke replicated Spence and Robbins' (1992) initial study by administering the WorkBAT to a managerial sample (*N*=530). Burke (1999b) found that the workaholism triad produced mostly acceptable internal consistency reliability estimates (work involvement=.67, drive=.80, work enjoyment=.88) and that the scales intercorrelated in a pattern similar to that reported by Spence and Robbins (1992). Burke also found that all six worker types, as defined by Spence and Robbins (1992), were represented within the sample. The WorkBAT's validity was examined using seven measures representative of potential workaholic behaviors including job involvement, perceived time worked relative to others, job stress, perfectionism, difficulty delegating, extra hours worked, and estimated total hours worked. Results indicated that components of the workaholism triad (e.g., Work Involvement, Drive, Enjoyment) were generally positively and significantly correlated with the six validation measures (range of r =.09 to .53, p<.05), similar to Spence and Robbins' (1992) original study. However, 18% of study respondents did not fall into any of the six worker type categories, suggesting that the typology Spence and Robbins initially proposed may be incomplete or require further analysis.

McMillan et al. (2002) found mixed results regarding the convergent validity of the WorkBAT. McMillan et al. used the Schedule for Nonadaptive and Adaptive Personality Workaholism scale (SNAP-Work; Clark, 1993) as a parallel measure for the WorkBAT. The SNAP-Work is comprised of 18 forced choice (true/false) items and

produced an internal consistency reliability estimate of .82 (split half). McMillan et al. found significant correlations between the SNAP-Work and each of the WorkBAT scales (rs with WI, E, and D were, respectively, .47, 36, and .59.

McMillan et al. (2002) also explored the convergent validity of the WorkBAT relative to other conceptually similar measures. They reported a weak convergence (r=.26) between the WI scale and Warr, Cook, and Wall's (1979) Work Involvement Scale, which measures the degree to which individuals want to engage in work. They also found "adequate convergence" (r=.46) between the E scale and a parallel job satisfaction scale, Warr et al.'s (1979) Job Satisfaction Scale, which measures the degree of satisfaction with intrinsic aspects of the current job. Finally, the D scale converged moderately with Warr et al.'s (1979) Intrinsic Job Motivation Scale (r =.40), which measures the degree to which individuals are driven by personal fulfillment in their work.

Despite being used frequently in empirical studies, researchers have encountered some factorial validity issues with the measure, specifically with the WI subscale (Burke & Koksal, 2002; Ersoy-Kart, 2005; Kanai et al., 1996; McMillan et al., 2002; Russo & Waters, 2006). Using a Ward's cluster analysis and a K-mean cluster analysis, McMillan et al. (2002) were unable to replicate the six clusters (worker typology) proposed by Spence and Robbins (1992) and were unable to classify over 33% of the study's participants into the original typology.

McMillan et al. (2002) also factor analyzed the WorkBAT. A confirmatory analysis produced fit indices of GFI=.79 and adjusted GFI=.75, both of which implied a poor fit of the three-factor model to the data. An exploratory factor analysis found that a two factor solution explained 30% of the total variance. After rotating the two factors

orthogonally and using three criteria to retain items, 11 items were removed from the measure, 7 of which were initially Work Involvement items. As a result, the Work Involvement scale of the WorkBAT was removed because its construct validity was not replicated, it displayed weak convergence (r=.26) with Warr et al.'s (1979) Work Involvement Scale, and the exploratory factor analysis suggested the removal of the majority of Work Involvement items. These findings led to the development of the WorkBAT-Revised scale consisting of only two subscales, Drive and Enjoyment, with four worker types: workaholics, enthusiastic workaholics, relaxed workers, and uninvolved workers. The WorkBAT-Revised has not yet been widely tested.

In a study of 169 workers employed in the legal industry, Russo and Waters (2006) also conducted an exploratory factor analysis of the original WorkBAT and found that the three factor solution initially suggested by Spence and Robbins (1992) did not adequately represent the construct in their sample. Specifically, a significant chi-square value (X^2 [228]=390.57, p<.001) suggested poor goodness-of-fit. Although all items from the D and E dimensions loaded adequately on the relevant scales, only three of the eight WI scale items had loadings of .34 or greater (Russo & Waters, 2006).

Based on a comprehensive review of the literature, Scott et al. (1997) suggested that one reason the WI scale may be problematic is that it represents an attitude that may not necessarily be demonstrated behaviorally. In other words, it could be possible for a person to be highly work-involved in terms of attitudes, beliefs, and affect, but not engage in typical workaholic behaviors (e.g., high number of actual hours worked) as measured by the WorkBAT's Work Involvement scale.

DUWAS. The DUWAS (Schaufeli, Bakker, & Salanova, 2006), another self-report measure of work addiction, was developed based on the characterization of workaholism as an "irresistible inner drive to work very hard". Although a relatively new measure, the DUWAS has been administered to various groups of employees, including non-exempt manufacturing workers, managers and executives at a large communications company, and skilled workers with medium education levels primarily in the Netherlands and Japan.

Taris and Schaufeli (2003) conceptualized work addiction as including excessive and compulsive tendencies, thus the DUWAS (Schaufeli & Taris, 2004) consists of two core sub-scales: Working Excessively (WkE, 9 items) and Working Compulsively (WkC, 8 items). The instrument consists of 17 items using a 4-point Likert scale ranging from Almost Never (1) to Almost Always (4). Internal consistencies for the WkE and WkC scales range from .73 to .85 and .68 to .84, respectively. Scores are obtained by averaging responses within each subscale. Individuals with high scores (>75th percentile) on both WkE and WkC are considered to be at a high risk for work addiction. It is important to note that each of the DUWAS core subscales originated from existing workaholism measures. Specifically, the WkE subscale consists of items from the Control Tendencies dimension of the WART (Robinson, 1989). Schaufeli and Taris (2004) argued that the original Control Tendencies label of the WART subscale was misleading because most of the items referred to working hard without any implication of an underlying cause. Therefore the adopted scale was renamed Working Excessively as part of the DUWAS to more accurately reflect item content. Sample items include "I stay busy and keep many irons in the fire" and "I seem to be in a hurry and racing against the

clock". Similarly, the WkC subscale consists of items originally introduced in the Drive subscale of the WorkBAT (Spence & Robbins, 1992) and represents the compulsive nature of working hard and excessively. Sample items include "I feel obliged to work hard even when it's not enjoyable" and "I feel guilty when I take time off work".

A subsequent internet Dutch study revealed that two of the WkE items loaded on the WkC scale: "I feel guilty when I am not working on something" and "It is hard for me to relax when I am not working" (Schaufeli et al., 2006). Researchers believe that this was because the content of these two items reflected the negative consequences of a compulsive tendency rather than excessive work. Because of the wrongly loaded items and the length of the original DUWAS, Schaufeli, Shimazu, and Taris (2009) developed a shortened version of the measure using samples from the Netherlands and Japan. The revised DUWAS measures workaholism with 10 items on two scales: WkE (5 items, α=.67) and WkC (5 items; α=.77) and retained the use of a 4-point Likert scale ranging from Almost Never (1) to Almost Always (4). Each scale is scored by adding the responses and dividing by the number of items. The total DUWAS score is the sum of the two subscale scores. Employees are considered work addicted when they have a high score on both WkC and WkE scales (e.g., when the DUWAS total score is greater than 75th percentile of the group norm). Confirmatory factor analysis revealed that a two factor structure for the DUWAS fit the data well in a study of 5245 Dutch medical residents (X^2[34]) = 360.46, $p < .05$, GFI = .97, AGFI = .95.

Additional support for the two factor structure of the DUWAS was also found in a separate study of a convenience sample of 2714 employees from the Netherlands and Spain. Dutch sample participants (2164 employees, mean age = 37.9, SD = 11.2) from

different occupational sectors (e.g., services = 18%, education = 16%, industry = 15%,

commerce = 12%) completed an online survey. The Spanish sample included 550

employees (mean age = 33.8, *SD* = 9.8) who also completed an online questionnaire.

They also represented a variety of occupational sectors (e.g., services = 18%, education =

15%, industry = 11%, commerce = 10%). The results of a series of confirmatory factor

analyses in the Dutch and Spanish samples, which were analyzed independently,

indicated that the short version of the DUWAS fit the data adequately (for the Dutch

sample, $X^2[34] = 595.52$, GFI = .94; for the Spanish sample, $X^2[34] = 213.36$, GFI = .93).

The DUWAS-10 items represented two related but distinctive dimensions: WkE and

WkC.

Findings from recent studies suggest that the DUWAS-10 is a promising measure

of work addiction given its use of previously validated items, its brief length, and its two-

factor structure which replicated across two countries. However, the DUWAS-10 is a

relatively new measure and has not yet been tested as thoroughly as earlier workaholism

instruments. Additionally, the DUWAS-10 was developed using a definition of

workaholism that focuses only on behavior and fails to address the two other components

of addiction, affect and cognition.

Development and Initial Validation of the WAI

The WAI was initially developed in response to a gap in the field's existing

literature. Although researchers have explored workaholism for forty years, there

continues to be a lack of consensus on a definition and there is inconsistent evidence

regarding the validity of existing measures of this construct. The WAI was developed

based on the theory of addiction and a comprehensive definition of workaholism as *the*

excessive engagement in work related activities and thoughts which significantly and negatively interfere with an individual's normal mental, emotional, and/or physical health (Bryan, 2009). Unlike definitions found in the early work addiction literature, this definition attempts to be comprehensive by addressing the affective, behavioral, *and* cognitive dimensions of the construct.

The WAI initially contained 38 items, with responses ranging from (0) never to (4) always. The items were developed using existing theoretical and empirical research findings on the antecedents and consequences of workaholism. Such findings included preoccupation with work, lack of control, excessive work behaviors and thoughts, self neglect/physical health, and impact on personal/family life (Booth-Kewley & Friedman, 1987; Robinson, 1988; Robinson & Post, 1997; Spence & Robbins, 1992). Additional items were also adopted from measures used in other areas of addiction with overlapping definitions. The Internet Addiction Test (IAT) (Young, 1996) and the Rapid Alcohol Problems Screen (RAPS) (Cherpitel, 1995) are particularly relevant.   Both of these tests were developed and validated to measure strong, uncontrollable psychological dependencies that generally produce disruptive behaviors across a variety of environments. This is similar to how Bryan (2009) conceptualized workaholism.

Content, Convergent, and Discriminant Validity. Face and content validity for the WAI were established using a panel of 6 expert work addiction researchers and practitioners.   Subsequently, 5 items were removed and a 33-item version of the measure was administered online to a diverse group of 127 employees in a non-profit organization. The sample consisted of 45 males (35%) and 82 females (65%). Fifty nine of the respondents were African American (46%), 52 were Caucasian (41%), 7 were

Latino/a (6%), 4 were Asian American/Pacific Islander (3%), and 5 identified as Other

(4%). Sixty four (51%) were married, forty seven were single (37%), 3 were separated

(3%), and 11 were divorced (9%).

Participants ranged in age from 21 to 75 (M=42.24, SD=16.41) and also

represented different employee classifications within the organization, including entry

level (8%), individual contributor (38%), supervisor/manager (25%), senior manager

(14%), and executive (15%). Additionally, one hundred and twenty participants reported

working full-time (94%) and seven reported working part-time (6%).

Findings of the study supported a 24-item, 3-factor solution and the WAI total and

subscale scores produced adequate estimates of internal consistency reliability (α=.74 to

.90). The three factors accounted for 45% of the total variance, with intercorrelations

ranging from r =.21 to r = .53. The factors were labeled: (a) Work Absorption (9 items)

consisting of items demonstrating a preoccupation with work (e.g., I feel guilty when I

am not working); (b) Work Attraction (7 items) reflecting the tendency to prefer work

over other activities (e.g., Given the choice, I would rather work than not work); and (c)

Relationship Implications (8 items) implying an adverse effect of work on one's personal

and professional relationships (e.g., My social life suffers as a result of my work and

work related responsibilities). Subscale scores ranged from 0-36, 0-28, and 0-32 for

Work Absorption, Work Attraction, and Relationship Implications, respectively, with

higher scores reflecting more absorption, attraction, or relationship concerns.

Each WAI subscale produced a differential pattern of correlations with the

criterion variables used in the initial validation study. The varying magnitude of

correlations among the subscales and the different patterns of correlations between each

WAI subscale and the criterion variables suggest that each subscale may reflect a somewhat unique aspect of workaholism. Overlap between the subscales could have significant implications for both the measure's scoring procedures (e.g., use of total score) and how the construct of workaholism is conceptualized.

As evidence of convergent validity, the WAI-total and subscale scores correlated positively and significantly with each of the WorkBAT subscales ($r = .28$ to $.66$), with the exception of one nonsignificant, negative relationship between Relationship Implications and Enjoyment ($r = -.04$).   In terms of discriminant validity, the WAI total and subscale scores were minimally related to social desirability ($r = -.11$ to $.18$).

Regression Analyses. Regression analyses were conducted to further explore the individual and joint relationships of the WAI subscales (Work Absorption, Work Attraction, Relationship Implications) to the criterion variables. Collectively, the three subscales accounted for statistically significant variance ($p < .01$) in predicting four of the seven criterion variables: average hours worked per week ($\Delta R^2 = .15$), work centrality ($\Delta R^2 = .49$), job satisfaction ($\Delta R^2 = .23$), and work life conflict ($\Delta R^2 = .26$). However, the combined WAI scales did not account for significant variance in predicting physical health ($\Delta R^2 = .07$), mental health ($\Delta R^2 = .11$), or leisure satisfaction ($\Delta R^2 = .04$).

The regression analyses also suggested relationships between individual predictors and each of the dependent variables. Results indicated that Work Absorption contributed significantly to predicting average hours worked per week ($\beta = .30$), job satisfaction ($\beta = .24$), work centrality ($\beta = .32$), and physical health ($\beta = .28$). Work Attraction contributed significantly to predicting job satisfaction ($\beta = .28$), work centrality ($\beta = .52$), and physical health ($\beta = -.25$). Interestingly, Work Attraction was the only WAI

variable to produce an inverse relationship with physical health. Relationship

Implications contributed significantly, and inversely, to predicting job satisfaction (β= -.46) and mental health (β= -.37). It also contributed positively to predicting

work/personal life conflict (β=.46).

Finally, to examine whether the WAI accounted for unique predictive variance

beyond the WorkBAT, a set of hierarchical regression analyses was conducted predicting

each of the criterion variables. The WAI total score was found to account for statistically

significant unique variance ($p < .05$) beyond the scales of the WorkBAT (Work

Involvement, Drive, Enjoyment) in predicting five of the seven criterion variables:

average hours worked per week (ΔR^2=.11), work centrality (ΔR^2=.29), leisure satisfaction

(ΔR^2=.17), job satisfaction (ΔR^2=.06), and mental health (ΔR^2=.08). The WAI scales did

not account for significant unique variance in predicting either physical health (ΔR^2=.05)

or work/life conflict (ΔR^2=.07), although the increment in explained variance was nearly

significant ($p = .054$) in the latter equation.

Burnout and Work Addiction

Burnout is a term that is commonly used to describe a state of mental exhaustion.

However, the most widely used conceptualization of burnout was originally proposed by

Maslach (1993), who defined burnout as a three-dimensional construct that consists of (a)

exhaustion, (b) cynicism, and (c) lack of professional efficacy. Similar to the limited

empirical attention devoted to the relationship between work engagement and

workaholism, it appears that the empirical relationship between burnout and workaholism

has not yet been fully explored. Researchers have suggested that workaholism might be

one of the root causes of burnout since employees who work excessively long hours tend to use up their mental resources, leaving them depleted of energy (Maslach, 1986).

One study found that "disenchanted workers", one of the types of workaholics proposed by Spence and Robbins (1992), scored high on burnout measures (Burke & Matthiesen, 2004). In an investigation of similarities and differences between three different kinds of employee well-being, Schaufeli et al. (2008) found that burnout and workaholism were positively correlated ($r = .53$, $p < .001$). Based on prior findings and the workaholism definition proposed for the WAI, it is anticipated that a medium to strong, positive correlation will exist between burnout, as measured by the Maslach Burnout Inventory – General Survey (Schaufeli et al., 1996), and workaholism, as measured by the WAI total score.

Work Engagement

Work engagement, which emerged from the burnout literature, is defined as a positive, fulfilling, work related state of mind. Investigations of the relationship between work engagement and workaholism are limited in the existing literature. This may be because, similar to work addiction, the concept of work engagement is relatively new (Schaufeli et al., 2002). In a 2008 study of 587 Dutch telecommunications managers, Schaufeli and colleagues explored the research question of what, if any, relationships existed between workaholism (Working excessively, Drive), burnout (Exhaustion, Cynicism, Professional Efficacy), and work engagement (Vigor, Dedication, Absorption). Structural equation modeling methods demonstrated poor fit of a model that set the items of each of the three constructs to load on its own separate factor (X^2 [17] = 533.09, p<.001, RMSEA=.09, CFI=.80). However, results of the analysis revealed that the fit of

the model could be increased by allowing (a) the errors of Vigor and Exhaustion, and of

Cynicism and Dedication to correlate; (b) Professional Efficacy to load on the latent

Work Engagement factor instead of Burnout; (c) Absorption to load on the latent

workaholism factor as well. The first and second model modifications duplicate findings

of earlier studies (Shaufeli, Martinez, Marques, Salanova, & Bakker, 2002). The third

modification suggests that being absorbed in work is related to both work addiction and

work engagement. This was demonstrated when both workaholism and engagement

loaded on Absorption, .39 and .79 respectively. A revised model with these re-

specifications produced improved fit indices (X^2 [3] = 339.45, p<.001, RMSEA=.07,

CFI=.93).

Despite the finding that workaholism and work engagement overlapped when it

comes to feelings of being absorbed in one's work, researchers explained that motivation

for being immersed in work differed between work addiction and work engagement such

that in the case of engagement, motivation is positive (e.g., work is fun) whereas the

workaholic's motivation is compulsive (e.g., being "driven" to work) (Schaufeli et al.,

2002).

Further exploration of relationships between the constructs revealed that no

significant correlation existed between workaholism and engagement (r = -.04) (Shaufeli

et al., 2002). This very small relationship between the two constructs, despite the

common loading on Absorption, is likely explained by the strength of the remaining

subcomponents of both workaholism (Working Excessively, Drive) and engagement

(Vigor, Dedication). Although Absorption may be a common affective dimension of

both work addiction and work engagement, the behavioral and cognitive aspects of work

addiction, working excessively and compulsively may be components of work addiction

that distinguish the construct from others. Interestingly, Schaufeli et al. (2002) did find

significant though mostly small relationships between a few workaholism and work

engagement subcomponents including Vigor and Working Excessively ($r =.14$), Vigor

and Drive, ($r =-.12$), Dedication and Working Excessively ($r =.16$), Dedication and

Drive ($r =-.12$), Absorption and Working Excessively ($r =.37$), and Absorption and Drive

($r =.20$).

Since workaholism in this study, as measured by the WAI, also consists of three

factors (Work Attraction, Work Absorption, Relationship Implications), it is anticipated

that relationships will exist between subcomponents of both the WAI and work

engagement. In fact, a substantial overlap is expected between the like named

Absorption factors found in each of the measures used. However, results from this

investigation are only expected to show a small, positive relationship between

workaholism, as assessed by the WAI total scale score (Bryan, 2009), and work

engagement as measured by the total scale score of the Utrecht Work Engagement Scale

(Schaufeli, Bakker, & Palanova, 2006),

Hours Worked

Working long, non-required hours is generally associated with addiction to work

(Aziz & Zickar, 2006; Burke, 2001; Mudrack & Naughton, 2001; Spence & Robbins,

1992). In fact, much of the early research on workaholism was either based on

definitions that explicitly included amount of hours worked (i.e., 50+ hours per week;

Mosier, 1983) or highlighted hours worked as a major part of the construct (McMillan et

al., 2002). However, it is important to note that while amount of hours worked is often

an indicator of work addiction, findings have been inconsistent. This is likely explained

by the fact the working long hours is only a behavioral manifestation of work addiction.

In isolation, various explanations could be offered for such behavior, including having a

committed or dedicated employee.   Long work hours alone does not account for the

affective or cognitive aspects of addiction, which are also critical components of the

workaholism construct as conceptualized here.

In the initial validation of the WAI (Bryan, 2009), the correlation of the WAI total

score and average work hours per week was $r = .35$ (p < .01), indicating that

workaholism and work hours per week were moderately, positively correlated.

Moderate, statistically significant correlations were also found between work hours per

week and the Absorption ($r = .35$) and Relationship Implications ($r = .32$) subscales.

Only a small, non-significant correlation was found between work hours per week and

Work Attraction ($r = .09$). Given that number of hours worked may be the most

identifiable symptom of work addicts, this relationship will be further explored in this

study. Therefore, in the present study, work hours will be measured as a continuous

variable, as it was in the initial validation study. It is expected that the moderately

positive correlation between WAI total scores and average work hours per week will be

replicated (Bryan, 2009).

Workaholic Typology

Some researchers have suggested that agreement on a single, unified definition of

workaholism has been challenging because different types of workaholics exist (Fassel,

1990; Naughton, 1987; Robinson, 1998; Scott et al., 1997; Spence & Robbins, 1992;

Trueman, 1995). Naughton (1987) presented a typology based on the two dimensions of

commitment and obsession-compulsion: (a) job-involved workaholics (high work commitment, low obsession-compulsion) who tend to be good performers in high demanding jobs; (b) compulsive workaholics (high work commitment, high obsession-compulsion); (c) non-workaholics (low work commitment, low obsession-compulsion); and (d) compulsive non-workaholics (low work commitment, high obsession) who compulsively spend time in non-work activities. By contrast, Fassel (1990) suggested the following types of workaholism: compulsive (e.g., perfectionistic), binge (e.g., obsessive), closet (e.g., hides their work from others), and work anorexic (e.g., avoids work because they are immobilized by perfectionism and guilt) workers.

Spence and Robbins (1992) proposed six workaholic patterns based on their triadic definition: work addicts (high work involvement, high drive to work, low work enjoyment), enthusiastic workaholics (high work involvement, high drive to work, high work enjoyment), work enthusiasts (high work involvement, low drive to work, high work enjoyment), disenchanted workers (high work involvement, low drive to work, low enjoyment), relaxed workers (high work enjoyment, low work involvement, low drive to work), and unengaged workers (low work involvement, low drive to work, low enjoyment).

Based on a review of existing literature, Scott et al. (1997) proposed three workaholic types: compulsive-dependent, perfectionist, and achievement-oriented. Compulsive-dependent workaholics work excessively and are dependent on work, such that reduction of work may result in negative withdrawal symptoms. Perfectionists tend to have a strong need to be in control and exhibit traits of obsessive compulsive personality disorders. Achievement oriented work addicts are driven to strive for

achievement and success, focusing on goals and delaying gratification. This type of workaholic can be extremely productive in the workplace and is often viewed positively by organizations.

Finally, Robinson (1998) described four work addiction types based on clinical observations of workaholic clients and their relationships with families: relentless, bulimic, attention-deficit, and savoring workaholics. Relentless workaholics are stereotypical workaholics – they work compulsively and constantly, believing that work is more important than relationships. Bulimic workaholics tend to have out of control work patterns that vacillate between "binging and purging," that is, overcommitment and procrastination. The attention deficit workaholic is characterized as adrenaline seeking. Such types are easily bored and find it difficult to maintain focus which results in jumping from one task to the next, keeping many projects going at one time, and not completing assignments. Many attention deficit workaholics may suffer from Attention Deficit Disorder, which often remains undiagnosed. In contrast, savoring workaholics are slow, deliberate, and methodical but still fear that their final work product is not good enough. As a result, savoring workaholics tend to prolong projects by creating additional work in a continuous attempt to improve on their work.

Each of the aforementioned typologies resulted from studies or theoretical papers based on different conceptualizations of workaholism. Therefore, none of the five sets of workaholic types are identical. In addition, the use of different definitions may be another reason that findings on typologies have often been inconsistent (Taris, Geurts, Schaufeli, Blong, & Lagerveld, 2008). Despite the differences that exist between work addiction typologies reviewed in the literature to date, the complexity of the construct

does suggest that different types of workaholics may exist. Based on the definition of work addiction proposed at the outset of this study, workaholism has been conceptualized as a complex construct. Each of the published and validated measures of workaholism has produced evidence to support the position that workaholism is a multidimensional construct. Initial development and testing of the WAI also resulted in multiple factors (Bryan, 2009).   In addition, when the theory of addiction is applied, it adds another layer of complexity such that workaholism can potentially manifest across three separate dimensions: affect, behavior, and cognitions.

Measuring workaholism only on a continuous scale, as done in the WART and DUWAS-10, potentially limits information available from a single, total score. Such uni-dimensional information, with the establishment of cut off scores, can potentially only identify workaholics versus non-workaholics. In contrast, a work addiction measure associated with a typology would not only serve to identify workaholics but also provide additional information that would be helpful to individual employees, organizations, clinicians, and researchers. Workaholic classifications could help reveal which aspects of workaholism are most prevalent for the workaholic (i.e., Absorption, Attraction, Relationships), how the addiction manifests itself (i.e., thoughts, behaviors, feelings), and indicate the level of acuteness, all of which could increase the ability to identify problems associated with workaholism and suggest interventions tailored to them.

Self-efficacy and Work Addiction

Self-efficacy, the core construct in social cognitive theory, refers to "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p.391). How people interpret their

own performance informs and alters their environments and their self-beliefs which, in turn, inform and alter subsequent performance. In general, Bandura provided a view of human behavior in which the beliefs that people have about themselves are key elements in the exercise of control and human agency (Pajares, 1996).

Research suggests that there are four major psychological processes through which self-efficacy affects human functioning: cognitive processes (human behavior is regulated by forethought and personal goals), motivational processes (people form beliefs about what they can do and anticipate likely outcomes), affective processes (beliefs in coping abilities affect how much stress and other emotional reactions are experienced during threatening or difficult situations), and selection processes (when efficacy beliefs shape life choices and personal decisions) (Bandura, 1994). Although all of the aforementioned processes are relevant, the latter seems most applicable to cases of addiction and to work addiction in particular.

Selection processes refer to the idea that people can help shape their own environments. As such, beliefs of self-efficacy can shape decisions and choices made across the lifespan. Naturally, individuals will attempt to avoid situations and activities they perceive as too great for their coping abilities. In contrast, they are willing and able to engage in challenging activities they believe themselves to be capable of handling. With the choices they make, people cultivate different competencies, interests, and social networks that determine life courses (Bandura, 1994). Career choice and development is one example of how self-efficacy beliefs affect one's life through choice and selection processes. It should be noted that selection processes can positively influence a person's

life, but there are also cases, such as with addiction, in which the environment, personal choices, and level of control or lack thereof, can negatively impact one's life.

Many of the work addiction theories introduced to date suggest that workaholism could stem from one's self-concept, including the ways in which individuals perceive themselves, their value, skills, abilities, performance, and effectiveness. One school of thought maintains that workaholism could be an escape or a means of enhancing self-esteem (Machlowitz, 1980; Thorne, 1987). Another possibility is that work addicts may have differential levels of self-efficacy related to work versus non-work life arenas such that low self-efficacy in the latter arena can propel workaholics to work compulsively (Bartolome, 1983; Robinson, 1996). For example, if an individual perceives their personal life to be unfulfilling in some respect, work may become a means to cope or "escape". Or if an individual has poor social skills and finds it challenging to establish and maintain non-work interests and relationships, engaging in work-related activities could provide a level of comfort and stability that eludes them elsewhere.

Additionally, one's identity as an employee tends to be straightforward, with goals, objectives, behavior reinforcement, and a support system clearly defined and provided by the employer, essentially creating a safe environment for employees. By contrast, the non-work environment generally consists of more unknowns and less structure. Therefore, any individual with stronger efficacy beliefs related to their work self versus non-work life could be vulnerable to spending considerably more time and energy on work related activities to further enhance their self-concept, to avoid or escape unwanted thoughts, feelings, and situations, or to attempt to fulfill unmet needs.

Obviously, all of this occurs on a spectrum, with workaholism marking an extreme point where work becomes compulsive.

Studies suggest that self-efficacy beliefs are related to clinical problems such as addiction (Marlatt, Baer, & Quigley, 1995) and social skills (Moe & Zeiss, 1982). Specifically, extensive research has been conducted on self-efficacy and nicotine and alcohol addiction. However, it appears that very limited empirical research has been conducted on the relationship between self-efficacy and process, or non-substance, addictions such as workaholism.

In a study of 311 university students conducted to examine the relationship between internet addiction, social self-efficacy, and academic locus of control, Iskender and Akin (2009) found that social self-efficacy negatively predicted internet addiction (β = -.18, p = .01). Additionally, Kraut et al. (1998) found that people with low social self-efficacy were more likely to engage in greater use of the internet and that greater use of the internet was related to declines in communication with family members (β = .08, p < .05), declines in size of social circles (β = -.14, p < .05), and increases in depression (β = .15, p < .05) and loneliness (β = .19, p < .05).

Preliminary evidence of a relationship between workaholism and self-efficacy also exists. In 2005, Burke examined the relationship between personality factors, including generalized self-efficacy, and workaholism among 496 Norwegian health care employees. Generalized self-efficacy was positively and significantly related to all three workaholism components of the WorkBAT: work involvement (β=.13, p<.05), feeling driven to work (β=.18, p<.05), enjoyment of work (β=.18, p<.05).

Studies have shown relationships between self-efficacy beliefs, substance addiction, and social skills (Marlatt et al., 1995; Moe & Zeis, 1982). Additionally, relationships between substance addictions and process addictions have been established. Therefore, it is expected that self-efficacy, work addiction (a process addiction), and social skills will also be related such that efficacy in different life roles (i.e., work versus social) is expected to influence work addiction. More specifically, this research study seeks to explore the relationship between social self-efficacy, worker role self-efficacy, and workaholism, with the expectation that individuals with low social self-efficacy are more likely to experience workaholism than individuals with high social self-efficacy (Ng, Sorenson, & Feldman, 2007). In addition, employees with high worker role self-efficacy are expected to experience workaholism at a higher rate than those with low worker role self-efficacy. And finally, individuals with both low social self-efficacy and high worker role self-efficacy are expected to be especially prone to work addiction.

Research Questions and Hypotheses

The current study was designed to further validate the WAI, which aims to assess an individual's level of addiction to work through self-report. Additionally, this study will investigate whether there is any evidence of a workaholism typology or a relationship between self-efficacy and work addiction as suggested by other researchers in the field. In particular, this study was designed to examine the instrument's factor structure, validity, reliability, and typology. For purposes of this study, correlation coefficients indexing the strength of the relationships between measures will be interpreted as small ($r = .10$ to $.29$), medium ($r = .30$ to $.49$), or large ($r > .50$) using Cohen's (1988) guidelines.

Hypotheses

Hypothesis 1. Factor structure: The WAI will result in confirmation of a 3 factor solution. A confirmatory factor analysis will be conducted to examine the WAI's factor structure. Although researchers are still trying to agree on a common definition of the construct, there is substantial empirical evidence to suggest that work addiction is multidimensional. The initial exploratory factor analysis of the WAI provided additional support for a multidimensional construct and resulted in a 3 factor solution (Bryan, 2009). Therefore, confirmation of the three factor structure is expected.

Hypothesis 2. Reliability: The WAI total and subscales will produce adequate estimates of both internal consistency and test/retest reliability. A test of the WAIs stability over a two-week period will be explored and a high correlation between test administrations 1 and 2 is anticipated for both WAI total and subscale scores.

Hypothesis 3. Convergent validity: The WAI total score will have a high, positive relationship with the DUWAS-10, an existing measure of workaholism. The shorter version of the DUWAS was selected as an alternative measure of workaholism for comparison with the WAI because of its unique combination of validated items from the WART and WorkBAT, two of the original and most widely tested measures of workaholism in the literature. Although the DUWAS-10 is a fairly new measure, it has had some degree of success at identifying workaholism. Moderate to strong correlations are expected between the total scores of the WAI and the DUWAS-10.

Hypothesis 4. Discriminant validity: The WAI will yield a small, positive relationship with work engagement. A small correlation would suggest that workaholism

represents a concept that is more complex than just being highly involved in one's job, and that the compulsive drive of workaholics is a distinguishing component between work addiction and engagement.

Since workaholism in this study, as measured by the WAI, consists of three factors (Work Attraction, Work Absorption, Relationship Implications), it is anticipated that relationships will exist between subcomponents of the WAI and work engagement. In fact, the like named Absorption factors of the two measures are expected to correlate highly. However, only a small, positive relationship is expected to result between total workaholism scores, as assessed by the WAI (Bryan, 2009), and total work engagement scores as measured by the Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006).

Hypothesis 5. Criterion-related validity: The WAI will yield a medium to strong, positive relationship with burnout. A medium to strong correlation would provide preliminary support for the theory that workaholism could be a root cause of burnout.

Hypothesis 6. Criterion-related validity: Workaholism will have a medium, positive correlation with average work hours per week.

Hypothesis 7. Criterion-related validity: Workaholism will be (a) moderately and negatively related to social self-efficacy and (b) moderately and positively related to work role self-efficacy. These two hypotheses reflect the assumption that workaholism may be at least partly a function of efficacy beliefs regarding work and non-work domain capabilities.

Hypothesis 8. Incremental validity: The WAI will account for unique variance beyond the more established workaholism measure, the DUWAS-10, in predicting (a) burnout and (b) number of hours worked.

Research Questions

In addition to investigating the above hypotheses, this study will also explore whether there is any evidence of a workaholism typology.

Research Question 1. Does the WAI provide any empirical evidence of viable workaholic categories? This issue will be explored in two ways: (a) examination of the presence of a priori workaholism categories using high/low cutoff scores on the WAI's scales and (b) use of cluster analyses to identify workaholic types empirically. It is anticipated that the WAI will result in a multi-level typology composed of various score combinations from the instrument's subscales: Work Absorption, Work Attraction, and Relationship Implications. With these three factors, the instrument could potentially identify both workaholic and nonworkaholic groups. However, because the WAI is based on the theory of workaholism as an addiction, "positive" workaholic types are not anticipated.

Conceptualizing possible workaholic categories based on theory could be a useful exercise and allows for a discussion of types using high/low subscale scores. With the combination of three WAI subscales, eight distinct profiles are possible. However, only three profiles are expected to be classified as workaholic types (Table 1): Chronic, Functional, and Uneager. The common characteristic among the three workaholic types is that they all have a high level of Absorption (i.e., preoccupation, obsession, compulsivity with work), the critical component of workaholism.

If findings of the study support workaholic categories as conceptualized above, it is probable that workaholic types will also form different relationships with hours worked, burnout, social self-efficacy, and worker role self-efficacy (Table 2). Chronic workaholics are characterized as feeling compelled to work and unable to control the amount of time and energy they spend in that realm despite adverse effects on other areas of their lives. The functional workaholic type are those that feel drawn to work obsessively but either do not care or are not yet aware of any personal or professional issues that have resulted from their drive to work. Finally, the uneager workaholic type is assumed to be keenly aware of the benefits of having a more balanced life yet is unable to control the compulsion to work even in the face of poor health and social relationships. Therefore, each workaholic type defined above could potentially result in a unique relationship with other variables included in this study. A cluster analysis will also be used to examine whether workaholic types identified empirically resemble or differ from those that have been hypothesized (i.e., the chronic, functional, and uneager types).

Table 1

Proposed Workaholic Typology of the WAI

Proposed Type	Workaholic	Attraction	Absorption	Rel Impl
Chronic Workaholic	Yes	High	High	High
Functional Workaholic	Yes	High	High	Low
Uneager Worker	Yes	Low	High	High

Table 2

Hypothesized Relationships Between Proposed WAI Workaholic Types and their Correlates

Proposed Type	Hours Worked	Burnout	Social Self-efficacy	Worker role Self-efficacy

Chronic Workaholic	High	High	Low	High
Functional Workaholic	High	High	High	High
Uneager Worker	High	High	Low	Low

To summarize, the current study aimed to test and explore the following hypotheses and research questions:

Hypothesis 1. Factor structure: The WAI will result in confirmation of a 3 factor solution.

Hypothesis 2. Reliability: The WAI total and subscales will produce adequate estimates of internal consistency and test/retest reliability.

Hypothesis 3. Convergent validity: The WAI total score will have a high, positive relationship with the DUWAS-10, an existing measure of workaholism.

Hypothesis 4. Discriminant validity: The WAI will yield a small, positive relationship with work engagement.

Hypothesis 5. Criterion-related validity: The WAI will yield a medium to strong, positive relationship with burnout.

Hypothesis 6. Criterion-related validity: Workaholism will have a medium, positive correlation with average work hours per week.

Hypothesis 7. Criterion-related validity: Workaholism will be (a) moderately and negatively related to social self-efficacy and (b) moderately and positively related to work role self-efficacy.

Hypothesis 8. Incremental validity: The WAI will account for unique variance beyond the more established workaholism measure, the DUWAS-10, in predicting (a) burnout and (b) number of hours worked.

Research Question 1. Does the WAI provide any empirical evidence of viable workaholic categories?

CHAPTER 3

Method

Sample

An initial effort to identify potential organizations to participate in this study consisted of circulating an email among a network of 24 human resources colleagues of the researcher, asking if the organizations they represented might be interested in participating in a research study about work/life balance. Of the sixteen responses, only two indicated an interest in participating. However, subsequent telephone conversations with the respective human resources representative at each organization revealed that only one, a publishing company, was large enough and ultimately willing to work collaboratively with the researcher on this project.

Participants were recruited from the New York office of the global publishing company, a leader in the industry for over 150 years. This organization specializes in both book and journal publishing in the fields of science, technology, and business. The organization was only amenable to administering the survey among employees from a single division with a staff of 728 people. However, the division consisted of various departments and levels of the organization, which provided the ability to capture workers representing a wide range of demographics, including seasoned and junior professionals, full- and part-time and employees, various functional areas (e.g., finance, marketing, human resources), and a potentially wide age range. Because the company is located in a major metropolitan area, the study was also expected to yield a diverse group of participants from various ethnicities and backgrounds.

The sample for this study consisted of 256 working professionals, representing a return rate of 35%. This return rate is in line with average response rates for Internet-based surveys which generally range between 26 and 37 percent (Handwerk, Carson, & Blackwell, 2000; Mertler, 2002). An *a priori* power analysis was completed based on Cohen's (1992) article to determine the sample size necessary to have a power of .80 with a significance level of .01. To find medium effect sizes ($r > .33$) when testing the statistical significance of the association between two variables using a two tailed alpha level, Cohen suggested a sample size of 125.

Similarly, it was anticipated that this study would include a confirmatory factor analysis of the WAI consisting of 24 observed variables (e.g., each item on the WAI) and 3 latent variables (e.g., each factor), which would be allowed to covary freely. The proposed model also included 24 error variances, one for each observed variable. The degrees of freedom for this analysis were calculated using the formula ($p(p+1)/2$), where p is the number of observed variables. The WAI scale had 24 observed variables, indicating that the model has 300 known elements. One observed indicator on each factor was set to 1.0 in order to assign a scale to the variables. This left 24 error variances (e.g., one for each item), 3 intercorrelations among factors, and 21 factor loadings left to be estimated (e.g., loadings for all items but one on each factor which will be set to 1.0 as described above), indicating that 48 parameters were unknown in the model. Subtracting 48 unknown parameters from the 300 known elements resulted in 252 degrees of freedom. Models with degrees of freedom larger than zero are over-identified (Weston & Gore, 2006). A second *a priori* power analysis was completed based on MacCallum, Brown, and Sugawara's (1996) article to determine the sample size

necessary to have a power of .80 with a significance level of .05 for a confirmatory factor analysis. In the context of the above parameters, MacCallum et al. (1996) suggested a sample size of 178. Thus, the total number of participants for this study also meets these criteria.

The sample consisted of 134 males (52.3%) and 113 females (44.1%) with an additional 9 participants (3.5%) who did not indicate their sex. One hundred and twenty-seven of the participants were Caucasian (49.6%), 75 were Black (29.3%), 24 were Asian American/Pacific Islander (9.4%), 18 were Latino/a (7%), 3 were Native American (1.2%), and 9 identified as Other (3.5%). One hundred and eleven (43.4%) were married, one hundred were single (39.1%), 22 were divorced (8.6%), 13 were in a domestic partnership (5.1%), and 1 was separated (.4%), and 9 (3.5%) failed to respond to this question. Within this same group, one hundred fifty-four individuals (60.2%) had no children under the age of 18, fifty-two (20.3%) had one child under the age of 18, twenty-six (11%) had two children under the age of 18, eleven (4.3%) had three children under 18 years old, two (.8%) had four children or more, and eleven (4.7%) did not respond to the question.

Participants ranged in age from 24 to 69 (*M*=40.17, *SD*=9.61) and represented different employee classifications within the organization, including full-time (84.8%) staff, part-time employees working at least 20 hours per week (6.3%), and consultants/contractors (5.5%). Participants also reported a broad range of salaries: under $20,000 (3.9%), $20,000 - $39,999 (9.8%), $40,000 - $59,999 (15.2%), $60,000 - $79,999 (18%), $80,000 - $99,999 (13.7%), $100,000 - $124,999 (19.5%), $125,000 - $149,999 (5.5%), $150,000 - $199,999 (5.9%), and over $200,000 (5.1%).   Additionally,

participants' length of service in their current position ranged from less than one year to 25 years. For two hundred and forty-seven participants who responded to this question, the average position tenure was 6.03 years (*SD=5.50*).

Participants who did not respond to 5% or more of the total survey items were excluded from the analyses. A final total of 244 participants were included in the analyses.

Procedures

The survey was administered using the SurveyMonkey online survey program. Working collaboratively with the publishing company's Director of Human Resources, a set of procedures were developed to meet both the organization's needs and the research guidelines. Employees received an initial email invitation to participate in the research project from the Director of Human Resources (Appendix A) explaining the organization's support of the project, confidentiality of participation, and the opportunity for participants to enter a lottery and win one of four $50 American Express Gift Cards after completing both Parts 1 and 2 of the study. The email invitation was distributed to all 728 active division employees via an internal listserv and included a weblink to access the questionnaire on SurveyMonkey. One hundred ninety-seven (77%) employees started filling out the survey within the first 9 days that it was available online. On day 10, the Director of Human Resources distributed a second email invitation to all staff via the listserv. The content of the Director's email was the same as the first with an addition of "REMINDER" in the subject headline. In the 6 days after the second email was distributed to employees, an additional forty-nine (19% of total participants) employees logged on and started the survey. A third and final reminder was emailed to division staff

on day 17, which prompted an additional 10 employees (4% of total participants) to fill out the survey. In total, part 1 of the survey was available online for 23 days.

Once participants accessed SurveyMonkey via the weblink in the email invitation, they were first prompted to respond to the informed consent (Appendix C). Participants completed the online questionnaire at their own pace, with an estimated 15 minute time to completion. At both the beginning and the end of the questionnaire, participants were reminded of their ability to withdraw from the study at any time without any obligation by logging out of the survey and not submitting any responses. Part 1 of the survey was a 115-item questionnaire including a brief demographics form and six instruments: the WAI, DUWAS-10, Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2003), Maslach Burnout Inventory – General Survey (MBI-GS; Schaufeli, Leiter, & Kalimo,1995), the worker role self-efficacy scale of the Self-efficacy Expectations for Role Management Measure (SEERM; Lefcourt & Harmon, 1995), and the Scale of Perceived Social Self-efficacy (PSSE; Smith & Betz, 2000). Each instrument was administered on a separate page with its own set of clear, distinct instructions.

Respondents to part 1 of the survey were also asked to participate in part 2, to be administered 2 weeks after they completed part 1. Part 2 of the survey would include one instrument, the WAI. All participants interested in completing part 2 were asked to create a 6-character alphanumeric code (including at least one letter, and at least one number; not cap sensitive) and to supply their email address to receive a personalized email (Appendix B) invitation from the researcher. The personalized email invitation for part 2 included the survey weblink, the 6-character alphanumeric code provided by the participant, and an eligibility reminder to enter the lottery to win an American Express

Giftcard. The estimated completion time for part 2, a 24-item subset of the initial survey, was approximately 5 minutes. One hundred and one participants from part 1 (39% of total study participants) expressed an interest in participating in part 2 of the survey. However, only eighty-nine (35% of participants) of those individuals completed the second survey. To ensure confidentiality, participants' personal email addresses were discarded after part 2 survey was completed. The alphanumeric codes were used to link part 1 and part 2 responses.

As an incentive to complete both parts of the study, respondents were eligible to participate in a raffle to win a $50 American Express gift card, four of which were available. Participants were provided the opportunity to enter the raffle, which was optional, after submitting part 2 of the survey. To further protect confidentiality, information for the lottery drawing was collected using a website page separate from the survey. Additionally, personal contact information (i.e., email address) submitted for the raffle was stored in an electronic file separate from all survey responses. Only 32 participants (13%) registered for the raffle.

Parenthetically, it does not appear that the prospect of winning $50 served as a substantial incentive to participants because only a small subset of participants entered the raffle. One possible explanation for this is that all of the participants were gainfully employed and receiving a moderate salary (average salary range fell between $80,000 and $99,999). Thus, $50 may have been too small of an amount to serve as a motivator for this group. However, two other factors likely contributed to the overall participation rate in the online survey. First, part of the organization's mission is to promote and support scholarly research; thus many of the employees may have already been highly

motivated and experienced at participating in academic research and publications.

Second, the Director of Human Resources holds a leadership position and is known to be

well regarded in the organization so it is likely that many respondents were also

motivated to participate by their professional relationship with the Director.

Measures

Data for this study were gathered using a variety of measures including: a

demographic questionnaire, two instruments to assess workaholism (WAI; DUWAS-10;

Schaufeli et al., 2009), a measure of work engagement (Schaufeli et al., 2006), a burnout

measure (Schaufeli et al., 1995), a worker role self-efficacy measure (Lefcourt &

Harmon, 1995), and a perceived social self-efficacy scale (Smith & Betz, 2000). An

existing measure of workaholism, the DUWAS-10, was used to explore convergent

validity with the target measure, the WAI, and work engagement was used to explore

discriminant validity. Burnout and a single item assessing average number of hours

worked per week was used to estimate criterion-related validity. The self-efficacy scales

were used to investigate the research questions of what, if any, relationships exist

between workaholism or workaholism types and social self-efficacy and worker role self

efficacy.

Demographic questionnaire. A demographic questionnaire (Appendix G),

developed for this study, was completed by all participants. The questionnaire asked

questions regarding gender, age, marital status, salary, race/ethnicity, number of

dependents under age 18, work status (e.g., full-time, part-time, contract employee), and

average number of hours worked per week.

Workaholism. An analysis of the WAI's (Bryan, 2009) (Appendix H) relationship to an existing workaholism measure, the DUWAS-10 (Schaufeli et al., 2009; Appendix E), was undertaken to explore convergent validity. The psychometric properties of the DUWAS-10 were reviewed earlier but it should be noted that this self-report measure was based on the characterization of workaholism as an irresistible inner drive to work very hard. The DUWAS measures workaholism with 10 items on two scales: Working Excessively (WkE; 5 items) and Working Compulsively (WkC; 5 items). Responses are provided on a 4-point Likert scale ranging from Almost Never (1) to Almost Always (4). Each scale is scored by adding the responses and dividing by the number of items. The total DUWAS score is the sum of the two subscale scores. Employees are considered work addicted when they have a high score on both WkC and WkE scales (e.g., when the DUWAS total score is greater than 75th percentile of the group norm). The WAI (Bryan, 2009) measures workaholism with 24 items on three scales: Work Absorption (AB; 9 items), Work Attraction (AT; 7 items), and Relationship Implications (RI; 8 items). Responses are provided on a 4-point Likert scale from Never (0) to Always (4).

Work engagement. The Utrecht Work Engagement Scale (UWES; Schaufeli & Bakker, 2002) was originally developed based on the definition of work engagement as a positive, fulfilling, work related state of mind that is characterized by vigor, dedication, and absorption, which ultimately became the measure's three subscales (Schaufeli et al., 2002). The original self-report questionnaire included 24 items. However, Schaufeli et al. (2003) set out to shorten the instrument in an effort to create a more concise measure of the construct. Using a database of 27 studies conducted between 1999 and 2003 in ten different countries, researchers obtained the UWES results of 14,521 participants across

several occupations. Researchers used a multi-step iterative process to reduce the number of items on the instrument. First, the most characteristic item of each scale was identified on the basis of face validity and then that same item was regressed on the remaining items of the scale. Next the item with the highest beta value was added to the initial item and the sum of these two items was regressed on the remaining items of the scale, and again the item with the highest beta values was added to both items that were previously selected. This iterative procedure was aborted either when no substantial variance was added by a subsequent item or when no similar additional item emerged across the 10 countries (Schaufeli et al., 2006). This analysis resulted in 3 additional versions of the UWES (17-, 15-, and 9-item) instrument. The 17-item UWES (Appendix J) was used in this study because it yielded the most stable reliability values.   The 17-item UWES measure consists of 6 Vigor items (e.g., "At work, I feel bursting with energy."), 5 Dedication items (e.g., "I am enthusiastic about my job."), and 6 Absorption items (e.g., "I am immersed in my work.").

Responses to the UWES-17 are measured on a 7-point Likert scale ranging from 0 (Never) to 6 (Always). Subscale scores are calculated by adding the responses to each question and dividing the total by the number of questions on the subscale. The total UWES-17 score is calculated similarly. Cronbach alphas for the subscales ranged between .66 and .87 for Vigor, .83 and .92 for Dedication, and .79 and .88 for Absorption. Cronbach alpha for the total 17 item scale varied between .88 and .95 (Schaufeli & Bakker, 2002). UWES-17 Cronbach alpha in this study was .94, .83, .83, .94 for UWES-17 total, Vigor, Absorption, and Dedication scales respectively

Burnout. The Maslach Burnout Inventory was originally designed to assess three components of the burnout syndrome: emotional exhaustion, depersonalization, and reduced personal accomplishment among human service providers (Maslach, 1981). However, researchers discovered substantial validity issues when the instrument was administered to occupational groups other than human service providers, such that norms for other occupations differed from those of human service providers and the three factors mentioned previously was not maintained across these occupational groups. As a result, the Maslach Burnout Inventory – General Survey (MBI-GS) (Appendix K; Schaufeli et al., 1995) was developed to assess burnout within professions without direct personal contact or only casual contact with people. Thus, the General Survey is based on the definition of burnout as "a crisis in one's relationship with work" and a state of exhaustion in which one is cynical about the value of one's occupation and doubtful of one's capacity to perform it (Maslach, Jackson, & Leiter, 1996).

The MBI-GS provides a three-dimensional perspective of burnout and is thought to share many features with that measured by the MBI, with the major difference being that the MBI-GS does not focus primarily on human service work but, rather, on the performance of work in general (Maslach et al., 1996). This difference manifested in the introduction of Cynicism as a new subscale instead of Depersonalization, the latter of which was exclusively associated with human service work.

The original 28 item MBI-GS was administered to a cross cultural sample of 5259 participants in Canada, Finland, and Holland encompassing several occupations including management, military, rural workers, and technologists. Results from a confirmatory factor analysis supported the original three hypothesized factors and identified 24 items

that met skew and kurtosis criteria. However, subsequent regression and factor analyses

further reduced the number of items to 16 (Schaufeli, Leiter, & Kalimo, 1995).

Items on the MBI-GS assess the frequency with which respondents experience the

feelings or attitudes described on a 7 point Likert scale ranging from Never (0) to Every

Day (6). The MBI-GS has three subscales: Exhaustion (Ex) which references aspect of

fatigue; Cynicism (Cy) which reflects indifference or a distant attitude toward work; and

Professional Efficacy (PE) which focuses on social and nonsocial aspects of occupational

expectations and accomplishments. Sample items include "I feel emotionally drained

from my work" (Ex), "I have become less interested in my work since I started this job"

(Cy), and "I can effectively solve the problems that arise in my work" (PE). Each

subscale is measured separately with scores ranging from 0 to 30, 0 to 30, and 0 to 36 for

Exhaustion, Cynicism, and Professional Efficacy, respectively. Burnout is

conceptualized as a continuous variable, ranging from low to high degrees of experienced

feeling. Scores are considered high if they are in the upper third of the normative

distribution and low if they fall in the lower third. Thus, high experiences of burnout are

reflected in the combination of high scores on Exhaustion and Cynicism and low scores

on Professional Efficacy.

Cronbach alphas range from .87 to .89 for Exhaustion, .73 to .84 for Cynicism,

and .76 to .84 for Professional Efficacy (Bakker, Demerouti, & Schaufeli, 2002; Maslach

et al., 1996). Cronbach alphas for all the MBI-GS scales ranged from .73 to .85 in this

study. The strongest subscale correlations are between Exhaustion and Cynicism ($r = .44$

to .61). Exhaustion and Professional Efficacy ($r=-.04$ to $-.34$) as well as Cynicism and

Professional Efficacy (r = -.38 to -.57) are negatively correlated. Test retest reliability

coefficients range from .60 to .67 for the three subscales at a 1-year interval.

Social self-efficacy. Social self-efficacy was measured using the Scale of

Perceived Social Self-Efficacy (PSSE; Smith & Betz, 2000) (Appendix L), which is

intended for use with college students and adults. The PSSE consists of 25 items and

assesses perceived self-efficacy for several social behaviors including making friends

("Ask a potential friend out for coffee"), social assertiveness ("Join a lunch or dinner

table where people are already sitting and talking"), performance in public situations

("Express your opinion to a group of people discussing a subject that is of interest to

you"), groups or parties ("Go to a party or social function where you probably won't

know anyone"), pursuing romantic relationships ("Ask someone out on a date"), and

giving and receiving help ("Ask someone for help when you need it"). Items are scored

on a 5–point Likert scale ranging from 1 (no confidence at all) to 5 (complete

confidence). Total scores are obtained by summing all of the items, with higher scores

indicating greater perceived social self-efficacy.

PSSE items were developed based on the Adolescent Social Self-Efficacy Scale

(S-EFF; Connolly, 1989), a measure shown to be robust in measuring social self-efficacy

in younger adolescents (Smith & Betz, 2000). In a maximum likelihood factor analysis, a

scree test revealed that a single general factor most accurately represented the inventory's

structure, accounting for 41% of the total variance.   Loadings on the general factor

ranged from .55 to .72.

Using a sample of 354 college students in the study to develop the measure, Smith

and Betz (2000) found that internal consistency reliability (coefficient alpha=.94) and 3

week test-retest reliability ($r = .82$) were high. Results of the initial study also supported

the measure's convergent validity relative to the Social Self-Efficacy Subscale of the

Self-esteem Scale ($r = .62$) (Rosenberg, 1965) and the Social Confidence Scale of the

Skills Confidence Inventory ($r = .53$) (SCI; Betz, Borgen, & Harmon, 1996).

For the purposes of this research project, it was important for PSSE respondents

to distinguish between social skills used in their personal lives versus social skills used on

the job. The nature of the work in some professions, particularly public and health

service fields (i.e., nursing, social work), require the use of social skills to be effective.

However, not all incumbents of such positions are able to transfer their social skills from

work to the non work environment. Therefore, minor edits were made to the PSSE to

ensure that responses were made in the context of social and *nonwork* settings. For

example, the original PSSE item "Find someone to go out to lunch with" was edited for

this study to "Find someone, other than a coworker, to go out to lunch with" to emphasize

the use of social skills outside of work.   Cronbach alpha for the PSSE in this study was

.95.

Worker role self-efficacy. Worker role self-efficacy was assessed with the

Worker Role Self-efficacy subscale of the Self-efficacy Expectations for Role

Management measure (SEERM; Lefcourt, 1992) (Appendix M). The SEERM was

originally developed to measure women's confidence in managing tasks within and

between life roles as an employee, parent, spouse/partner, and individual. Fourteen items

comprise the Worker Role Self-efficacy subscale, which measures confidence in

completing work tasks and being successful within this role. Items describe work related

tasks, responsibilities, and situations. Sample items include "Fulfill goals I set and

personal expectations at work", "Handle a major crisis at work", and "Manage time spent working on tasks within my worker role". Instructions ask respondents to indicate on a Likert scale from 1 (no confidence) to 10 (complete confidence) how much confidence they have to do each task should the occasion arise.

In a study of 292 women who were engaged in some combination of multiple roles, Lefcourt (1995) found that the 61 item measure formed a four factor solution. The factor based scales resulted in internal consistencies ranging from .85 to .90 and test-retest reliability over a two week period ranging from .73 to .88. The first factor, named the Worker subscale, accounted for 27% of the variance, and demonstrated adequate internal consistency (Cronbach alpha = .89) and test-retest reliability (r = .77) over a period of two to four weeks.

Evidence for discriminant validity of the Worker Role Self-efficacy scale was demonstrated by medium sized, statistically significant relationships with self-esteem (r = .48) and social desirability (r = .30). Lefcourt (1995) argued that although the constructs were related, findings indicated that they measured different aspects of self-concept. Construct validity was explored by investigating the relationship of worker role self-efficacy to the four sources of information which theoretically influence self-efficacy development: performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. Evidence of construct validity was demonstrated by significant, medium sized correlations between worker role self-efficacy and on-the-job performance accomplishments, such as the amount of verbal praise (r = .33) participants received at work and the number of rewards (e.g., bonuses, raises, promotions) for work efforts (r = .32). Additionally, verbal persuasion, as measured by spouse/partners' support for

participants' career aspirations, was significantly correlated with worker role self-efficacy

(r = .23). Cronbach alpha for worker role self-efficacy in this study was .91.

Analyses

Missing data. Prior to any analysis, completed surveys were reviewed for invalid

and missing data. It was decided *a priori* that surveys missing more than 5% of

responses would not be included in the analysis. For other participants, instrument means

(rounded to the nearest integer value) at the scale level were submitted for missing items.

Data were collected via SurveyMonkey, converted into SPSS format, and manually

confirmed to minimize data entry errors. Next, each of the six measures (WAI,

DUWAS-10, UWES-17, MBI-GS, PSSE, and Worker Role Self-efficacy Scale of the

SEERM) in the questionnaire were scored for each respondent.

Confirmatory factor analysis. Confirmatory factor analysis (CFA) was used to

determine the structural validity of the instrument. This type of analysis has been

deemed most appropriate to confirm the factorial composition of the WAI because of the

underlying theory and results of the exploratory factor analysis during the initial

validation study. CFA allows a researcher to assess the degree to which the plausibility

of a factor model is empirically confirmed (Kim & Mueller, 1978).

Generally, there are three decision points in a confirmatory factor analysis: (a)

choosing a confirmatory factor analysis approach, (b) defining the factor model, and (c)

evaluating model fit. The WAI was developed based on the theory of addiction which

emphasizes three overarching dimensions: affect, cognition, and behavior (Smith &

Seymour, 2004). Each WAI subscale includes items from all three dimensions.

Additionally, results of the initial exploratory factor analysis resulted in a three factor

solution (Bryan, 2009). Thus, it was anticipated that a confirmatory factor analysis of the WAI would also result in a three factor solution.

In this study, the factor structure was explored using the structural equation model approach to CFA with the support of the AMOS (2010) software program. Several criteria were utilized to determine if the number of hypothesized factors adequately explained the WAI data (Kim & Mueller, 1978; Loehlin, 1998). Maximum likelihood factor extraction was used with the overall objective of finding the factor solution to best fit the observed correlations (Kim & Mueller, 1978). With the number of factors hypothesized *a priori*, the factor solution was then derived according to the hypotheses (Harman, 1960). However, use of a maximum likelihood solution assumes that the observed data comprise a sample from a population where the distribution of variables and factors is normal (Kim & Mueller, 1978). If any of the variable distributions departed widely from normality, the variable was dropped (Gorsuch, 1974). Therefore, estimates of skewness and kurtosis for each item were assessed prior to computing the factor analysis. Items with absolute values greater than 3.0 on the skew index and 10 on the kurtosis index were considered problematic (Weston & Gore, 2006).

The three-factor model, as well as other plausible models (e.g., one factor model), were evaluated to determine how well they fit the data. Weston and Gore (2006) suggested that model fit may be determined by checking the statistical significance and strength of each estimated parameter, examining the variance that has been accounted for by the model, and assessing how well the proposed model fits the actual data. Model fit was examined with several goodness of fit indices. One index was chi-square, which indicates the difference between model reproduced covariances and the actual

covariances. Large, statistically significant chi-square statistics indicate poor model fit. However, other indices are typically used because of problems associated with the chi-square (e.g., adverse effects of large sample sizes on chi square statistics). Three other goodness of fit indices were used to assess model fit, the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA) and its 90% confidence interval, and the Standardized Root Mean Square Residual (SRMR). CFI may range from 0 to 1.0, with values closer to 1 indicating a better fit to the data. CFI values greater than .90, and preferably at or above .95, were considered acceptable (Hu & Bentler, 1999). Lower RMSEA and SRMR values indicated better fit, with values of .06 or lower and .08 or lower, respectively, being optimal (Hu & Bentler, 1999).

In addition to goodness of fit evaluations, residuals were examined for specific information about the difference between the observed correlations and the estimated correlations based on the 3-factor model. Magnitudes of residuals were an indication of how well the fitted model reproduced the observed correlations. Therefore, if residuals were large, the model was deemed not to fit the data well (Norusis, 1988). Standardized residuals greater then 1.96 were deemed an indication of poor model fit (Brown, 2006).

Convergent validity. To assess convergent validity, Pearson correlations were used to determine the degree to which the WAI related to the DUWAS-10. Due to the complexity of the WAI's subscales, the relationship between the DUWAS-10 and the WAI total score, in addition to each of the three WAI subscale scores, were explored. It was expected that correlations would be high (e.g., $\geq$ .50) between each of the WAI and DUWAS-10 total and subscale scores.

Discriminant validity. The Pearson correlation coefficient for the relationship between the WAI and work engagement (UWES-17) was used to estimate discriminant validity.

Criterion-related validity. To estimate criterion-related validity, correlations were calculated between the WAI and average hours worked per week and burnout (MBI-GS).

Internal consistency and test-retest reliability. To assess test-retest reliability, Pearson correlations were used to determine the relationship between two administrations of the WAI given to a single subset of participants over a 2-week period. Internal consistency reliability for WAI total and subscales were measured with Cronbach's alpha.

Cluster analysis. A cluster analysis was implemented to determine whether results of the WAI could be organized into meaningful categories and if evidence of workaholism taxonomies exist as suggested by other researchers (Spence & Robbins, 1992).

An agglomerative, hierarchical cluster analysis exclusively based on the WAI factor scores was used to identify potential clusters. In hierarchical cluster analysis, each observation starts out as its own cluster, and subsequently new clusters are formed by the combination of the most similar clusters until either all clusters are grouped into one cluster or the researcher considers that a parsimonious solution has been achieved (Tan, Steinbach, & Kumar, 2006).

The cluster analysis decision process suggested by Hair, Anderson, Tatham, and Black (1998) was used as a guide for this study. First, cases were reviewed to ensure there were no missing data. Second, all variables were standardized using z scores (mean

of 0 and a standard deviation of 1), which is standard procedure in cluster analyses. Third, the univariate distributions were inspected for normality, with cases with standard scores greater than 3 identified as outliers and removed from further analysis. Next, cluster analyses were conducted using Ward's method and the squared Euclidean distance to determine levels of similarity between cases. Ward's method was used to minimize the within cluster differences and to avoid problems with forming long, snake-like chains found in other methods (Aldenderfer & Blashfield, 1984).

SPSS cluster analysis output included the list of cases and related factor scores, an agglomeration schedule, a vertical icicle plot, and a dendrogram. The dendrogram, a visual representation of the agglomeration schedule, was reviewed to determine the number of clusters. This preliminary decision was made from examining the dendrogram for small distances between longer lines preferably on the right hand side of the scaled dendrogram, with more similar cases clustering together. However, because dendrogram interpretation is subjective, the agglomeration schedule was also reviewed to identify the point at which the increase of similarity coefficients between two adjacent cluster stages is large relative to the preceding and following cluster stages.

Due to the instability of solutions from cluster analyses, a k-means cluster analysis was used to confirm the initial solution. K-means clustering is non hierarchical and assigns cases into clusters using nearest centroid sorting and requires the number of clusters to be pre-specified (Tan et al., 2006). The centroid values and number of clusters obtained from the hierarchical solution was used as the basis for the k-means clustering. In this way, the non hierarchical methods were used to verify the results of the hierarchical methods (Hair et al., 1998).

Hierarchical regression analyses. Finally, hierarchical multiple regressions predicting each criterion were conducted, entering the DUWAS-10 and the WAI subscales at the first and second steps, respectively. These regression analyses were used to explore whether the WAI accounts for unique variance beyond the more established workaholism measure, the DUWAS-10, in predicting each criterion (i.e., hours worked, burnout).

CHAPTER 4

Results

To assess the psychometric properties of the WAI, items were first factor analyzed, and then internal consistency estimates, test-retest reliabilities, and intercorrelations among the resulting scales were calculated. Next, the WAI's convergent and discriminant validity was examined in relation, respectively, to work addiction (assessed by the DUWAS-10) and work engagement (assessed by the UWES-17). In addition, relationships between the WAI and several criterion variables, such as average work hours per week and worker burnout (assessed by the MBI-GS), were investigated. Potential relationships between the WAI and social self-efficacy (assessed by PSSE) and worker role self-efficacy were also explored. Subsequently, hierarchical multiple regressions predicting burnout and average hours worked per week were conducted, entering the DUWAS-10 and the WAI at the first and second steps of the equation, respectively, to explore whether the WAI accounted for unique predictive variance beyond the more established workaholism measure, the DUWAS-10. Finally, a cluster analysis was implemented to examine whether WAI scores could be organized into meaningful categories. The findings are grouped by hypothesis.

Hypothesis 1: Factor Structure of the WAI

It was hypothesized that the 3-factor structure of the WAI obtained in the initial validation study (Bryan, 2009) would be replicated in the present study. Confirmatory factor analysis (CFA) was used to determine the structural validity of the instrument. This type of analysis was deemed most appropriate to confirm the factorial composition of the WAI because of the underlying theory and results of the exploratory factor analysis

during the initial validation study (Bryan, 2009). CFA allows a researcher to assess the

degree to which the plausibility of a factor model is empirically confirmed (Kim &

Mueller, 1978).

      Examination of normality. The maximum-likelihood estimation procedure

produces more accurate parameter estimates, fit statistics, and standard errors when

normality assumptions are met (Enders, 2001). Therefore, the 24 WAI items included in

the measurement and structural models were examined for normality. A normal

distribution is a symmetrical dispersion of the values of a variable, or a bell-shaped curve

(Weinbach & Grinell, 2001). Skewness (≤ 1.59) and kurtosis (≤ 2.88) results showed that

none of the items exceeded the recommended cut-off points of 3.00 and 10.00,

respectively, suggesting that item scores were distributed reasonably normally (Kline,

1998). Mardia's kurtosis value was used to check for multivariate normality. Bentler and

Wu (2002) suggest that a normalized estimate greater than 5 will lead to chi-square and

standard error biases. The current study's Mardia normalized estimate was 12.55,

indicating multivariate kurtosis.

      The use of non-normal data in confirmatory factor analyses can result in an

inflated chi-square test statistic or deflated parameter estimates. To prevent such Type 1

errors in the current study, the Bollen-Stine bootstrapping procedure in AMOS was

utilized to correct for the bias introduced when data are markedly non-normal in

distribution (Bollen & Stine, 1993). Bootstrapping works by computing a new critical

value of the chi-square test of overall model fit. First, the input data are assumed to be

the total population of responses and the bootstrap program repeatedly draws samples,

with replacement. For each drawn sample, the input data are transformed to assume that

the fitted model is true. Next, the model is fit to the data and the obtained chi-square is

saved. This process is repeated across each of the bootstrap samples. At the conclusion of

the bootstrap sampling, the chi-square model fit statistics from each sample are combined

and the mean becomes the critical value for the chi-square test from the original analysis.

Fouladi (1998) found in a simulation study that the Bollen-Stine test of overall model fit

performed well relative to other methods of testing model fit, particularly in small

samples. Both ML estimation and Bollen-Stine bootstrapping results for Model 1 are

discussed below.

Model 1. For Model 1 (Figure 1), indicators of goodness-of-fit obtained through

the confirmatory analysis using ML estimates suggested poor fit to the data (Table 3).

Model 1, developed from the 3-factor model results of Bryan's 2009 study, proposed that

the 24 WAI items would each load uniquely on one of three latent constructs related to

workaholism: Work Absorption (Items 4, 5, 12, 13, 17, 19, 21, 22, 23), Work Attraction

(Items 3, 7, 11, 15, 16, 20, 24), and Relationship Implications (Items 1, 2, 6, 8, 9, 10, 14,

18). Ideally, evaluation of model fit should be examined from a multitude of perspectives

and be based on several criteria. Brown (2006) recommended that evaluation criteria

focus on adequacy of (a) parameter estimates and (b) the model as a whole. Weston and

Gore (2006) suggested that model fit be determined by checking the statistical

significance and strength of each estimated parameter, examining the variance that has

been accounted for by the model, and assessing how well the proposed model fits the

actual data.

Poor fit for the initial 3-factor model was reflected in several goodness of fit

indicators: $\chi^2 (df = 252) = 995.09$, $p < .001$, CFI $= .62$, SRMR $= .18$, and RMSEA $= .11$.

Examination of Model 1 parameter estimates revealed that one parameter, WAI item 9

("Working by myself is the best way to ensure that things get done correctly"), did not

load significantly on any factor. Additionally, many of the standardized residual results

exceeded the +/- 1.96 cut-off point for good fit (Brown, 2006).

To address the results of the Mardia test for multivariate non-normality, a Bollen-

Stine (1992) bootstrap technique of 2,000 iterations (Nevitt & Hancock, 2001) was

conducted in AMOS (Arbuckle, 2006). Using the established criteria, a p-value > .05

from the Bollen-Stine bootstrap would suggest that the data fit the model (Bollen, 1993).

Bollen-Stine bootstrap results for Model 1 of the current study resulted in Bollen-Stine *p*

= .00, indicating that the model did not fit the data after correcting for non-normality.

Thus, the results from the maximum likelihood estimation (ML) for normalized data and

the Bollen-Stine bootstrap method which corrects for non-normality both indicated a lack

of fit for Model 1, therefore, the hypothesis of good model-data fit for Model 1 was

rejected.
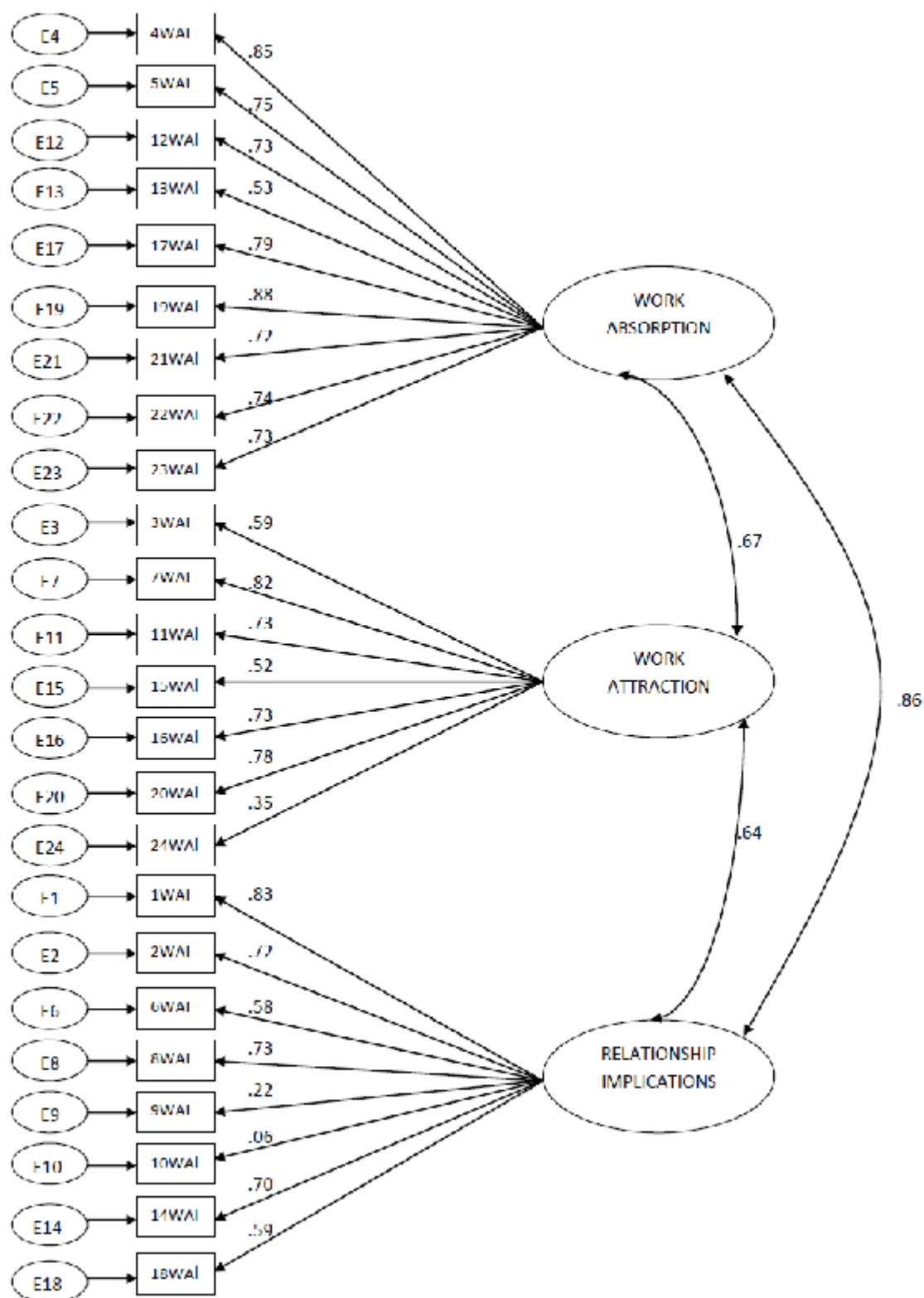
Figure 1. Model 1

Model 2. An alternative model, a single factor measure of work addiction was also considered based on previous research suggesting that workaholism might be unidimensional rather than the result of a more complex construct (Maslach, 1981; Mirnirth et al., 1991). However, results of the confirmatory factor analysis with a single factor underlying all 24 variables indicated that the fit was even less satisfactory than for Model 1 (3-factor): χ^2(df = 253)=1236.08, $p < .001$, SRMR = .16, CFI = .50, and RMSEA = .13. Bollen-Stine bootstrap results for Model 2 of the current study resulted in Bollen-Stine $p = .00$, indicating that Model 2 did not fit the data after accounting for non-normality.
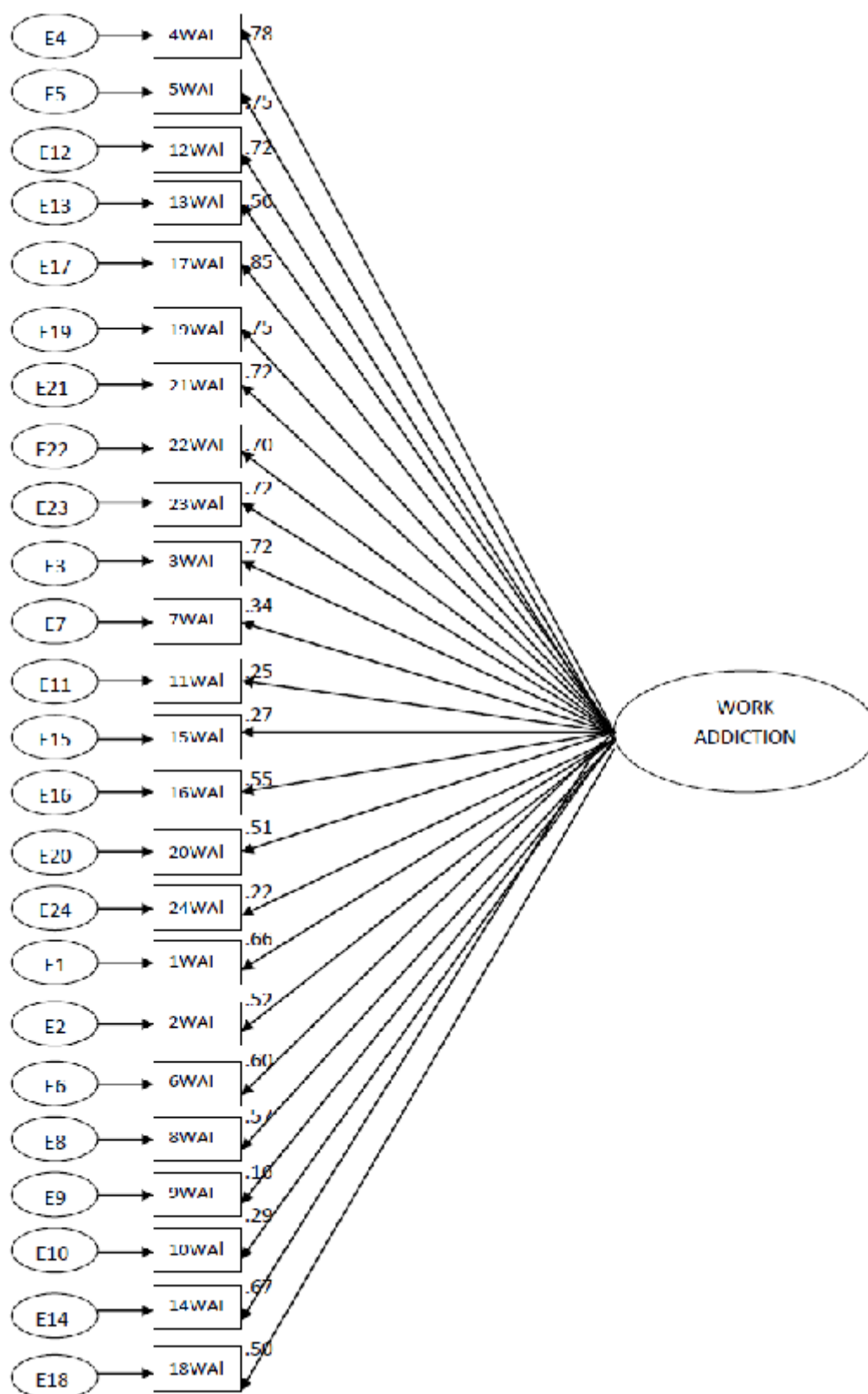
Figure 2. Model 2

Model 3. Post hoc model modifications were considered as a way to improve the fit of the original 3-factor model. However, it is important to note that such modifications are exploratory rather than strictly confirmatory in nature. The process of model respecification used in this study was driven by theory. In other words, model respecification based purely on the obtained covariance matrices (and possessing no theoretical rationale) was avoided.

According to Anderson and Gerbing (1988) there are four basic ways to respecify indicators: by relating the indicator to a different factor, by deleting the indicator from the model, by relating the indicator to multiple factors, or by using correlated measurement errors. Anderson and Gerbing (1988) recommend the use of the first two ways since "these approaches preserve the potential to have unidimensional measurement, without obscuring the meaning of the estimated underlying constructs."

Standardized residuals, modification indices, and factor loadings resulting from Model 1 were examined to identify possible alternative models. The modification indices suggested several linkages between error terms and also between error terms and factors other than those on which the corresponding item loaded. However, these modifications did not seem to be warranted at a conceptual level (Bagozzi 1983; Gerbing & Anderson 1984). Two items with low factor loadings (<.32) were removed (Worthington & Whittaker, 2006), specifically, items 9 and Item 10, "Working by myself is the best way to ensure that things get done correctly" and "I get annoyed when people interrupt me when I am working". However, the removal of these two items failed to substantially improve model fit on two of the three primary indicators of goodness of fit: χ^2(df = 209)=856.29, $p < .001$, SRMR = .19, CFI = .97, and RMSEA = .11. Bollen-Stine

bootstrap results for Model 3 of the current study resulted in Bollen-Stine p = .00,

indicating that Model 3 did not fit the data after correcting for non-normality.

Figure 3. Model 3

Table 3

Goodness of Fit Indicators for Three Measurement Models of the WAI

Model	df	X^2	X^2/df	CFI	SRMR	RMSEA	RMSEA 90%
Model 1	252	995.09	3.95	.62	.18	.11	.10-.12
Model 2	253	1236.08	4.89	.50	.16	.13	.12-.13
Model 3	209	856.29	4.10	.97	.19	.11	.11-.12

Exploratory factor analysis. This study's confirmatory factor analysis demonstrated that the *a priori* models (Models 1 and 2) did not provide adequate fit to the data. Similarly, post hoc modifications to the target 3-factor model (Model 3) failed to improve goodness of fit sufficiently. The researcher, therefore, considered the possibility that the original factors identified by Bryan (2009) did not accurately reflect the factor structure of the WAI in the current sample. As a result, an exploratory factor analysis based on a split of the data in the current study's sample ($N = 122$) was undertaken to identify a viable structure. Splitting of the sample data would allow for additional analyses to determine whether the factor structure identified in this study's EFA would replicate using the second half of the data set.

Principle axis factoring, which seeks the least amount of factors that can account for the common variance of a set of items (Gorsuch, 1989), was used to explore the factorial composition of the WAI's 24 items. The scree test and eigenvalues ≥ 1 criteria were examined to assess the number of obtained factors. Also, two criteria were used to select and anchor items in a given factor. First, items that loaded most highly and beyond .32 on a single factor were retained (Worthington & Whittaker, 2006). Second, where cross-loadings became an issue, items with loadings above .32 were anchored in the

factor on which they loaded most highly if their loadings showed a difference of >.15 between the highest loading and next highest loading factors (Worthington & Whittaker, 2006). An oblique rotational method was used, which assumes that the factors are correlated which is likely to be the case with most psychological measures (Gorsuch, 1997).

A review of the results suggested a 7-factor structure based on eigenvalues ≥ 1 after extraction. However, 2-, 3- or 6-factor solutions appeared more plausible after a review of the scree test (Figure 4). Using the aforementioned criteria for selecting and anchoring items, results of the oblique rotation solution suggested the best fit with a solution of 2 factors, accounting for 33% of the total variance. A 2-factor solution was also suggested by the very high correlation between two of the three factors in the 3-factor CFA reported above. Items were subsequently removed if they did not load above .32 on any given factor or if they loaded above .32 on two or more factors and the difference between the loadings was <.15. The resulting factors, eigenvalues, item content, and factor loadings are displayed in Table 4.
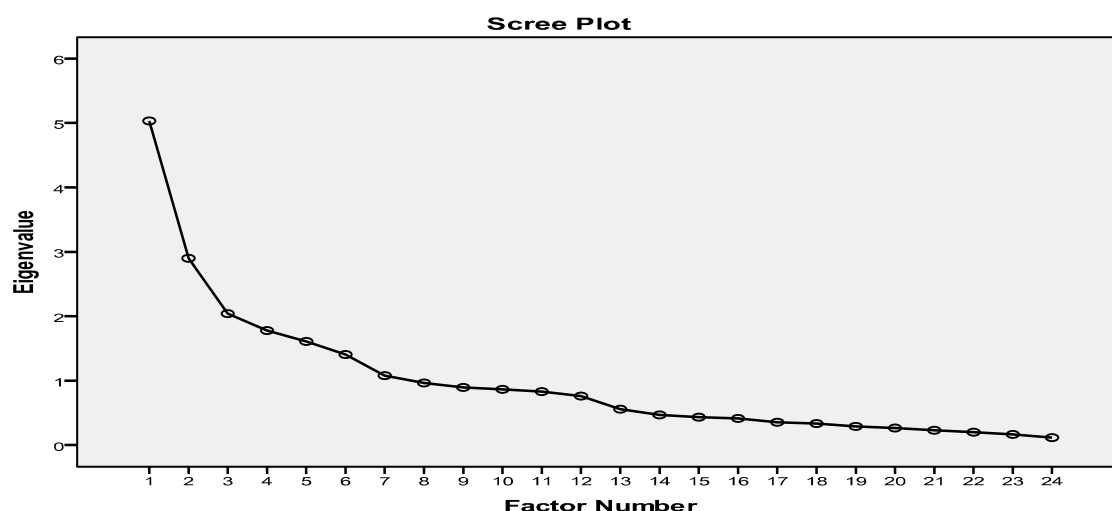
Figure 4. Scree Plot

Table 4

Items and Factor Loadings of the Work Addiction Inventory

Item	1	2	Skew	SE	Kurtosis	SE
1. Work Obsession (Factor 1), eigenvalue = 5.03						
My family and friends complain about the amount of time I spend working. (RI)	.49	-.29	.20	.16	-.10	.31
I lose sleep because I can not stop thinking about work.(AB)	.70	-.37	.22	.16	-.09	.31
I feel irritable or nervous when I am away from work for long periods of time. (AB)	.50	.13	.64	.16	.04	.31
I check my work email and voice messages during non-work hours. (AB)	.52	.08	-.46	.16	-.74	.31
I find that I spend more time at work than with my partner, family, and friends. (RI)	.45	-.03	.13	.16	-.94	.31
I am preoccupied with work during vacations, holidays, and other non-work hours. (AB)	.75	.03	.54	.16	-.23	.31
I find myself thinking about work during social activities. (AB)	.80	-.22	.44	.16	.12	.31
I feel guilty when I am not working. (AB)	.60	.19	-.54	.16	-.54	.31
When I leave work I do not think about the job until I return. [a] (AB)	.77	-.07	-.19	.16	-.48	.31
It is difficult for me to relax when I am not working. (AB)	.63	-.06	.83	.16	.13	.31

2. Work Enthusiasm (Factor 2), eigenvalue = 2.90						
Having free time for hobbies and non work activities is important to me. [a] (AT)	.08	.40	.99	.16	.51	.31
Given the choice, I would rather work than not. (AT)	-.20	.44	-.13	.16	-.93	.31
I feel more fulfilled when I am with friends and family than when I am working. [a] (AT)	.09	.50	.20	.16	-.96	.31
I get more excited about working than anything else. (AT)	.17	.65	.05	.16	-.87	.31
I would rather spend time working than doing anything else. (AT)	.40	.56	1.20	.16	1.91	.31
3. Removed Items						
I hide how much I work from others. (RI)	.11	.11	.93	.16	.15	.31
My social life suffers as a result of my work and work-related responsibilities. (RI)	.23	-.38	.36	.16	-.20	.31
Working long hours has hurt my relationships with family and others. (RI)	.19	-.32	.69	.16	.06	.31
Working by myself is the best way to ensure that things get done correctly. (RI)	.05	-.03	-.16	.16	.47	.31
I get annoyed when people interrupt me when I am working. (RI)	-.08	.19	.07	.16	.37	.31
I have more energy away from work. [a] (AT)	.10	.30	-.20	.16	-.04	.31
My job negatively impacts my	.20	-.26	.55	.16	-.30	.31

health. (RI)

I tend to get engrossed in my work. (AB)	.38	.29	-.39	.16	.07	.31
I value time away from work. [a] (AT)	-.05	.09	1.62	.16	2.95	.31

Note. $N = 122$. The Work Obsession and Work Enthusiasm scales accounted for 21% and 12% respectively, of the total variance. Factor loadings were obtained with the rotated structure matrix of the oblique solution. [a] Indicates reverse scored items. RI, AB, AT denote the original Relationship Implications, Work Absorption, and Work Attraction factors, respectively, item-factor composition in Bryan's (2009) measure development study.

The two factors were re-labeled Work Obsession (Factor 1) and Work Enthusiasm (Factor 2) to better reflect the item content on the respective factors. Work Obsession (10 items) consists of items demonstrating a compulsive, unhealthy preoccupation with work, including the tendency to approach work in ways that adversely affect one's personal and professional relationships. Work Enthusiasm (5 items), on the other hand, reflects the tendency to prefer work over other activities, without the connotation that this preference is necessarily unhealthy or excessive. All items loaded at least moderately (above .40) on their corresponding factors.

Interestingly, there was substantial overlap between the factor structure that resulted from Bryan's (2009) initial exploratory factor analysis and the outcome of this study. However, there were also substantial differences. This exploratory factor analysis resulted in 2 factors (while the exploratory analysis from the 2009 study resulted in 3 factors) and the number of items per factor changed. In addition, the content of the items were altered such that this study's Work Obsession factor contains items from both the 2009 Absorption and Relationship Implications subscales. The Work Enthusiasm subscale now contains 5 items, all of which were also on the 2009 Attraction subscale.

Confirmatory factor analysis of the two factor model. A confirmatory factor analysis using item parceling was undertaken on the second half of this study's sample data ($N = 122$) to confirm or disconfirm the new 2-factor structure. Although sometimes considered a controversial method in structural equation modeling (SEM), evidence from theoretical and applied studies indicate that item parceling is an advantageous tool in the study of underlying structures among latent variables (Bagozzi & Heatherton, 1994; Bandalos, 2002; MacCallum et al., 1999; Manhart, 1996; Nasser & Takahashi, 2003). Item parceling can reduce the number of parameters estimated in relation to sample size, resulting in more stable parameter estimates and proper solutions of model fit (Bagozzi & Heatherton, 1994; Bagozzi & Edwards, 1998; Little, Cunningham, Shahar, & Widaman, 2002). Further, findings suggest that item parceling improves the normality of score distributions compared to the original items (Bandols, 2002; Thompson & Melancon, 1996). Given the reduced sample size to be used in this CFA, it was reasoned that item parcels would produce a more acceptable sample to parameter estimate ratio than would be possible with use of individual items as indicators (Bentler & Chou, 1987).

For this analysis, items were randomly assigned and averaged to create item parcels for each of the two latent dimensions (Table 5). This resulted in four item parcels for Work Obsession (Factor 1) and two item parcels for Work Enthusiasm (Factor 2). Confirmatory factor analysis (CFA) with item parcels was then used to determine whether the 2-factor structure obtained in the EFA in the first half of the sample would replicate in the second half of the sample.

Table 5

Item Parcel Assignments

Parcel Name	Original Items
Obsession Parcel 1	1, 14, 23
Obsession Parcel 2	4, 19
Obsession Parcel 3	5, 12, 22
Obsession Parcel 4	17, 21
Enthusiasm Parcel 1	3, 15, 20
Enthusiasm Parcel 2	7, 16

Examination of normality. As mentioned previously in the Results section, the maximum-likelihood estimation procedure produces more accurate parameter estimates, fit statistics, and standard errors when normality assumptions are met (Enders, 2001). Therefore, the 6 WAI item parcels were examined for normality. Table 6 shows each parcel's mean, standard deviation, skewness, and kurtosis. Skewness ($\leq .61$) and kurtosis ($\leq .72$) results showed that the score distributions did not depart significantly from univariate normality. Mardia's normalized estimate was 3.15, suggesting reasonable multivariate normality of the item parcels. As a result, ML estimation procedures were used to test model-data fit.

Table 6

Item Parcels Means, Standard Deviations, Skew, and Kurtosis

Item Parcel	X	SD	Skew	SE	Kurtosis	SE
Obsession Parcel 1 (1, 14, 23)	2.93	1.61	.21	.22	-.31	.44
Obsession Parcel 2 (4, 19)	2.22	1.22	-.05	.22	-.57	.44
Obsession Parcel 3 (5, 12, 22)	4.81	2.43	.05	.22	-.56	.44
Obsession Parcel 4 (17, 21)	1.84	1.43	.45	.22	-.05	.44
Enthusiasm Parcel 1 (3, 15, 20)	2.23	1.77	.61	.22	-.19	.44
Enthusiasm Parcel 2 (7, 16)	2.72	1.56	-.13	.22	-.70	.44

Test of the 2-factor model. The CFA of the new 2-factor model, shown in Figure 5, yielded indications of good model-data fit on two of the three primary fit indices: χ^2(df = 8) = 16.76, *p* = .03, CFI = .96, and SRMR = .06. The third fit index, RMSEA = .10, suggested less than optimal fit. However, Hu and Bentler (1999) found that the RMSEA has limitations as a fit index in samples sizes of 250 or less, which is the case in the current situation.
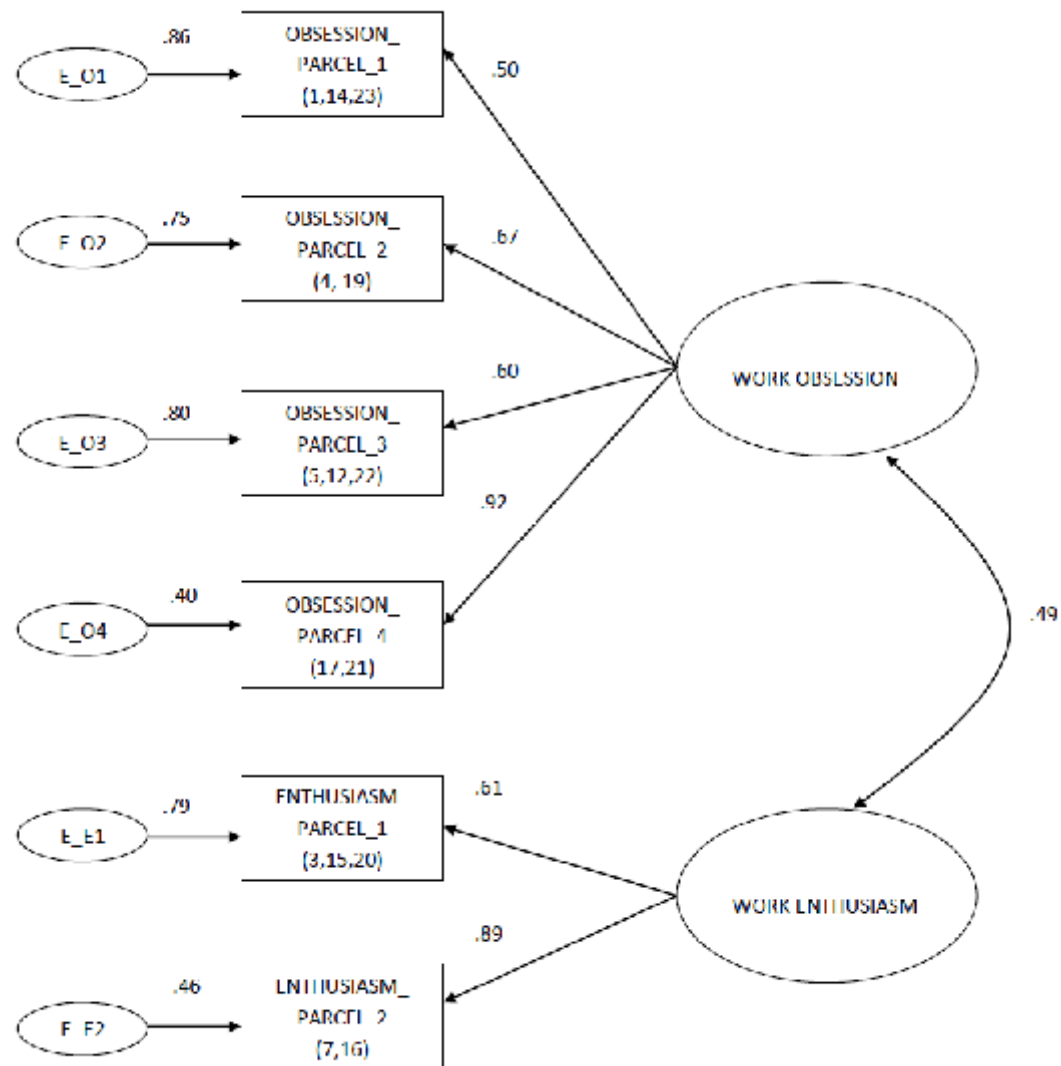
Figure 5. CFA of the new 2-factor model.

Test of an alternative one-factor model. Similar to this study's initial confirmatory factor analyses, it is important to test other plausible models. Thus, an alternative model of a single factor measure of work addiction was also considered based on previous research suggesting that workaholism might be unidimensional rather than a more complex construct (Maslach, 1981; Mirnirth et al., 1991). Results of the CFA of a single-factor model, however, produced poor fit to the data (see Figure 6): χ^2(df =

9)=44.15, p = .00, SRMR = .10, CFI = .83, and RMSEA = .18. In addition, direct comparison of the two models using the χ^2 difference test revealed that the 2-factor model fit the data significantly better than did the alternative, one-factor model $\Delta \chi^2 (1) =$ 27.39, $p < .001$.
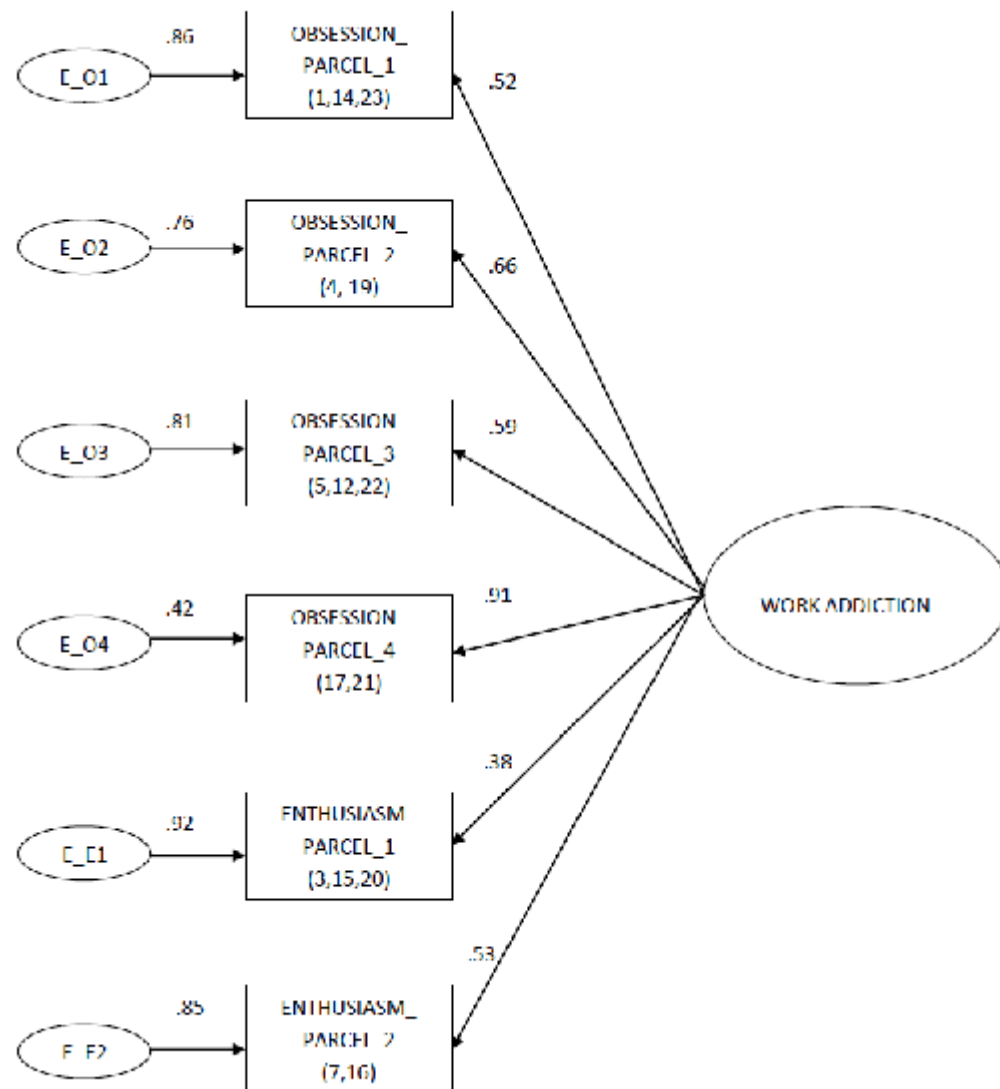
Figure 6. Model 2 – 1 factor with item parcels.

The original hypotheses for this study were based on Bryan's (2009) 3-factor solution, which had not been confirmed by the present findings. Because an alternative 2-factor representation of the WAI appeared both more plausible and replicable in the current sample, the remaining hypotheses were tested using the revised 15-item WAI and the full data set ($N = 244$).

Hypothesis 2: Reliability of the WAI

It was predicted that the WAI total and subscales would produce adequate estimates of both internal consistency and test/retest reliability. The intercorrelations, means, standard deviations, as well as internal consistencies (Cronbach's alpha) and 2-week test-retest reliabilities for each WAI subscale, including the total scale score, are displayed in Table 7. Internal consistency reliabilities of the WAI subscale scores ranged from .68 (Work Enthusiasm) to .87 (Work Obsession) and the reliability of the WAI total score was .85. Test-retest reliabilities of the WAI subscale scores ranged from .78 (Work Enthusiasm) to .90 (Work Obsession), whereas that of the WAI total score was .92. Thus, hypothesis 2 was supported. As expected, the two WAI subscales correlated with each other significantly ($r = .35$, $p < .01$), indicating that they are related but likely measure distinctive aspects of work addiction. Not surprisingly, the subscale scores correlated substantially with the WAI total score; for Work Enthusiasm, $r = .65$, for Work Obsession, $r = .94$.

The intercorrelations, means, standard deviations, and internal consistency values (Cronbach alphas) for each of the other measures, are also displayed in Table 7. Internal consistency reliability estimates for these measures varied from .73 (Burnout) to .95 (Social Self-efficacy).

Table 7

Correlations, Means, Standard Deviations, and Reliability Coefficients of the Predictors and Dependent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. WAI-Obsession	--														
2. WAI-Enthusiasm	.35**	--													
3. WAI-Total	.94**	.65**	--												
4. Work Compulsively	.53**	.22**	.51**	.--											
5. Work Excessively	.64**	.31**	.61**	.58**	--										
6. DUWAS - Total	.65**	.30**	.64**	.16**.	.88**	--									
7. Vigor	.02	.23**	.10	.11	-.04	.21**	--								
8. Dedication	.02	.20**	.09	.08	.22*	.19**	.80**	--							
9. Absorption	.26**	.35**	.34**	.27**	.02	.40**	.78**	.74**	--						
10. Work Engagement	.11	.28**	.19**	.57**	.36**	.29**	.93**	.92**	.91**	--					
11. Burnout	.13*	-.15*	.05	-.04	-.11	-.08	-.50**	-.67**	-.47**	-.60**	--				
12. Cynicism	.12	-.10	-.06	.06	.05	.07	-60**	-.68**	-.48**	-.64**	.55**	--			
13. Profess Efficacy	-.04	.05	-.01	.10	.20**	.15*	.63**	.72**	.55**	.69**	.58**	.99**	--		
14. Exhaustion	.32**	-.04	.25**	.33**	.38**	.40**	-.29	-.20**	-.07	-.21**	.34**	.99**	.99**	--	
15. Ave Hours Per Wk	.36**	.06	.31**	.23**	.30**	.23**	.28**	.12	.23**	.23**	-.08	-.05	.17**	.03	--
16. Social SE	-.01	-.06	-.03	.01	.04	.03	.12	.01	.02	.05	-.04	-.14**	-.03	-.09	.04
17. Worker Role SE	-.08	-.16*	-.13*	.00	.07	.04	.33**	.18**	.15*	.24**	-.20**	.12	.33**	-.12	.20*
M	15.60	5.80	21.40	2.58	2.74	5.33	3.68	3.96	3.46	3.68	61.22	14.04	34.05	18.24	46.5
SD	6.94	3.15	8.56	0.58	.54	1.00	.95	1.27	.98	.95	6.89	63.51	61.86	62.91	11.2
α	.86	.68	.85	.76	.75	.83	.83	.94	.83	.95	.73	.85	.78	.85	.91

Note. N ranged from 239 to 244 because of missing values. * Correlations $p < .05$ ** Correlations $p < .01$.

Hypothesis 3: Convergent Validity

It was hypothesized that the WAI total score would have a high positive relationship with the DUWAS-10, an existing measure of workaholism. The correlation of the WAI and DUWAS-10 total scale scores was $r = .64$ (p < .01), indicating a large, positive, statistically significant correlation. Thus, hypothesis 3 was supported. The WAI total scale also correlated positively with the two DUWAS-10 subscales, Working Excessively ($r = .61$, p < .01) and Working Compulsively ($r = .51$, p < .01). Additionally, positive, statistically significant correlations were also found between the subscales of both measures, ranging from .22 to .64.

Hypothesis 4: Discriminant Validity

It was expected that the WAI would yield a small, positive relationship with work engagement. A small correlation would suggest that workaholism represents a concept that is more complex than just being highly involved in one's job, and that the compulsive drive of workaholics is a distinguishing component between addiction and engagement. The discriminant validity of the WAI was supported by a low correlation between the WAI total measure and work engagement ($r = .19$). Each of the WAI subscales also resulted in low correlations with work engagement (Work Obsession, r =.11; Work Enthusiasm, $r = .28$). Thus, hypothesis 4 was largely supported, though the work enthusiasm factor of the WAI did relate to work engagement, which connotes a positive attachment to work. It should be noted that UWES-17, the measure used to assess work engagement in this study, consists of three subscales, all of which resulted in relatively small to moderate correlations with each of the WAI subscales (the r's ranged from .02 to .35).

Hypothesis 5: Criterion-related Validity

It was predicted that the WAI would yield a medium to strong, positive relationship with burnout. A medium to strong correlation would provide preliminary support for the theory that workaholism could be a root cause of burnout. The correlation of the WAI total score and burnout was $r = .05$, reflecting a small, non-significant relationship. Correlations between the WAI total score and the three burnout subscales were as follows: Exhaustion ($r = .25$), Cynicism ($r = .06$) and Professional Efficacy ($r = -.01$). Thus, hypothesis 5 was not supported, at least at the WAI total score level. However, the WAI's Work Obsession subscale did correlate moderately and significantly with the MBI's Exhaustion subscale, $r = .32$, p < .01.

Hypothesis 6: Criterion-related Validity

It was hypothesized that workaholism would have a medium, positive correlation with average work hours per week. The correlation of the WAI total score and average work hours per week was $r = .31$ ($p < .01$), indicating that workaholism and work hours per week are moderately, positively correlated. Thus, hypothesis 6 was supported. A moderate, statistically significant correlation was also found between average work hours per week and the Work Obsession subscale ($r = .36$). Only a small, non-significant correlation was found between work hours per week and Work Enthusiasm ($r = .06$).

Hypothesis 7: Criterion-related Validity

It was predicted that workaholism would be moderately and negatively related to social self-efficacy. The correlation of the WAI total score and social self-efficacy was $r = -.03$, indicating that workaholism and social self-efficacy were not significantly correlated. Each of the WAI subscales also resulted in small, negative, non-significant

correlations with social self-efficacy (Work Obsession, $r = -.01$; Work Enthusiasm, $r = -.05$).

Workaholism was also expected to be moderately and positively related to worker role self-efficacy. The correlation of the WAI total score and worker role self-efficacy was $r = -.13$, indicating that workaholism and worker role self-efficacy have a small, negative, and statistically significant relationship. Similarly, each of the WAI subscales resulted in small, negative correlations with worker role self-efficacy (Work Obsession, $r = -.08$; Work Enthusiasm, $r = -.16$). Thus, hypothesis 7 was not supported.

Hypothesis 8: Incremental Validity

It was predicted that the WAI would account for unique variance beyond the more established workaholism measure, the DUWAS-10, in predicting (a) average hours worked per week and (b) burnout. To test this hypothesis, a set of hierarchical regression analyses was conducted predicting burnout and work hours. In each equation, the DUWAS-10 subscales were entered at the first step and the WAI subscales were entered at the second step. Results, displayed in Table 8, showed that the WAI subscales accounted for significant unique variance ($p < .01$) beyond the scales of the DUWAS-10 in predicting average hours worked per week ($\Delta R^2 = .06$). As shown in Table 9, the WAI subscales also explained significant unique variation in burnout ($\Delta R^2 = .10$). Thus, hypothesis 8 was supported.

Table 8

Summary of Hierarchical Regression Analysis Testing WAI and DUWAS-10 as Predictors of Average Hours Worked Per Week

	Predictors	R	ΔR^2	df	ΔF	β
Model 1	Work Compulsively	.30	.09	244	12.43**	-.08
	Work Excessively					.34**
Model 2	Work Compulsively	.39	.06	242	9.03**	-.15
	Work Excessively					.20*
	Work Obsession					.34**
	Work Enthusiasm					-.09

Table 9

Summary of Hierarchical Regression Analysis Testing WAI and DUWAS-10 as Predictors of Burnout

	Predictors	R	ΔR^2	df	ΔF	β
Model 1	Work Compulsively	.11	.01	243	1.51	.03
	Work Excessively					-.13
Model 2	Work Compulsively	.33	.10	241	13.23**	-.05
	Work Excessively					-.27**
	Work Obsession					.39**
	Work Enthusiasm					-.19**

Research Question 1: Does the WAI provide any empirical evidence of viable workaholic categories?

Cluster analysis. A number of analyses were used to explore this research question, beginning with cluster analysis. Clusters were created based on the two identified factors of the WAI: Work Obsession and Work Enthusiasm. First, an exploratory, hierarchical cluster analysis using Ward's linkage was conducted using SPSS. The initial cluster analysis resulted in 2-, 3-, and 4-cluster solutions. However, careful review of the agglomeration schedule (Appendix N) supplemented with the dendrogram (Figure 7) demonstrated that the 3-cluster solution was a better fit for the

data and the most interpretable solution. Subsequently, a second hierarchical cluster analysis was conducted specifying 3 clusters to clearly identify case assignment to each cluster. Finally, a k-means cluster analysis was utilized to verify the number of clusters identified in the hierarchical cluster analysis.
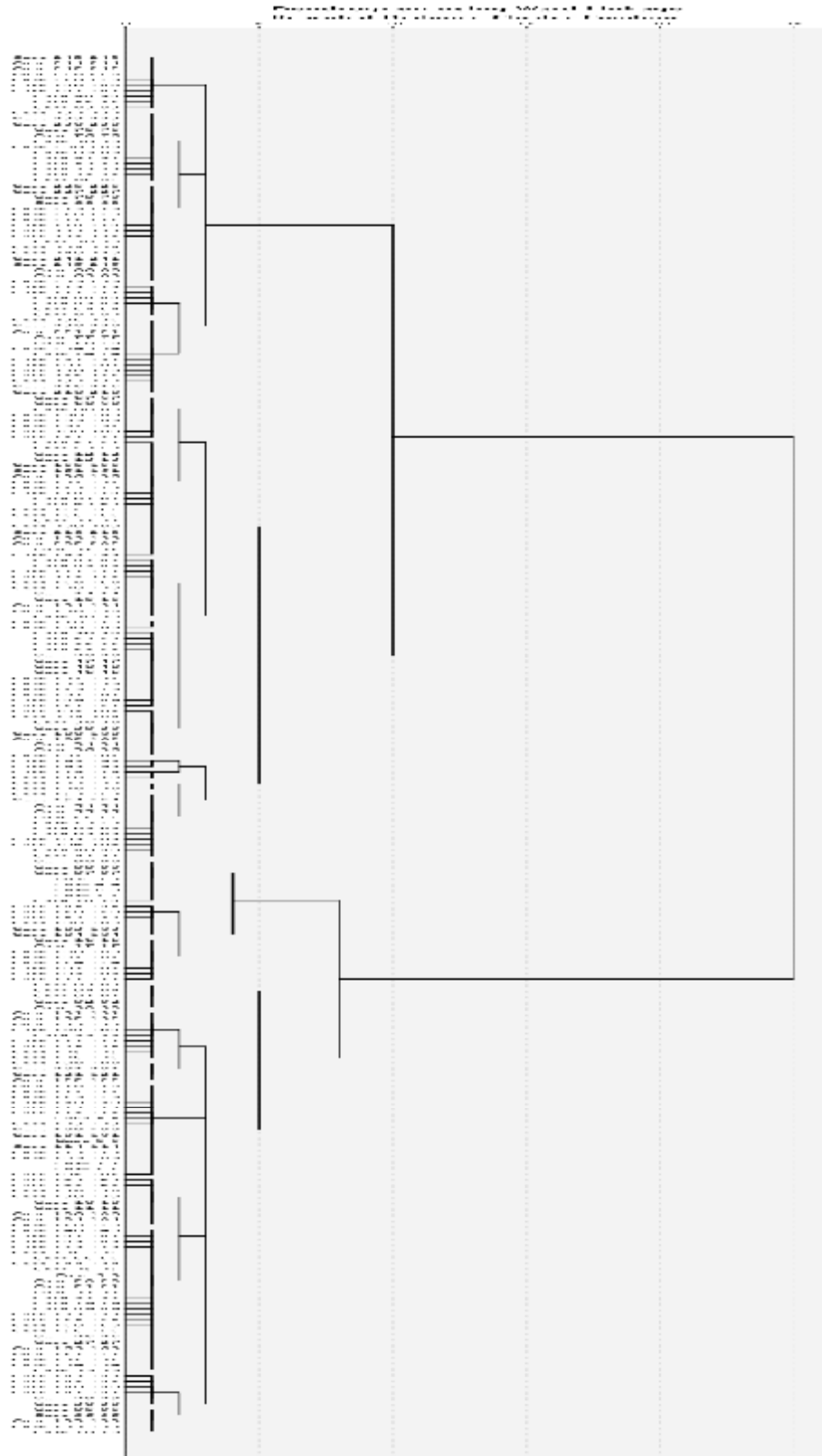
Figure 7. Dendrogram

The three-cluster solution was examined in terms of the differences among the means on the Work Obsession and Work Enthusiasm factors using one way ANOVA and post hoc analyses. All assumptions of ANOVA were examined and reported. Distances between final cluster centers were 3.13 (Cluster 1 and 2), 3.14 (Cluster 1 and 3), and 5.89 (Clusters 2 and 3). Scores on the WAI factors were approximately normally distributed. However, homogeneity of variance was not supported; therefore the Browne-Forsythe ratio is reported. There was a significant effect of cluster statuses on the Work Obsession and Work Enthusiasm factors $F (2, 123)=329.58$, $p < .05$ and $F (2, 86)=37.36$, $p < .05$, respectively. The Games-Howell procedure, which does not rely on the assumption of equal variances, was used to carry out post hoc tests to compare mean differences among the cluster statuses. Table 10 summarizes the means and significance levels of the differences obtained in post hoc testing.

Table 10

Means and Significance Levels of Cluster Differences

	Cluster Types			Sig. Diff
	Balanced	Unenthusiastic	Obsessive	
Obsession	16.11	8.55	26.38	Obs>Unenthus* Bal>Unenthus* Obs>Bal*
Enthusiasm	7.13	3.29	6.49	Obs>Unenthus* Bal>Unenthus*

Note: * denotes a mean difference at $p < .05$.

All three workaholism clusters contained at least 45 participants. In general, Cluster 1 had medium mean scores on both Work Obsession and Work Enthusiasm. Cluster 2 had the lowest mean scores on both Work Obsession and Work Enthusiasm. Cluster 3 had the highest mean scores on Work Obsession accompanied by lower mean

scores on Work Enthusiasm. Cut off scores for each factor was established by dividing the respective scale range into thirds and labeled low, moderate, and high, respectively. Consequently, the clusters were named depending on their respective elevations on the two factors, such that:

- Cluster 1 was named *Balanced Worker* (*N* =124, 51%);
- Cluster 2 was named *Unenthusiastic Worker* (*N* =78, 31%); and
- Cluster 3 was named *Obsessive Worker* (*N* =45, 18%).

More specifically, Cluster 1 (Balanced Worker) defined as the "Moderate Obsession/Moderate Enthusiasm" cluster, included 124 participants (50%). These workers reported moderate levels of Enthusiasm (*M* = 7.13, *SD* = 2.16) and moderate levels of Obsession (*M* = 16.11, *SD* = 2.61) in their jobs. Cluster 2 (Unenthusiastic Worker), defined as "Low Obsession/Low Enthusiasm" included participants (*N* = 78; 32%) who had the lowest levels of Obsession (*M* = 8.55, *SD* = 3.74) and Enthusiasm (*M* = 3.29, *SD* = 2.30). Cluster 3 (Obsessive Worker), defined as "High Obsession/Low Enthusiasm" included participants (*N* = 45; 18%) with the highest levels of Obsession (*M* = 26.38, *SD* = 4.25) and a moderate amount of Enthusiasm (*M* = 6.49, *SD* = 4.08). See Figures 8 and 9 for a graph of the means of each cluster, respectively, on Work Obsession and Work Enthusiasm.
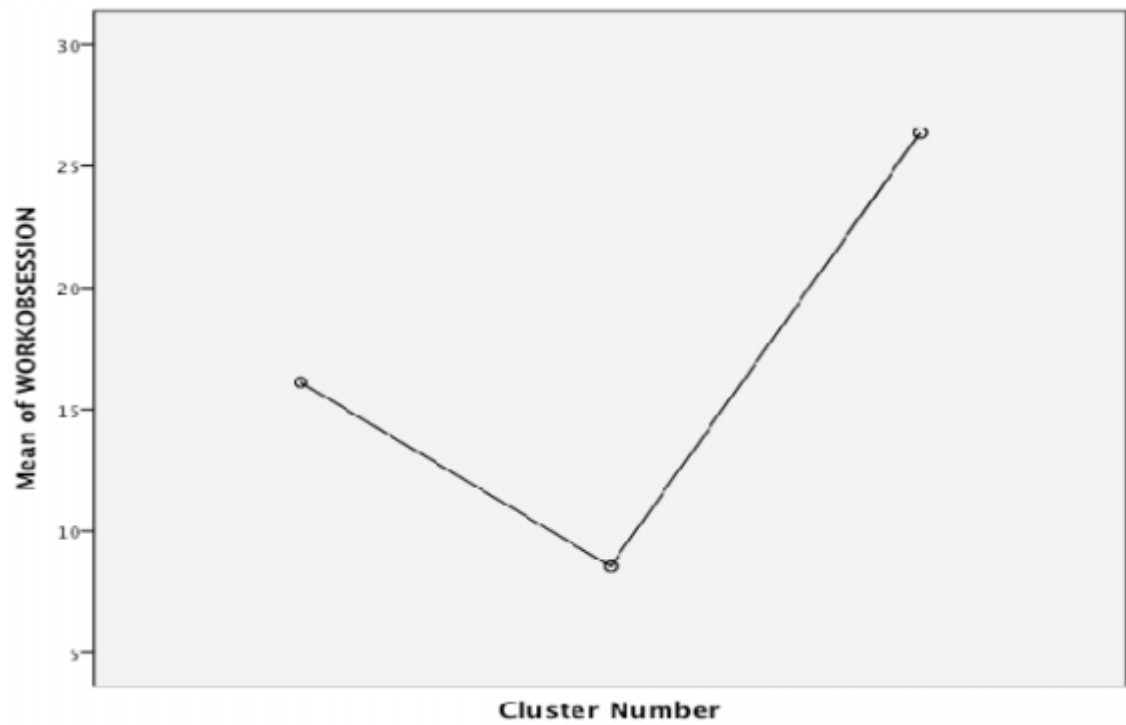
Figure 8. Means of Work Obsession by cluster
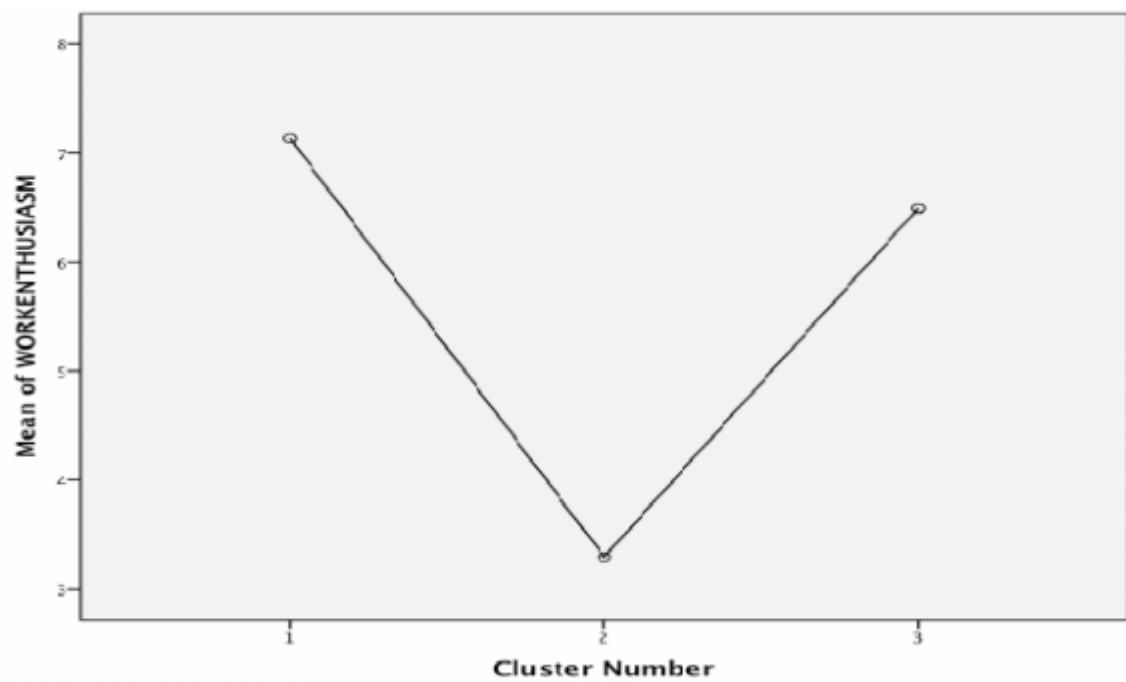
Figure 9. Means of Work Enthusiasm by cluster

Cluster demographic characteristics. Cluster differences on demographic characteristics were explored using one way ANOVA, followed by Games-Howell *post-hoc* tests for continuous variables and crosstabs for categorical variables (Table 11). ANOVA results revealed statistically significant differences between clusters on two continuous variables: average hours worked per week and annual salary, $F(2, 244) = 25.22$, $p < .05$ and $F(2, 244) = 6.72$, $p < .05$, respectively. Specifically average hours significantly differentiated between all three clusters suggesting that Obsessive Workers, Balanced Workers, and Unenthusiastic Workers generally work a different amount of weekly hours. Results indicated that average work hours per week for Obsessive Workers, Balanced Workers and Unenthusiastic Workers were 55.84, 45.85, and 42.33 respectively. Thus, on average, Obsessive Workers worked more than Balanced Workers, and Balanced Workers worked more than Unenthusiastic Workers. Average annual salaries for Obsessive Workers, Balanced Workers and Unenthusiastic Workers were $90,200, $76,400, and $63,400 respectively. Obsessive and Unenthusiastic Workers differed significantly on annual salary, with Obsessive Workers earning substantially more than Unenthusiastic Workers. None of the other cluster differences in salary were statistically significant, indicating that Balanced Workers tend to earn comparable salary levels to both Unenthusiastic and Obsessive Workers. Results also indicated that there were no significant mean differences between clusters for age, years in position, or number of dependents.

For categorical variables, findings revealed that the Balanced Worker is represented by 57% men and 43% women, and the Unenthusiastic Worker cluster consisted of more females (58%) than males (42%). By contrast, the Obsessive Worker

cluster consisted of 67% males and 33% females.   Results also indicated that the

majority of Obsessive Workers in this study identified as Caucasian (58%), while the

remainder of the cluster members self-identified as Black/African-American (29%),

Latino/Hispanic American (4%), and Asian American (9%).

Table 11

Cluster Differences on Demographic Characteristics

| | Cluster Types | | | Sig. Diff |
	Balanced	Unenthusiastic	Obsessive	
Age	39.83	39.59	42.11	
Dependents	.63	.68	.36	
# yrs in pos	5.95	6.00	6.29	
Salary	76.40	63.40	90.20	Obs>Unenthus*
Avg Hrs/Wk	45.85	42.33	55.84	Obs>Unenthus*
				Bal>Unenthus*
				Obs>Bal*

Note: * denotes a mean difference at *p* = .05.

Cluster groups and criterion variables. Similar to demographic characteristics,

cluster differences among criterion variables were also explored using one-way ANOVA,

followed by Games-Howell *post-hoc* tests for criterion variables (Table 12). ANOVA

results revealed statistically significant differences between clusters on three criterion

variables: exhaustion (a burnout subscale) ($F(2, 244) = 10.09$, p<.05), burnout ($F(2,$

$244) = 3.46$, p<.05), and work engagement ($F(2, 244) = 5.71$, p<.05). Exhaustion

significantly differentiated between clusters 1 and 3 as well as 2 and 3 suggesting that

Obsessive Workers reported higher levels of Exhaustion than both Balanced Workers and

Unenthusiastic Workers. However, there was no significant difference in reported levels

of Exhaustion between Balanced and Unenthusiastic Workers. Specifically, means on

the Exhaustion variable for Obsessive Workers, Balanced Workers, and Unenthusiastic

Workers were, respectively, 18.23, 13.52, and 13.13 respectively. For Burnout, clusters 1

($M = .04$) and 3 ($M = .16$) reported significantly different levels of burnout, with

Obsessed Workers reporting higher levels of burnout than Balanced Workers.

Additionally, only clusters 1 and 2 differed significantly on Work Engagement, with

Balanced Workers reporting higher work engagement than Unenthusiastic Workers. No

significant mean differences between clusters were found for social self-efficacy, worker

role self-efficacy, cynicism, or professional efficacy.

Table 12

Cluster Differences on Psychological Variables

	Cluster Types			Sig. Diff
	Balanced	Unenthusiastic	Obsessive	
Social SE	102.10	95.00	95.00	
Wk role SE	111.80	111.30	109.40	
Cynicism	9.35	10.48	11.23	
Prof efficacy	30.39	30.03	29.62	
Exhaustion	13.52	13.13	18.23	Obs>Unenthus* Obs>Bal*
Burnout	.04	.07	.16	Obs>Bal*
DUWAS-10	5.47	4.74	6.23	Obs>Bal* Bal>Unenthus* Obs>Unenthus*
Wk engage	3.84	3.38	3.77	Bal>Unenthus*

Note: * denotes a mean difference at *p* = .05.

CHAPTER 5

Discussion

Despite its widespread popularity for nearly forty years, research on workaholism remains in its infancy. Most of the existing empirical literature has investigated the effects of workaholism on individuals, families, and organizations. But considerable debate continues among researchers regarding a comprehensive definition, an underlying theory, and a valid measure of the construct of workaholism itself. Existing measurement tools, such as the WorkBAT (Spence & Robbins, 1992), the WART (Robinson, 1989), and the DUWAS-10 (Schaufeli et al., 2009), have been criticized for their construct definitions and factor structures. The lack of a comprehensive construct definition and an instrument to properly assess workaholism may have slowed progress in understanding work as an addiction and providing services to people and organizations impacted by this problem. Therefore, the purpose of the current project was: (a) to further validate and refine a new measure of workaholism proposed by Bryan (2009) and (b) to investigate a workaholism typology using the WAI and Bryan's conceptualization of workaholism.

For the purposes of this study, workaholism was defined *as the excessive engagement in work related activities and thoughts which significantly and negatively interfere with an individual's normal mental, emotional, and/or physical health.* Unlike the Spence and Robbins' (1992) WorkBAT scales which primarily assess attitudes and affect (Mudrack & Naughton, 2001), the WART (Robinson, 1989) which mostly taps general (rather than work-specific) Type A behaviors, and the DUWAS-10 (Schaufeli et al., 2009), the WAI is intended to tap three different overarching dimensions of work

addiction: affect, cognition, *and* behavior (Smith & Seymour, 2004). None of the preceding workaholism measures were developed using such a multidimensional conception but rather each only emphasized one or two of the aforementioned dimensions.

Overall, the hypotheses in this study were partially confirmed by the results. Although the initial WAI three-factor structure (Bryan, 2009) was not replicated, items of the WAI supported a multi-factor (specifically, 2-factor) solution and the WAI total and subscale scores produced adequate estimates of internal consistency reliability ($\alpha = .68$ to .87). Test-retest correlation over a two-week period for WAI total scores was $r = .92$, with test-retest result for subscales ranging from .78 (Work Enthusiasm) to .90 (Work Obsession). As evidence of convergent validity, the WAI and DUWAS-10 total scores correlated positively and significantly with each other ($r = .64$). In terms of discriminant validity, there were low correlations between the WAI total and subscale measures and work engagement ($r = .11$ to .28).

Relationships between the WAI scales and each of the criterion variables differed, producing mixed results regarding criterion-related validity. The WAI total scale score was significantly correlated with average hours worked per week ($r = .31$, p < .01), but not with burnout ($r = .05$), social self efficacy ($r = -.03$), or worker role self efficacy ($r = -.13$). Supplemental analyses revealed that the WAI scales accounted for statistically significant variance in predicting average hours worked per week ($\Delta R^2 = .06$) and burnout ($\Delta R^2 = .10$) beyond the DUWAS-10. Implications of the above findings are discussed in greater detail in the following sections.

Factor Structure of the WAI

Findings of the current study provided additional support for the validity and internal consistency reliability of WAI scores. The factor analysis failed to confirm the three factor model found in the initial validation study (Bryan, 2009). Despite several proposed modifications to the model, including testing a single factor model, model fit for the 24-item WAI did not improve significantly. Consequently, the factor structure was investigated using a second exploratory factor analysis. Results of the exploratory factor analysis suggested that a streamlined (15-item) version of the WAI consists of two, rather than three, correlated factors. Failure to confirm the initial three factor model has possible implications for the WAI's underlying theory of addiction. Initial WAI items were developed on the conceptualization of addiction consisting of cognitive, affective and behavioral attributes which manifested in the three-factor model identified in Bryan's (2009) first validation study. However, further investigation is needed to better understand the factor structure of the WAI. There could be several possible explanations for why the initial three factor model (Bryan, 2009) did not replicate in the current study. One possible explanation is that the different factor structures resulting from the instrument validation studies could be attributed to sample idiosyncrasies. Another possibility is that an alternative theory of work addiction (i.e., social learning theory, locus of control) may be more applicable to the WAI.

The first subscale, Work Obsession, is a combination of items from the original 2009 Work Absorption and Relationship Implication subscales. Work Obsession contains items that cover thoughts, feelings, and behaviors demonstrating an obsession with work, including possible negative consequences for personal and professional relationships. Examples include thinking about work on vacations or during social

activities, feeling guilty, irritable, or nervous when not working, losing sleep or checking email and voicemail during non-work hours, and family and friends complaining about amount of time one spends working. Obsession with work has not been assessed extensively in existing workaholism measures. The second subscale, Work Enthusiasm, focuses on the level at which work is preferred over other activities. Examples include feeling excited and energized about work, and having the preference to work rather than not.

The current study's exploratory and confirmatory factor analyses resulted in a 2-factor WAI measure. The DUWAS-10, the most recently published and validated measure of work addiction, also consists of two factors. In fact, the current study's correlation analyses demonstrated significant relationships between subscales of the two measures. For example, WAI-Work Obsession correlated substantially with DUWAS-10 Working Compulsively ($r =.53$) and Working Excessively, ($r = .64$). Additionally, WAI-Work Enthusiasm correlated significantly with DUWAS-10 Working Compulsively ($r = .22$) and Working Excessively ($r =.31$). These significant correlations suggest that there is overlap between the WAI and DUWAS-10 measures.   However, putting the two WAI subscales together, it seems that both Work Obsession and Work Enthusiasm tap possible manifestations of workaholism (e.g., losing sleep due to thoughts of work, getting more excited about work than anything else, relationship issues or health difficulties such as high stress levels). Another observation is that both Work Obsession and Work Enthusiasm focus on both intrinsic (e.g., autonomy) and extrinsic (e.g. social life, hobbies) values and qualities. This distinction of containing various types of manifestations as well as incorporating intrinsic and extrinsic values should be noted as

components that distinguish the WAI from the DUWAS-10. The WAI was also designed utilizing the theory of addiction as an underlying tenet such that items were developed and validated with pilot groups and field experts with the goal to operationalize interconnections between affect, behaviors, and cognitions –the three dimensions of addiction theory (Bryan, 2009).

Scoring of the WAI

There is mixed evidence regarding whether use of a WAI-total score is appropriate. On the one hand, high correlations between the WAI-total score and each of the subscales (r = .65 to .94) and the high internal consistency (α = .85) of the total score suggest that all items of the WAI are closely related. On the other hand, the correlation between subscales is more modest (r = . 35). These results were similar to those found by Bryan (2009) using the 24-item WAI: high correlations between the WAI-total score and each of the subscales (r = .64 to .89) and high internal consistency (α = .90) of the total score.

Work Obsession and Work Enthusiasm also produced a differential pattern of relationships with criterion variables in this study. Specifically, Work Obsession correlated significantly with burnout (r = .13) and average hours worked per week (r = .36); Work Enthusiasm correlated significantly and inversely with burnout (r = -.15) and worker role self-efficacy (r = -.16). Additionally, regression analyses showed that the combined WAI scales were predictive of average hours worked per week and burnout. However, beta weights for the Work Obsession scale were significant in predicting both hours worked per week and burnout whereas beta weights for Work Enthusiasm were only significant in predicting burnout, or rather the lack thereof. This suggests that each

of the subscales may reflect a different aspect of workaholism that should be examined individually or in the context of each other, but not necessarily by combining them together into a single total score. Preliminary analyses suggest that Work Obsession is the central component of workaholism as assessed by the WAI, and that individuals who score high on this subscale are likely to portray workaholic symptoms. Work Enthusiasm seems to be more of a supplemental component of workaholism, such that work obsession accompanied by low enthusiasm creates more chronic symptomology. However, further exploration of the relationship between Work Obsession and Work Enthusiasm will be necessary before any conclusions can be drawn regarding their individual or combined contribution to work addiction symptomology.

Convergent and Discriminant Validity

Convergent validity of the WAI scores was supported by high, positive correlations between the WAI-total score and each of the DUWAS-10 scales. In the initial WAI validation study (Bryan, 2009), convergent validity of the WAI scores was supported by moderate to high, positive correlations between the WAI-total score and each of the WorkBAT subscales. Thus, there is evidence that the WAI is measuring similar constructs as existing work addiction measures. High correlations between the WAI and DUWAS-10 might stem from their overlapping emphases on the behavioral aspects of work addiction. However, the WAI was designed to measure other components of workaholism as well, specifically affective and cognitive aspects. This difference in elements measured might explain the somewhat lower, positive, statistically significant correlations found between each of the WAI subscales and the DUWAS-10 subscales, specifically the relationships between Work Enthusiasm (WAI) and Working

Compulsively and Working Excessively (DUWAS-10), which were $r = .22$ and .31, respectively.

Although the DUWAS-10 subscales both appear to measure behavior, the WAI Work Enthusiasm subscale targets affect ("I get more excited about working than anything else") and cognitions ("Given the choice, I would rather work than not"). Conversely, WAI Obsession seeks to assess for affective ("I feel guilty when I am not working"), cognitive ("I find myself thinking about work during social activities") and behavioral ("I check my work email and voice messages during non-work hours") components of work addiction. Additionally, preliminary evidence from the incremental validity analyses indicate that the WAI may improve upon the DUWAS-10 at predicting average hours worked per week and burnout. The pattern of correlations between the WAI and DUWAS-10 scales as well as the incremental validity findings suggest that the workaholism constructs measured by each instrument overlap or complement each other but are not substitutes for each other.

Discriminant validity of the WAI scores was initially demonstrated by low correlations with work engagement (r ranged from -.11 to .28), suggesting that workaholism represents something distinct from "a positive, work-related state of fulfillment" as characterized by many employers and the popular press (Schaufeli et al., 2008). Some researchers have long argued that work addiction and work engagement are the same concept (Schaufeli et al.), both resulting in positive outcomes for both employees and employers. However, this notion has only been supported by anecdotal evidence and has not been supported empirically. Although the relationship between workaholism and work engagement has not been extensively explored, preliminary

empirical support has been found which suggests that while the concepts overlap in terms of being absorbed in work, the reasons or motivations for that absorption differ between workaholism and work engagement (Schaufeli et al., 2002).

Bryan (2009) also suggested that workaholism represents more than just the participants' desire to make a good impression. In 2009, discriminant validity of the WAI scores was initially demonstrated by nonsignificant and low correlations with social desirability (r ranged from -.11 to .18). The fact that workaholic behaviors are rewarded and encouraged in some environments may increase the chance that some individuals might want to be seen as a workaholic. The size of the WAI-work engagement relationship found in this study provides initial empirical evidence that work engagement and work addiction may be separate constructs. Additionally, the size of the WAI-social desirability relationships in the 2009 study suggests that the WAI measure cannot be reduced to self-presentation bias.

Criterion Validity of the WAI Scores

Average Hours Worked Per Week. WAI scores were also found to be associated with a few criterion variables. Specifically, the correlations between the WAI-total scores and average hours worked per week were significant. However, correlations between the WAI subscale scores and average hours worked per week differed: Work Obsession was significantly and moderately related to average hours worked per week while the relationship between Work Enthusiasm and average hours worked per week was not significant. Additionally, in the hierarchical regression analyses, only Work Obsession contributed significantly to predicting average hours worked per week. These results were similar to those found in the initial validation study of the WAI (Bryan,

2009), where the WAI-total score correlated significantly and positively with average work hours per week ($r = .35, p < .01$), as did the Work Absorption and Relationship Implications subscale scores ($r = .35$ and $.32$, respectively) but not Work Attraction. As mentioned previously, the Work Obsession subscale consists of items from the 2009 Work Absorption and Relationship Implications subscales. Additionally, in the 2009 study, Work Absorption also contributed uniquely to the prediction of average hours worked above and beyond the WorkBAT.

By contrast, the existing literature on the relationship between work hours and work addiction documents conflicting patterns. For example, McMillan et al. (2002) found a positive but weak relationship between work hours and work addiction in a study of New Zealand census respondents. Buelens and Poelmans (2004) also found a positive relationship between workaholism and work hours in Flemish citizens. Conversely, Burke (2002) found an inverse relationship between work addiction and work hours among MBA students in the U.S. These conflicting findings could be a result of using different workaholism definitions and assessment tools. However, it is possible that other factors besides work addiction potentially influence the amount of hours an individual works, such as nationality or culture, type of job or industry, or personal obligations. Additionally, researchers may need to distinguish between required work hours and non required work hours, which would further highlight hours that individuals work above and beyond what is expected within their work environment. Such factors might help to explain the different findings. It will be important for future research to explore the causes and context of work hours to gain additional insight into the relationship between workaholism and number of hours worked.

Burnout. The WAI total score, as well as the Work Obsession scale score, correlated positively with burnout, however, only Work Obsession resulted in a significant correlation with burnout. Conversely, Work Enthusiasm correlated significantly and negatively with burnout. These findings conflict with earlier research by Schaeufeli et al. (2008) who found a positive correlation between workaholism and burnout ($r = .53$, $p < .001$).   Burnout is a term that is commonly used to describe a state of mental exhaustion. However, Maslach's (1993) conceptualization of burnout as a three-dimensional construct consisting of (a) exhaustion, (b) cynicism, and (c) lack of professional efficacy was used in this study. Results of the current study do not fully support a relationship between burnout and work addiction, however analyses in the current study resulted in statistically significant relationships between the WAI total and burnout.

Researchers have suggested that workaholism might be one of the root causes of burnout since employees who work excessively long hours tend to use up their mental resources, leaving them depleted of energy (Maslach, 1986). In the present study, the total WAI and burnout scores were positively correlated. The WAI was also predictive of burnout above and beyond the DUWAS-10, an existing measure of workaholism. In fact, both Work Obsession and Work Enthusiasm uniquely predicted burnout. This is not surprising given that the WAI includes items that would reflect affective and cognitive indications of work addiction, not just behavioral. Work Obsession items reflect the level at which a person is involved in and preoccupied with work, which is often thought to be associated with an unhealthy, overcommitment to work, including the potential to have a negative impact on the self and on relationships with others.

ANOVA results revealed statistically significant differences between clusters such that burnout total scores were distinguishable between Obsessive Workers, the cluster indicating the highest level of work addiction, and each of the other clusters. Exhaustion scores (a burnout subscale) were also distinguishable between Obsessive Workers, and the remaining two clusters, Balanced Workers and Unenthusiastic Workers. These findings are supported by earlier research. One study found that "disenchanted workers", one of the types of workaholism proposed by Spence and Robbins (1992), scored high on burnout measures (Burke & Matthiesen, 2004). It may be that the level of burnout experienced varies by workaholic type or other variables not directly captured by work addiction measures such as locus of control, attitude, or personality type. However, the present study is only the second known study to investigate the relationship between workaholism and burnout, thus further exploration of the relationship between these two constructs is warranted.

Self-efficacy. Relationships between the WAI and self-efficacy varied in the present study. First, social self-efficacy yielded negative, non-significant correlations with WAI scores. One possible explanation is that social self-efficacy may not be an appropriate criteria against which to validate a workaholism measure. Self-efficacy, the core construct in social cognitive theory, refers to "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p.391). Many of the work addiction theories introduced to date suggest that workaholism could stem from one's self-concept, including the ways in which individuals perceive themselves, their values, skills, abilities, performance, and effectiveness. As such, it was expected that individuals with low social self-efficacy

would be more likely to experience workaholism than individuals with high social self-efficacy (Ng, Sorenson, & Feldman, 2007).

Social self-efficacy scores were not significantly different between cluster groups, suggesting that workaholism may not be an escape or a means of enhancing self-esteem as it relates to social functioning (Machlowitz, 1980; Thorne, 1987). Additionally, a lack of differentiation of social self efficacy scores between cluster groups could also indicate that work addicts do not experience different levels of self-efficacy related to work versus non-work life arenas such that low self-efficacy in the latter arena propels workaholics to work compulsively (Bartolome, 1983; Robinson, 1996).

Employees with high worker role self-efficacy were expected to experience workaholism at a higher rate than those with low worker role self-efficacy. However, results of the current study indicate statistically significant, negative correlations between worker role self-efficacy scores and WAI total and Work Enthusiasm scale scores. This finding is opposite to that which was expected and suggests that workaholics may also experience low worker role self-efficacy. One explanation may be that individuals who are work addicted are also seeking external rewards and validation from others regarding their work performance. Thus, low efficacy about their work role places them in a position where they become even more invested in doing well. This desire to perform well might manifest in ways such as working more hours, becoming more emotionally invested in work, or thinking about work even when away from the workplace. That is, they may feel that working harder will help them to feel more competent at work.

Although results of this study suggest relationships between work addiction and social and worker role self-efficacy that were not originally predicted, it is possible that

other types of self efficacy, besides social and worker role, may be more relevant to work addiction. Despite mixed results from this research project, previous studies have suggested that self-efficacy beliefs are related to clinical problems such as addiction (Marlatt, Baer, & Quigley, 1995) and social skills (Moe & Zeiss, 1982). However, this has been primarily in the area of substance addictions. It may be that self-efficacy relates differently to process, or non-substance, addictions such as workaholism.

Finally, another possible explanation for the low correlations between the WAI and the self-efficacy scores in this study might be related to theory. This study was designed based on the theory of addiction which guided the selection of criterion variables. Researchers continue to debate the theoretical basis of workaholism. Although addiction and social learning theory (Bandura, 1977) are the most prominent theories supported by the literature, other theories have been used to explain workaholism, such as personality (Machlowitz, 1980) and family systems theories (Robinson, 1998). It may be useful for future research to employ criterion variables aligned with these theories.

Cluster Analysis of the WAI Scores

When the two WAI factors identified in this study were subjected to a cluster analysis, a three-cluster solution emerged as optimal. The stability of the cluster structure was supported by different clustering methods producing similar groupings. Thus, the three clusters that emerged were statistically and theoretically sound despite being different from the workaholic typology proposed *a priori*.

The three workaholic categories initially proposed were based on a WAI measure of 3 factors. Since a three-factor measure was not supported in this study, the proposed

typology was adjusted. Revisions to the typology using two factors resulted in three clusters: one workaholic type and two nonworkaholic categories. To identify a typology, Work Obsession was conceptualized as the core component because it reflects the level at which one is engrossed in work, including exhibiting addictive compulsions and cognitions. Therefore high levels of Work Obsession might be indicative of workaholism. Work Enthusiasm, on the other hand, represents how much an individual is fulfilled and energized by work to the exclusion of other activities and personal relationships. Thus, it is possible that Work Enthusiasm at a high or moderate level could also be problematic, particularly if it is coupled with a high or moderate level of Work Obsession.

Obsessive worker cluster. The cluster named *Obsessive worker* had high scores on Work Obsession and low scores of Work Enthusiasm possibly indicating that while these individuals may be deeply engrossed in work, they may not experiencing a high level of fulfillment.   Participants in this cluster showed a moderate elevation on burnout. Additionally, participants in the *Obsessive worker* cluster reported the highest levels of average hours worked per week ($X = 56$).

Unenthusiastic worker cluster. Participants in the *Unenthusiastic worker* cluster reported low levels of Work Obsession and Work Enthusiasm, indicating that these individuals are likely neither "drawn" to work nor do they get great fulfillment from their job. Participants in this cluster also reported the lowest burnout scores and the lowest average hours worked per week ($X = 42$).

Balanced worker cluster. The cluster named *Balanced worker* had moderate scores on Work Obsession and moderate scores of Work Enthusiasm indicating that while these

individuals may be engrossed in work, they also may experience a similar level of fulfillment. Participants in this cluster reported low levels of burnout and reported average hours worked per week that fell between the other two clusters identified ($X = 46$).

The current study's empirical support for the existence of a workaholic typology is consistent with other researcher's proposal of multiple workaholic types (Fassel, 1990; Naughton, 1987; Robinson, 1998; Scott et al., 1997; Spence & Robbins, 1992; Trueman, 1995). Each of the typologies previously identified in the literature resulted from studies or theoretical papers based on different conceptualizations of workaholism; therefore, none of the five sets of workaholic types are identical.

While the typology identified in the current study is also unique, it appears to be most similar to Naughton's (1987) typology based on the two dimensions of commitment and obsession-compulsion: (a) job-involved workaholics (high work commitment, low obsession-compulsion) who tend to be good performers in high demanding jobs; (b) compulsive workaholics (high work commitment, high obsession-compulsion); (c) non-workaholics (low work commitment, low obsession-compulsion); and (d) compulsive non-workaholics (low work commitment, high obsession) who compulsively spends time in non-work activities. There is some overlap between Naughton's typology and the present one such that they are both based on two factors and include obsessive tendencies about work as the cornerstone of identifying the work addict. However, there are also significant differences between the two typologies, including Naughton's (1987) focus on work commitment as a second indicator of workaholism and Bryan's (2011) emphasis on level of enthusiasm, which are not necessarily interchangeable or complementary to one

another. For example, a worker that is highly committed to his work may not be enthusiastic. The source of his or her drive may be something other than personal fulfillment, such as work ethic or perfectionism.

While multiple workaholic typologies have been proposed for workaholism, the complexity of the construct does suggest that different types of workaholics may exist. The use of different definitions may be another reason that findings on typologies have often been inconsistent (Taris, Geurts, Schaufeli, Blong, & Lagerveld, 2008). Therefore, working toward a better understanding of the construct and a generally accepted definition may help refine research on a workaholic typology.

In summary, findings suggest that the second validation study of the WAI yielded a 2-factor structure, adequate internal consistency and test-retest reliability estimates, and confirmatory evidence of convergent validity as evidenced by moderate to high correlations with the DUWAS-10 scores. Moreover, the WAI showed discriminant validity by its low correlations with work engagement. Finally, the WAI total and subscale scores were associated with average work hours per week and burnout. Findings of this study suggest that further exploration of the WAI subscales as different components of workaholism (rather than use of a single WAI-total score) may be warranted. Although these results seem promising, it is important to cross-validate these findings with different and larger samples to obtain additional estimates of the WAI's psychometric properties.

Implications for Research, Theory, and Practice

Findings of the current study offer several implications for workaholism research, theory, and practice. First, the WAI is the first tool to conceptualize workaholism

utilizing the theory of addiction (Smith & Seymour, 2004). The WAI consists of items developed to look not only at the behaviors of work addicts, but also to tap into their thoughts and feelings. Generally, there are both positive and negative implications to any form of addiction. The WAI is consistent with the rewards and consequences aspects of addiction as measured by each of the two subscales. Because of its comprehensiveness, the WAI has the potential to add to the field of work addiction by focusing on the multidimensional aspects of the construct.

Second, the WAI's potential utility in helping us better understand workaholism is particularly important for research and practice. An instrument with good psychometric properties and emphasis on the multidimensional nature of the construct, such as the WAI, can facilitate further research on work addiction. The small number of empirical studies that have been conducted in this area thus far have primarily focused on the outcomes of workaholism, defined in a variety of ways, rather than on the causes. One reason for this is likely the unidimensionality of the existing measures, which either focus on affect or behaviors. A measure that explores affect, behavior, *and* cognition could support further clarification of the construct and its definition, which are both critical components to understanding the origins of workaholism. It could also support exploration of the complex nature of work addiction, rather than simply focusing on behavioral manifestations which are easily observable but do not address the "why" and "how" of work addiction. Future research should explore how the WAI scales and proposed typology relate to workers' personality traits, cultural factors, and environmental factors in order to more completely understand the correlates and predictors of workaholism.

A third, tentative implication, is that the WAI could be used in clinical settings to identify persons struggling with workaholism and to develop appropriate treatment plans, perhaps based on workaholic type. Results of the regression analyses in the current study specifically suggest that the combined WAI scales are predictive of average hours worked per week and burnout. Additionally, each of the WAI subscales has a different set of relationships with the criteria. Clinicians may want to consider these differing relationships when developing a treatment plan. These predictive relationships may also contribute to implementing preventative care for individuals who are at risk of becoming workaholics. Additionally, it is expected that like most addicts, individuals addicted to work would be in denial of a chronic problem or resistant to seeking treatment. The WAI could be one instrument clinicians use to assess the client's level of work addiction. From a client's perspective, a tangible tool often adds credibility to a clinician's assessment or diagnosis, therefore the WAI could not only support the therapist's efforts in helping the client acknowledge their problem but also to make the connection between this abstract concept of work addiction to the client's own thoughts, behaviors, and feelings that may be indicative of workaholism. Naturally, these clinical comments should be considered as speculative, given the early stage of research on the WAI and in the field of workaholism in general.

Fourth, it is important to highlight that the WAI contributes to the field's ongoing theoretical debate by providing support for conceptualizing workaholism as a form of addiction (Aziz & Zikar, 2006; Klaft & Kleiner, 1988; Minirth et al., 1981; Morris & Chaney, 1983; Oates, 1971). Addiction has been characterized as including compulsion and loss of self-control as well as continued engagement despite negative consequences

(Smith & Seymore, 2004). The underlying premise of addiction theory is that workaholics feel an uncontrollable, compulsive need to work. Compulsion to work is primarily measured through the items on the Work Obsession subscale. Similarly, the "negative consequences" of workaholism, specifically how work addiction impacts relationships and personal health, is reflected by the Work Obsession subscale while the Work Enthusiasm subscale more readily reflects the level of fulfillment experienced.

Limitations and Future Directions

Although findings from the current study provide additional support for the validity and reliability of the WAI scores, there are several limitations and future research directions that should be discussed. First, the sample used in this and the previous study were relatively small ($N = 244$ and $N = 111$, respectively). Larger samples are more likely to produce more stable results. Larger samples would also provide an opportunity to confirm the WAI's factor structure without supplementing the analysis with the parceling technique.

Second, each of the samples for the current and Bryan's (2009) initial study was taken from single organizations, such that 2009 participants were all employed by the same organization and participants in 2011 were all employed by a different company. While there are some benefits to this, particularly related to study logistics and gaining access to participants, there are also some disadvantages. One such disadvantage is that the small number of participants and use of a single organization would make it difficult to generalize these findings to different work organizations. In fact, there is a chance that results obtained are sample specific. Another disadvantage is the inability to control the influence of the organization's culture on the results. This is particularly important given

that some organizations support and reward workaholism or workaholic behaviors, which may influence individuals' tendency to present themselves as work addicts. Finally, the instability of the measure from group to group, which may be one reason the initial factor structure findings were not upheld in the current study.

A third limitation of this study may be the result of the research being supported by the organization's human resources director and general manager. It is possible that staff were reluctant to participate due to the perception that senior managers of the organization would be made aware of their responses despite assurances that the participant responses would not be shared outside of the research team. Additionally, despite numerous disclaimers that the data collected would be anonymous and confidential, the perceived possibility of management having direct or indirect access to the collected data may have skewed participant responses. A fourth limitation of the current study is the self report nature of the WAI. Given this, responses to the WAI may be skewed by an individual's self-perception which may be distorted and not reflect the true nature of the situation. In fact, all of the measures used in this study were self-reports, which is the most common method of collecting data on workaholics. The lack of multiple data sources, including participant interviews as well as input from employers and family members, is something that needs to be addressed in future work addiction research to validate self-report responses.

Although findings from this study provide additional support for the WAI as a measurement of work addiction, further research on the instrument is warranted. For example, the new factor structure of the WAI requires cross-validation using different, larger samples and different statistical procedures. It is important to investigate whether

the same factor structure would be found among working adults in different disciplines (e.g., consulting, accounting, education), industries, and cultures. As mentioned previously, one of the challenges researchers have faced in the field of workaholism is the lack of an agreed upon definition and underlying theory. A successful replication of this study's confirmatory factor analysis could be a significant step in providing theoretical support for workaholism conceptualized as a process addiction.

It would also be useful to cross-validate the typology found in the current study, particularly because an understanding of the different types of work addiction would likely be informative to determining effective therapeutic interventions. For example, it would be useful to distinguish between a healthy versus unhealthy level of involvement and interest in work. A different perspective to explore that may clarify the workaholic typology is source of motivation. For example, if motivation is internal and positive this might be a different type of workaholic than one whose source of motivation is internal but obsessive resulting in negative outcomes. Passion, a new construct that has been recently applied to the workplace, would be an interesting variable to include in future work addiction research. Passion is defined as a strong inclination toward any activity (e.g., work) that is important, liked, and involves investing considerable time in its pursuit (Vallerand et al., 2003). However, Vallerand et al. distinguished between harmonious passion (HP) that is well integrated into one's identity and undertaken freely and willingly, and obsessive passion or addiction (OP) that is not well integrated into one's identity and is the result of internal pressure (e.g., to increase one's self-esteem in the eyes of others). In other words, the activity controls the person in OP but the person controls the activity in HP. Vallerand et al. hypothesized and found that HP leads to

more positive affect, less negative affect, and higher levels of flow while OP produced

the opposite effects. Since the activity is freely chosen under HP, the individual engaged

in the activity more fully and flexibly leading to greater concentration, absorption, flow,

and positive affect. They further suggest that HP would likely be correlated with

psychological health and OP with psychological distress.

The way that work addiction is conceptualized in the present study appears to

complement the passion construct with overlap in the concept of obsession and negative

consequences of addiction. The inclusion of passion as a variable in future work

addiction research could help further distinguish between the positive and negative

outcomes associated with various levels of Work Obsession and Work Enthusiasm. It

could also provide a better understanding of when work shifts from being a healthy

passion (e.g., associated with increased well-being and motivation) to an unhealthy

addiction (e.g., compulsive behavior, negative emotions).

Appendix A

Draft Email to Employees from Human Resources

Greetings Colleagues,

In line with our mission that is committed to supporting research in the higher education community, you are invited to participate in a research study on working professionals, specifically on the intersection of their professional and personal lives. It's quick (only 15 minutes)! It's easy (just a weblink away)! And to top it all off, you will have an opportunity to win an American Express Gift Card once you're done.

Our organization fully supports this research project and we hope that you will do the same, however participation is completely voluntary. Your participation in this study will make an important contribution to research on the lives of individuals in the workforce and may also help inform counselors, educators and employers alike about the unique characteristics of working professionals. In keeping with company policy, no employee information (i.e., email, work telephone number, etc.) has been released to parties outside of the company. This initial invitation to participate in the study is being distributed as an intra office email via department listserv. However, please note that participation may require you to submit your individual contact information which will be protected as part of the study.

To access the survey, please click on the link below or cut and paste it into your web browser.
<Insert web link here>

Additional information about the study is available on the above website. However, if you have any questions before, during, or after completing the survey, please feel free to Nicole Bryan at n4bryan@gmail.com or (646) 240-8473. Alternatively, you can contact Dr. Robert Lent at boblent@umd.edu or (301) 405-2878.

Thank you in advance for your participation!

-Director, Human Resources

Appendix B

Draft Email Invitation to Participate in Survey 2

Thank you for completing Survey 1 two weeks ago in the study on working professionals. Since this project is a two part study, we would now like to invite you to participate in Survey 2. After completing and submitting Survey 2, you will be eligible to enter a lottery drawing to win a $50 American Express Gift Card.

To access the survey, please click on the link below or cut and paste it into your web browser. You will also need to enter your 6 digit alphanumeric code: ******. This unique 6-character alphanumeric code you created in Part 1 will be used to link your responses from Survey 1 and Survey 2. You should be aware that great efforts have been made to establish research protocols to ensure that all of the information you provide will be kept confidential. Your survey responses will be collected via SurveyMonkey, a secure password protected web-based survey software program. Only the principal and student investigators will have this password and, thus, access to the data. Additionally, any personal contact information you provide will be stored in an electronic file separate from your survey responses.

<Insert web link here>

Additional information about the study is available on the above website. However, if you have any questions before, during, or after completing the survey, please feel free to contact me directly at n4bryan@gmail.com.

Thank you for your participation!

Sincerely,
Nicole A. Bryan, MBA, MSEd
Counseling Psychology Student Investigator
(646) 240-8473

Appendix C

Welcome Page & Consent Form (1)

Welcome and thank you for your interest in participating in this survey.

You are invited to participate in this study of the work lives of business professionals. The researchers are particularly interested in how business professionals balance the work and non-work parts of their lives. For purposes of this study, only individuals who are presently employed in paid work on at least a part-time basis will be included.

Your participation will consist of two parts. In Part 1 of the study, you will complete a 116 item, multiple choice questionnaire that should take approximately 15 minutes. Survey 1 contains questions about your values, priorities, and preferences about work in general, your job, and your life outside of work. It is strongly recommended that you complete the survey in a single session. However, if this is not possible, you will be able to save your information and return at a later time to finish.

In Part 2, which will be administered two weeks after you complete Part 1 and take less then 5 minutes, you will have the opportunity to complete a second survey. This study will make an important contribution to research on the lives of individuals in the workforce and may also help inform counselors, educators, and employers alike about the unique characteristics of working professionals.

Protocols have been established to ensure that all of the information you provide will be kept confidential. Your survey responses will be collected via SurveyMonkey, a secure password protected web-based survey software program. Only the principal and student investigators will have this password and, thus, access to the data. Any personal contact information you provide will be stored in an electronic file separate from your survey responses.

At the end of Survey 1, you must create a unique alphanumeric code that will be used to keep track of your completed surveys. Once you have completed Survey 1, please close your internet browser to help maintain the confidentiality of your survey responses.

Two weeks after submitting Survey 1, you will receive an email request to complete Survey 2. It is important for you to note that participation in this study is voluntary and that you must be at least 18 years of age to participate. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time by simply logging out of the questionnaire.

In appreciation of your time and effort for participating in this study and completing two surveys, a lottery drawing for one of four $50 American Express Gift Cards will be held when the study has been completed. If you are interested in participating in the lottery drawing, you will have the opportunity to do so after you complete and submit Survey 2.

This research project is being conducted by Nicole A. Bryan, MBA, MSEd (Counseling Psychology Student Investigator) under the supervision of Dr. Robert Lent (Faculty Supervisor/Primary Investigator) at the University of Maryland, College Park. If you have any questions, please feel free to contact Nicole Bryan at n4bryan@gmail.com or (646) 240-8473. Alternatively, you can contact Dr. Robert Lent at boblent@umd.edu or (301) 405-2878. Similarly, if you have any questions about your rights as a respondent to the surveys or wish to report a research-related injury, please contact:

> Institutional Review Board Office
> University of Maryland, College Park, MD 20742
> (Email) irb@deans.umd.edu
> (Phone) 301-405-4214

This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.

Thank you in advance for your participation.

Statement of Age & Consent:
By continuing with the survey, you acknowledge that you are at least 18 years of age and that you freely and voluntarily choose to participate in this research project.

I agree_____   I do not agree_____

Appendix D

Thank you & Part 2 Reminder

Thank you for completing Survey 1. We anticipate that approximately 300 people will complete the surveys and appreciate the time you've committed to participate in this study. As mentioned in the consent form you read and signed at the beginning of the survey, there are two parts to this study. As a result, we will be asking you to fill out a second, shorter survey two weeks from today. After you fill out the second survey, you will immediately become eligible to enter your name in a lottery drawing to win one of four $50 gift certificates.

You will receive an email invitation to complete the second survey in two weeks. Please enter your email address and create a unique 6-character, alphanumeric password (including at least one letter, and at least one number; not cap sensitive) in the spaces provided below.

Your email address: _____
Your invitation to participate in Part 2 of the survey and to enter the lottery to win a $50 gift certificate will be sent to the email address you provide.

6 character code: _____
Please enter the 6-character, alphanumeric password you created in part 1 (must include at least one letter and at least one number; not cap sensitive)

Appendix E

Welcome Back & Consent Form (2)

Welcome back and thank you for your continued participation in this research study.

This study of the work lives of business professional is an investigation of how business professionals balance the work and non-work parts of their lives. As a reminder, only individuals who are presently employed in paid work on at least a part-time basis will be included.

Your participation in this study will make an important contribution to research on the lives of individuals in the workforce and may also help inform counselors, educators, and employers alike about the unique characteristics of working professional.

The questionnaire, which begins on the following page, should take less than 5 minutes to complete. It consists of 24, multiple choice items about your work preferences. It is strongly recommended that you complete the survey in a single session. However, if this is not possible, you will be able to save your information and return at a later time to finish.

Protocols have been established to ensure that all of the information you provide will be kept confidential. Your survey responses will be collected via SurveyMonkey, a secure password protected web-based survey software program. Only the principal and student investigators will have this password and, thus, access to the data. Any personal contact information you provide will be stored in an electronic file separate from your survey responses.
However, the unique 6-character alpha numeric code you created in Part 1 will be used to link your responses from Survey 1 and Survey 2 together. Once you have completed Survey 2, please close your internet browser to help maintain the confidentiality of your survey responses.

It is important for you to note that participation in this study is voluntary and that you must be at least 18 years of age to participate. You may choose not to complete Survey 2 of the study at all. However, if you decide to continue with Survey 2, you may stop participating at any time by simply logging out of the survey.

In appreciation of your time and effort for participating in this study and completing both Survey 1 and Survey 2, a lottery drawing for one of four $50 American Express Gift Cards will be held when the study has been completed. If you are interested in participating in the lottery drawing, you will have the opportunity to do so after you complete and submit Survey 2.

This research project is being conducted by Nicole A. Bryan (Counseling Psychology Student Investigator) under the supervision of Dr. Robert Lent (Faculty

Supervisor/Primary Investigator) at the University of Maryland, College Park. If you have any questions, please feel free to Nicole Bryan at n4bryan@gmail.com or (646) 240-8473. Alternatively, you can contact Dr. Robert Lent at boblent@umd.edu or (301) 405-2878. Similarly, if you have any questions about your rights as a respondent to the surveys or wish to report a research-related injury, please contact:

> Institutional Review Board Office
> University of Maryland, College Park, MD 20742
> (Email) irb@deans.umd.edu
> (Phone) 301-405-4214

This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.

Thank you in advance for your participation.

Statement of Age & Consent:
By continuing with the survey, you acknowledge that you are at least 18 years of age and that you freely and voluntarily choose to participate in this research project.

I agree_____   I do not agree_____

6 character code:
Please enter the 6-character, alphanumeric password you created in Part 1 (also noted in the email invitation you received to participate in Part 2):

Appendix F

Thank You & Lottery Drawing

Thank you for completing Survey 2.

We anticipate that approximately 300 people will complete the surveys and appreciate the time you've committed to participate in this study. Now that you have completed both Survey 1 and Survey 2, you are eligible to enter a lottery drawing to win one of four $50 American Express Gift Cards.

If you would like to be entered into a lottery for these gift cards, please go to the website below. To further protect confidentiality, information for the lottery drawing will be collected using a website page that is completely separate from the current survey. Additionally, any personal contact information (i.e. email address) you provide will be stored in an electronic file separate from your survey responses.

To submit your information for the lottery, cut and paste the link below into your internet browser. Winners of the lottery will be contacted in March 2011.

<insert weblink>

If you have any additional questions or are having problems with the survey, feel free to email me at n4bryan@gmail.com.

Thanks again!

Appendix G

Survey 1

Demographic Information

1. Age

2. Sex
- ○ Male
- ○ Female

3. Marital Status
- ○ Single
- ○ Married
- ○ Domestic Partner
- ○ Separated
- ○ Divorced

4. Race/Ethnicity (choose all that apply)
- ☐ White or European American
- ☐ Asian/Pacific Islander American
- ☐ Black or African American
- ☐ Native American
- ☐ Latino/a or Hispanic American
- ☐ Other

5. Number of dependents under 18yrs of age (in number format)

6. Annual Salary
- ○ Under $20,000
- ○ $20,000-$39,999
- ○ $40,000-$59,999
- ○ $60,000-$79,999
- ○ $80,000-$99,999
- ○ $100,000-$124,999
- ○ $125,000-$149,999
- ○ $150,000-$174,999
- ○ $175,000-$199,999
- ○ $200,000-$250,000
- ○ Over $250,000

7. Average hours worked per week (in number format)

[   ]

8. Employment Status

○ Full-time   ○ Self-employed

○ Part-time   ○ Seasonal

○ Contractor

9. Number of years in current job (in number format; round to whole number)

[   ]

Appendix H

Work Addiction Inventory
Bryan (2009)

Please use the following scale to respond to the questions below. After reading each statement carefully, select the response that most accurately and frequently reflects your situation.

0-Never
1-Rarely
2-Sometimes
3-Frequently
4-Always

1. My family and friends complain about the amount of time I spend working.
2. I hide how much I work from others.
3. Having free time for hobbies and non-work activities is important to me.
4. I lose sleep because I can not stop thinking about work.
5. I feel irritable or nervous when I am away from work for long periods of time.
6. My social life suffers as a result of my work and work-related responsibilities.
7. Given the choice, I would rather work than not.
8. Working long hours has hurt my relationships with family and others.
9. Working by myself is the best way to ensure that things get done correctly.
10. I get annoyed when people interrupt me while I am working.
11. I have more energy away from work.
12. I check my work email and voice messages during non-work hours.
13. I tend to get engrossed in my work.
14. I find that I spend more time at work than with my partner, family or friends.
15. I feel more fulfilled when I am with friends and family than when I am working.
16. I get more excited about work than anything else.
17. I am preoccupied with work during holidays, vacations, and other non-work hours.
18. My job negatively impacts my health.
19. I find myself thinking about work during social activities.
20. I would rather spend time working than doing anything else.
21. I feel guilty when I am not working.
22. When I leave work, I do not think about the job until I return.
23. It is difficult for me to relax when I am not working.
24. I value time away from work.

Appendix I

Dutch Work Addiction Scale (DUWAS-10)
(Schaufeli, Shimazu, & Taris, 2009)

Read each of the statements below & decide how much each one pertains to you. Using the rating scale of 1 (never true); 2 (seldom true); 3 (often true); and 4 (always true).

1. I seem to be in a hurry and racing against the clock.
2. I find myself continuing to work after my coworkers have called it quits.
3. I stay busy and keep many irons in the fire.
4. I spend more time working than on socializing with friends, on hobbies, or on leisure activities.
5. I find myself doing two or three things at one time, such as eating lunch and writing a memo while talking on the telephone.
6. It's important to me to work hard even when I don't enjoy what I'm doing.
7. I feel that there's something inside me that drives me to work hard.
8. I feel obliged to work hard, even when it's not enjoyable.
9. I feel guilty when I take time off work.
10. It's hard for me to relax when I'm not working.

Appendix J

Utrecht Work Engagement Scale (UWES 17)
(Schaufeli et al., 2006)

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, select '0' (zero) in the space provided. If you have had this feeling, indicate how often you feel it selecting the number (from 1 to 6) that best describes how frequently you feel that way.

Use the rating scale below:
0 = Never
1 = Almost never
4 = Often
5 = Very often
6 = 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 to work for very long periods of 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

Appendix K

Maslach Burnout Inventory – General Survey (MBI-GS)
(Schaufeli, Leiter, Maslach, & Jackson, 1986)

On the following page are 16 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, write the number "0" in the space before the statement. If you have had this feeling, indicate how often you feel it by writing the number that best describes how frequently you feel that way.

Use the rating scale below:
0 = Never
1 = A few times a year or less
2 = Once a month or less
3 = A few times a month
4 = Once a week
5 = A few times a week
6 = Every day

1. I feel emotionally drained from my work.
2. I feel used up at the end of the workday.
3. I feel tired when I get up in the morning and have to face another day on the job.
4. Working all day is really a strain for me.
5. I can effectively solve the problems that arise in my work.
6. I feel burned out from my work.
7. I feel I am making an effective contribution to what this organization does.
8. I have become less interested in my work since I started this job.
9. I have become less enthusiastic about my work.
10. In my opinion, I am good at my job.
11. I feel exhilarated when I accomplish something at work.
12. I have accomplished many worthwhile things in this job.
13. I just want to do my job and not be bothered.
14. I have become more cynical about whether my work contributes anything.
15. I doubt the significance of my work.
16. At my work, I feel confident that I am effective at getting things done.

Appendix L

Scale of Perceived Social Self-Efficacy (PSSE)
(Smith & Betz, 2000)

<u>Directions</u>: Please read each statement carefully. Then describe how much confidence you have that you could perform each of these activities successfully in social or other nonwork settings (not related to your job, profession, or work environment). Use the following scale to indicate your level of confidence.

1 = No confidence at all
2 = Little confidence
3 = Moderate confidence
4 = Much confidence
5 = Complete confidence

1. Start a conversation with someone you don't know very well.
2. Express your opinion to a group of people discussing a subject that is of interest to you.
3. Work on a school, community or other project with people you don't know very well.
4. Help to make someone you have recently met feel comfortable with your group of friends.
5. Share with a group of people an interesting experience you once had
6. Put yourself in a new and different social situation
7. Volunteer to help plan or organize a social event
8. Ask a group of people who are planning to engage in a social activity (e.g., go to a movie) if you can join them.
9. Get invited to a party that is being given by a prominent or popular individual.
10. Volunteer to help lead a group or organization.
11. Keep your side of the conversation.
12. Be involved in group activities.
13. Find someone to spend a weekend afternoon with.
14. Express your feelings to another person.
15. Find someone, other than a co-worker, to go out to lunch with.
16. Ask someone to join you for an evening out.
17. Go to a party or social function where you probably won't know anyone.
18. Ask someone for help when you need it.
19. Make friends with a member of your peer group.
20. Join a lunch or dinner table where people are already sitting and talking.
21. Make friends in a group where everyone else knows each other.
22. Ask someone out after he or she was busy the first time you asked.
23. Get a date to a dance that your friends are going to.
24. Call someone you've met and would like to know better.
25. Ask a potential friend out for coffee.

Appendix M

Self-efficacy Expectations for Role Management Measure (SEERM)
Worker Role Self-efficacy Scale
(Lefcourt, 1995)

Instructions: The following statements involve situations or tasks you have either encountered or will encounter at some time in your life. Although some statements seem similar they are all different. Please try to give a response to all of the items.

Please read each statement carefully and indicate how much confidence you have that you could accomplish each of these tasks, should the occasion arise, by marking your answer according to the following 10 point continuum.

Clarifying Definitions:

1) Spouse/partner is equivalent to husband, lover, male or female partner, or person you are involved in an intimate relationship with.
2) The term children is used to represent either one or more children.
3) The term work encompasses past, current, and future employment.

How much confidence do I have that I could…………should the occasion arise?

No Confidence	Very Little Confidence	Some Confidence	Much Confidence	Complete Confidence
1 2	3 4	5 6	7 8	9 10

1. Handle a major crisis at work.
2. Deal with conflicting deadlines at work, from two or more people.
3. Deal with conflicts with another colleague.
4. Determine which work tasks to do myself and which ones to delegate to others.
5. Set realistic goals about the amount and kind of tasks to be completed at work each day.
6. Handle work responsibilities given to me, when not given the resources to complete them adequately.
7. Talk with a supervisor if I feel that I deserve a promotion and am passed over for a colleague who I feel is less qualified.
8. Be successful in my career.
9. Fulfill goals I set and personal expectations at work.
10. Handle unexpected tasks and interruptions at work, so that they cause minimum disruptions or stress.
11. Manage time spent working on tasks within my work role.

12. Focus attention and effort on work related tasks, rather than home related tasks and problems when I am at work.
13. Spend time on the weekend completing work tasks, instead of spending it with leisure tasks.
14. Deal with repair people who are late or doctors who are behind schedule when I make appointments on my lunch hour or before work.

Appendix N

Agglomeration Schedule for Cluster Analysis

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	243	244	.000	0	0	2
2	242	243	.000	0	1	163
3	240	241	.000	0	0	109
4	236	238	.000	0	0	111
5	235	237	.000	0	0	152
6	232	233	.000	0	0	7
7	230	232	.000	0	6	156
8	226	228	.000	0	0	116
9	225	227	.000	0	0	167
10	222	223	.000	0	0	11
11	70	222	.000	0	10	151
12	219	220	.000	0	0	133
13	216	218	.000	0	0	152
14	215	217	.000	0	0	142
15	212	214	.000	0	0	133
16	211	213	.000	0	0	160
17	209	210	.000	0	0	146
18	205	206	.000	0	0	186
19	203	204	.000	0	0	154
20	199	202	.000	0	0	121
21	198	201	.000	0	0	206
22	197	200	.000	0	0	126
23	194	196	.000	0	0	140
24	193	195	.000	0	0	222
25	191	192	.000	0	0	177
26	187	190	.000	0	0	165
27	186	189	.000	0	0	199
28	183	184	.000	0	0	165
29	180	182	.000	0	0	166
30	179	181	.000	0	0	158
31	177	178	.000	0	0	183

32	175	176	.000	0	0	183
33	173	174	.000	0	0	169
34	169	171	.000	0	0	155
35	168	170	.000	0	0	160
36	165	166	.000	0	0	144
37	162	163	.000	0	0	153
38	155	161	.000	0	0	172
39	158	160	.000	0	0	41
40	157	159	.000	0	0	159
41	156	158	.000	0	39	122
42	152	154	.000	0	0	196
43	149	151	.000	0	0	158
44	148	150	.000	0	0	205
45	146	147	.000	0	0	46
46	145	146	.000	0	45	118
47	142	143	.000	0	0	48
48	140	142	.000	0	47	49
49	140	141	.000	48	0	198
50	138	139	.000	0	0	153
51	136	137	.000	0	0	172
52	133	135	.000	0	0	176
53	132	134	.000	0	0	130
54	129	130	.000	0	0	112
55	127	128	.000	0	0	223
56	125	126	.000	0	0	118
57	118	119	.000	0	0	222
58	116	117	.000	0	0	190
59	114	115	.000	0	0	123
60	112	113	.000	0	0	107
61	106	107	.000	0	0	145
62	102	103	.000	0	0	187
63	100	101	.000	0	0	141
64	98	99	.000	0	0	65
65	97	98	.000	0	64	221
66	95	96	.000	0	0	200
67	93	94	.000	0	0	216
68	91	92	.000	0	0	69
69	90	91	.000	0	68	216
70	88	89	.000	0	0	131
71	84	85	.000	0	0	72

72	83	84	.000	0	71	215
73	81	82	.000	0	0	191
74	79	80	.000	0	0	167
75	75	76	.000	0	0	139
76	72	73	.000	0	0	129
77	67	68	.000	0	0	179
78	63	65	.000	0	0	212
79	61	62	.000	0	0	169
80	56	57	.000	0	0	162
81	54	55	.000	0	0	157
82	51	52	.000	0	0	161
83	47	48	.000	0	0	84
84	46	47	.000	0	83	189
85	44	45	.000	0	0	114
86	42	43	.000	0	0	171
87	40	41	.000	0	0	186
88	34	36	.000	0	0	138
89	31	32	.000	0	0	119
90	29	30	.000	0	0	198
91	26	27	.000	0	0	122
92	22	23	.000	0	0	157
93	20	21	.000	0	0	135
94	16	17	.000	0	0	178
95	14	15	.000	0	0	184
96	12	13	.000	0	0	161
97	10	11	.000	0	0	120
98	6	7	.000	0	0	143
99	3	4	.000	0	0	164
100	1	2	.000	0	0	128
101	121	122	.541	0	0	206
102	77	78	1.083	0	0	105
103	38	39	1.624	0	0	154
104	246	247	2.936	0	0	116
105	77	234	4.959	102	0	148
106	153	164	7.049	0	0	147
107	8	112	9.190	0	60	112
108	49	172	11.491	0	0	136
109	240	245	13.862	3	0	170
110	66	144	16.420	0	0	134
111	221	236	19.016	0	4	175

112	8	129	21.958	107	54	117
113	35	53	24.986	0	0	127
114	44	64	28.019	85	0	142
115	58	208	31.193	0	0	124
116	226	246	34.452	8	104	163
117	8	123	37.924	112	0	190
118	125	145	41.419	56	46	185
119	19	31	44.966	0	89	135
120	10	108	48.664	97	0	168
121	37	199	52.385	0	20	132
122	26	156	56.181	91	41	136
123	109	114	60.083	0	59	173
124	58	69	64.096	115	0	139
125	74	231	68.253	0	0	148
126	131	197	72.410	0	22	199
127	28	35	76.728	0	113	162
128	1	105	81.172	100	0	173
129	72	86	85.664	76	0	191
130	59	132	90.221	0	53	155
131	88	239	94.872	70	0	170
132	37	185	99.700	121	0	146
133	212	219	104.598	15	12	207
134	25	66	109.526	0	110	149
135	19	20	114.726	119	93	204
136	26	49	120.106	122	108	174
137	104	120	125.487	0	0	168
138	34	167	131.114	88	0	166
139	58	75	136.778	124	75	156
140	50	194	142.664	0	23	184
141	5	100	148.600	0	63	194
142	44	215	154.563	114	14	192
143	6	24	160.556	98	0	164
144	71	165	166.596	0	36	182
145	106	124	172.646	61	0	178
146	37	209	178.860	132	17	182
147	33	153	185.112	0	106	177
148	74	77	191.618	125	105	175
149	9	25	198.140	0	134	185
150	207	229	204.677	0	0	180
151	70	224	211.252	11	0	201

152	216	235	217.859	13	5	180
153	138	162	224.522	50	37	193
154	38	203	231.332	103	19	214
155	59	169	238.336	130	34	174
156	58	230	245.694	139	7	202
157	22	54	253.053	92	81	196
158	149	179	260.507	43	30	159
159	149	157	268.466	158	40	189
160	168	211	276.525	35	16	171
161	12	51	284.843	96	82	188
162	28	56	293.262	127	80	195
163	226	242	301.823	116	2	215
164	3	6	310.484	99	143	221
165	183	187	319.435	28	26	205
166	34	180	328.705	138	29	214
167	79	225	338.022	74	9	211
168	10	104	347.349	120	137	193
169	61	173	356.810	79	33	203
170	88	240	366.438	131	109	201
171	42	168	376.066	86	160	208
172	136	155	385.745	51	38	188
173	1	109	395.919	128	123	194
174	26	59	406.335	136	155	204
175	74	221	417.136	148	111	209
176	18	133	428.009	0	52	200
177	33	191	438.977	147	25	197
178	16	106	450.032	94	145	218
179	60	67	461.292	0	77	210
180	207	216	473.209	150	152	209
181	110	188	485.135	0	0	230
182	37	71	497.161	146	144	203
183	175	177	509.304	32	31	197
184	14	50	521.615	95	140	208
185	9	125	534.400	149	118	213
186	40	205	547.595	87	18	212
187	102	111	560.884	62	0	218
188	12	136	574.316	161	172	219
189	46	149	588.510	84	159	195
190	8	116	602.750	117	58	220
191	72	81	617.044	129	73	202

192	44	87	631.364	142	0	227
193	10	138	645.827	168	153	226
194	1	5	660.919	173	141	220
195	28	46	676.192	162	189	225
196	22	152	692.131	157	42	217
197	33	175	708.606	177	183	224
198	29	140	725.179	90	49	228
199	131	186	742.298	126	27	210
200	18	95	759.674	176	66	228
201	70	88	777.194	151	170	207
202	58	72	794.944	156	191	232
203	37	61	812.889	182	169	219
204	19	26	830.879	135	174	213
205	148	183	849.915	44	165	233
206	121	198	869.079	101	21	224
207	70	212	888.323	201	133	211
208	14	42	908.008	184	171	231
209	74	207	928.511	175	180	227
210	60	131	950.422	179	199	229
211	70	79	973.213	207	167	232
212	40	63	996.186	186	78	217
213	9	19	1019.694	185	204	226
214	34	38	1043.592	166	154	225
215	83	226	1068.153	72	163	235
216	90	93	1092.769	69	67	242
217	22	40	1118.584	196	212	223
218	16	102	1144.542	178	187	233
219	12	37	1172.033	188	203	229
220	1	8	1200.077	194	190	236
221	3	97	1228.218	164	65	241
222	118	193	1259.093	57	24	240
223	22	127	1290.206	217	55	240
224	33	121	1322.858	197	206	238
225	28	34	1356.738	195	214	230
226	9	10	1391.875	213	193	234
227	44	74	1427.653	192	209	237
228	18	29	1463.596	200	198	234
229	12	60	1501.666	219	210	239
230	28	110	1540.352	225	181	231
231	14	28	1587.912	208	230	239

232	58	70	1636.632	202	211	235
233	16	148	1686.889	218	205	241
234	9	18	1745.083	226	228	236
235	58	83	1804.593	232	215	237
236	1	9	1864.929	220	234	238
237	44	58	1928.229	227	235	245
238	1	33	1998.700	236	224	242
239	12	14	2076.922	229	231	243
240	22	118	2159.069	223	222	243
241	3	16	2249.257	221	233	244
242	1	90	2368.042	238	216	244
243	12	22	2508.222	239	240	245
244	1	3	2718.160	242	241	246
245	12	44	2981.442	243	237	246
246	1	12	3690.000	244	245	0

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