The "Noonday Demon", Weariness, Inattention, or All of the Above? Refining the Definition and Measurement of State Boredom

by

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ABSTRACT

THE "NOONDAY DEMON", WEARINESS, INATTENTION, OR ALL OF THE ABOVE? REFINING THE DEFINITION AND MEASUREMENT OF STATE BOREDOM

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The present research involves the development and validation of a state boredom measure. Across four studies, I develop and refine scale items based on a theoretically derived definition of state boredom and test the scale's psychometric properties across four samples. Studies 1 and 2 provide support for the substantive validity of the scale items, identifying items that are conceptually consistent with the theoretically derived definition of boredom. Study 3 tests the factor structure of the scale, providing support for the expected factor structure of boredom. Finally, Study 4 provides evidence for the convergent and discriminant validity of the scale with theoretically related and unrelated constructs. Overall, the present research suggests that the state boredom measure has a factor structure consistent with theory, generates reliable data, and is a valid measure of feeling bored.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

The "Noonday Demon", Weariness, Inattention, or All of the Above? Refining the Definition and Measurement of State Boredom

It can't be helped: boredom is not simple – Roland Barthes (1975, p. 25)

Most people can attest to feeling bored at some point in their life and, for many, boredom is experienced at work. In 2006, The Guardian newspaper reported that in a survey of over 2,000 graduates, half of the respondents indicated that they often feel bored at work (Carvel, 2006). Despite its prevalence, most research has focused on boredom at the trait level, or one's propensity to feel bored, rather than the actual experience of feeling bored. Trait level research has found that trait boredom is associated with depression, anxiety, and substance abuse (LePera, 2011). At work, trait boredom has been found to relate to lower performance, absenteeism, deviance, and work strain (Game, 2007; Kass, Vodanovich, & Callender, 2001; Matthews et al., 2000; Watt & Hargis, 2010). Researchers recognize that feeling bored may result in similar outcomes, suggesting that it has the potential to hinder organizational productivity and performance (Skowronski, 2012; Spector & Fox, 2010). Given the ubiquity of feeling bored at work and its potential to lead to negative outcomes, organizational researchers and practitioners may benefit from a better understanding of how boredom functions in organizations.

The prevalence of research on trait boredom, however, has led researchers to overlook characteristics unique to feeling bored or state boredom. To date, there is no agreed-upon definition of feeling bored and many who study boredom do not define it (e.g., Belton & Priyadharshini, 2007; Kanevsky & Keighley, 2003). The lack of definitional consensus is partly due to the complexity of boredom. Boredom has been described as "a complex, difficult to define construct" (Goldberg, Eastwood, Laguardia, & Danckert, 2011, p. 649).

The complexity of boredom contributing to definitional challenges is readily apparent in the field of psychology. There is some agreement among researchers in that most view boredom as consisting of multiple dimensions. However, this is where much of the agreement ends as researchers often disagree on which dimensions make up boredom. For example, some researchers define boredom in terms of inattention (e.g., Culp, 2006; Leary, Rogers, Canfield, & Coe, 1986) whereas others argue that feeling disengaged from the environment (e.g., Danckert & Allman, 2005; Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009) and/or distortions in time perception (e.g., Studak & Workman, 2004) are part of boredom. In addition, researchers disagree on whether boredom is accompanied by low or high arousal (e.g., Hill & Perkins, 1985; Mikulas & Vodanovich, 1993) with some maintaining that boredom is characterized by both (e.g., Fahlman, Mercer-Lynn, Flora, & Eastwood, 2013; Pattyn, Neyt, Henderickx, & Soetens, 2008). The lack of an agreed-upon definition of boredom makes it difficult for researchers to build theory on how boredom should relate to organizational variables. This is because researchers who define boredom differently are essentially theorizing about separate constructs, though each one is referred to as boredom.

There have been recent attempts to reach consensus on a definition of boredom using theory and/or prior definitions of boredom (e.g., Fahlman et al., 2013; Vogel-Walcutt, Fiorella, Carper, & Schatz, 2012). These approaches have resulted in fairly broad definitions of boredom in which distinctions between boredom and its outcomes are not clear. In this paper, I aim to advance the study of boredom by developing a theoretically rigorous definition and a psychometrically sound measure of boredom that distinguishes between its core components, antecedents, and outcomes. To generate a measure of boredom, I review how boredom is measured in psychology and identify limitations to these approaches. I use a deductive scale development process (Hinkin, 1998) and

formulate a measure of boredom based on a clear, theoretically informed definition of boredom. I develop this definition through a comprehensive review and analysis of boredom's etymology and contemporary use in psychology.

The Measurement of Boredom

The absence of a theoretically derived, widespread definition of boredom in psychology has presented a considerable barrier to the study of boredom. Notably, the inconsistency with which boredom has been defined has resulted in variability in its measurement. A number of studies have assessed boredom using a single item (e.g., Damrad-Frye & Laird, 1989; Matthews et al., 2000; Nett, Goetz, & Hall, 2011), such as "Did you get bored?" (Beshir & Ramsey, 1981) and "Time often lies heavy on my hands" (Shaw, Caldwell, & Kleiber, 1996). Other single item measures include bipolar scales (e.g., Geiwitz, 1966; Locke & Bryan, 1967; Speidel, 1974; Taylor, Thompson, & Spassoff, 1937), such as a 7-point scale ranging from feeling very much bored to feeling very much aroused (Mavjee & Horne, 1994). Each of these measures only assesses one dimension of boredom, such as time perception or low arousal. This is problematic given that boredom is a multidimensional construct that cannot be measured by a single item. Research findings from studies using these measures may be incomplete as they fail to capture boredom in its entirety.

There are several existing multi-item measures of boredom, including the Job Boredom Scale (Grubb, 1975), Lee's Job Boredom Scale (1986), the Leisure Boredom Scale (Iso-Ahola & Weissinger, 1990), the Free Time Boredom Scale (Ragheb & Merydith, 2001), the Task-related Boredom Scale (Scerbo, Rettig, & Bubb-Lewis, 1994), the Sexual Boredom Scale (Watt & Ewing, 1996), and the Purposelessness, Understimulation, and Boredom Scale (Passik, Inman, Kirsch, Theobald, & Dickerson, 2003). Most of these measures, however, have little or no research

evaluating their psychometric properties (see Vodanovich, 2003, for a review). For example, Grubb (1975) did not report reliability or validity evidence for his Job Boredom Scale (Vodanovich, 2003). In addition, these measures are fairly limited as they restrict the measurement of boredom to specific contexts, such as leisure time, making them inappropriate for other contexts. Finally, these measures were not designed to measure state boredom or how bored one is currently feeling. Lee's Job Boredom Scale (1986), for example, includes items such as, "Is your work monotonous?" and "Do you often get tired on the job?" This example illustrates that these measures may be more appropriate for assessing perceptions of how boring a particular context is in general and not how bored one is at a given moment.

There are a few measures of boredom that are used fairly frequently in substantive research and whose psychometric properties have received more attention. These scales include the Boredom Proneness Scale (BPS; Farmer & Sundberg, 1986), the Boredom Susceptibility Scale (ZBS; Zuckerman, 1979), and the Boredom Coping Scale (Hamilton, Haier, & Buchsbaum, 1984). These measures, however, are designed to measure either trait boredom, defined as one's propensity to feel bored, or one's ability to cope with boredom. Therefore, these scales are not appropriate for measuring boredom as a state despite their frequent use in the literature (e.g., Eastwood, Cavaliere, Fahlman, & Eastwood, 2007; Sundberg, Latkin, Farmer, & Saoud, 1991). For example, the BPS includes items such as, "When I was young, I was often in monotonous and tiresome situations", indicating that the scale is not designed to assess momentary feelings of boredom. Furthermore, there is little evidence that these different measures of trait boredom are assessing the same construct. Mercer-Lynn, Flora, Fahlman, and Eastwood (2013) found that the ZBS and the BPS were weakly correlated with one another (r = .21) and had different patterns of correlations with other variables. The researchers concluded that whereas the ZBS is characterized

by a search for stimulation and arousal, the BPS is characterized by withdrawal behaviours and negative affect (Mercer-Lynn et al., 2013).

Given the lack of theoretically-derived, validated measures of state boredom, researchers have highlighted the need for a measure of boredom rigorously grounded in theory (e.g., Vodanovich, 2003). A validated measure of state boredom is essential for understanding causes, correlates, and outcomes of boredom. Such a measure would enable researchers to test theories, such as those linking feeling bored to deviant workplace behaviours, and could enable organizations to redesign work environments to either reduce boredom or to promote better coping behaviours when bored. To date, there is only one empirically validated measure of state boredom: the Multidimensional State Boredom Scale (MSBS; Fahlman et al., 2013). The MSBS is a 29-item questionnaire that assesses boredom along five dimensions: disengagement, low arousal, high arousal, inattention, and time perception. Although the MSBS is comprehensive, it may be too broad. Specifically, it incorporates a number of dimensions that are theoretically consistent as outcomes rather than dimensions of boredom (e.g., time perception). Additionally, a review of the boredom literature suggests that some of the specific MSBS dimensions may be overly broad in that they incorporate content beyond their definitions. I explain these issues in more detail in the Definitions of Boredom in Psychology section, below.

The inclusion of additional dimensions and content beyond the dimensions' definitions contribute to the length of the MSBS. The MSBS is 29-item scale, which may be long for particular research purposes. When conducting field research, for example, researchers may find it impractical to use long scales (Hinkin, 1995). However, the length of the MSBS is not too unreasonable when compared to the typical scale length of unidimensional scales. In organizational research, undimensional scales tend to have three to five items (Hinkin, 1995), suggesting that a

multidimensional scale with five dimensions can be expected to have between 15 and 25 items. The MSBS's 29 items diverge only slightly from the higher-end of this range. Shorter scales, however, are less susceptible to careless responding or respondent fatigue (Hinkin, 1995; Schmitt & Stults, 1985), indicating that it still may be worthwhile to have a shorter measure of state boredom.

I aim to improve the measurement of boredom by developing a definition of boredom grounded in theory and by validating a measure of boredom that is conceptually consistent with this definition. I anticipate that a theoretically sound definition of boredom that identifies its constituent components and excludes content pertaining to its causes and outcomes will result in a narrower, more appropriate definition of boredom. This in turn should reduce the content domain necessary for a validated measure of boredom and produce a shorter scale. In the sections below, I provide a comprehensive review of the etymology of boredom and its contemporary treatment in the psychological literature, which I use to build a definition of boredom.

Historical and Contemporary Perspectives on Boredom

In order to develop a theoretically rigorous definition of boredom that differentiates between boredom's defining elements, antecedents, and outcomes, I conducted a comprehensive review of the boredom literature. Specifically, in the sections below, I review historical accounts on the etymology of boredom as well as contemporary definitions of boredom in psychology. First, I borrowed from a historical perspective in order to gain insight pertinent to the experience of feeling bored. I review changes in the meaning of boredom across time and identify components of boredom that emerge, and sometimes re-emerge, in different historical periods and contexts. Second, I use a psychological perspective in order to gain a broad understanding of how boredom is currently defined. I identify themes common among different definitions of boredom and rely on theory and the etymology of boredom to determine if each of these themes is a component,

antecedent, or outcome of boredom. I chose to focus on psychology definitions of boredom as these definitions emphasize the cognitive, affective, and behavioural aspects of boredom and tend to be specific. In contrast, other disciplines, such as philosophy, tend to use metaphors and/or hypothetical, impossible situations (i.e., immortality) to describe boredom, often resulting in abstract definitions that deviate from the experience of feeling bored (e.g., Bortolotti & Nagasawa, 2009).

The Origins of Boredom

The etymology of boredom is as complex, if not more, as its modern definitions. Boredom originates from the Greek word *acedia* (ἀκηδία; Peters, 1975), which has been described as "a word so pregnant with meaning that it frustrates every attempt to translate it" (Deseille, 2002, p. 297). The literal translation of ἀκηδία is, "without care" (LaMothe, 2007), but its meaning spans a variety of states and behaviours, including carelessness, idleness, weariness, neglect, restlessness, apathy, and sadness (Jackson, 1981; Wenzel, 1967). The term was initially restricted to monastic life, but later was secularized in the Middle Ages. Despite this change, its underlying meaning of spiritual slackness or idleness with respect to religious duties remained unchanged (Wenzel, 1996).

The Catholic monk Evagrius Ponticus (345-399 AD; Wenzel, 1967) is credited with introducing the term in his work *The Praktikos* (2006) in which he describes eight kinds of evil thoughts or demons, one of which is *acedia* — "the most serious trouble of all" (Ponticus, 2006, p. 18). Ponticus refers to *acedia* as the "noonday demon" as it was thought to most commonly afflict monks around midday. According to Ponticus, *acedia* tempts the monk to abandon his cell and though he does not explicitly define it, we can ascertain its meaning through his description:

> "[*Acedia*] makes it seem that the sun barely moves, if at all, and that the day is fifty hours long. Then he constrains the monk to look constantly out the windows, to walk outside the cell…to look now this way and now that… Then too he instills in the heart of the monk a hatred for the place, a hatred for his very life itself, a hatred for manual labor...This demon

> drives him along to desire other sites where he can more easily procure life's necessities, more readily find work and make a real success of himself" (p. 18-19).

Like modern definitions of boredom in psychology, Ponticus's description of *acedia* emphasizes the multidimensional nature of the construct. Based on his description, we can surmise that *acedia* involves negative affect, dissatisfaction with one's current state, idleness, restlessness, a slackening of attention, and the perception that time is moving slowly or not at all. Consistent with this interpretation, psychology researchers have described boredom as involving negative affect (Fisher, 1993), feeling disengaged from or dissatisfied with one's environment (Greenson, 1953; Mercer & Eastwood, 2010), feeling lethargic and/or restless (Fahlman et al., 2013), being unable to sustain attention (Leary et al., 1986), and perceiving time to move slowly (Studak & Workman, 2004). In later years, however, this broad conceptualization of *acedia* became narrower, focusing on what were thought to be its constituent components.

A subtle shift in the meaning of *acedia* is evident in the work *The Institutes* (2000) by the Catholic monk John Cassian (c. 360-435 AD; Jackson, 1981), in which he introduced eight principle vices. In contrast to the Gregorian list of cardinal sins, now part of Catholic doctrine (Jackson, 1981; Wenzel, 1967), Cassian's list included *acedia*, which he defines as, "a wearied or anxious heart" (Cassian, 2000, p. 219), analogous to sadness. Like Ponticus, Cassian describes *acedia* as leading the monk to abhor the monastic life, making him either idle or restless. Juxtaposing these two behavioural outcomes, he writes, "it either allows [the monk] to stay in his cell without any spiritual progress, in as it were a state of inactivity and surrender, or drives him out from there and makes him, in addition, unstable and feckless" (Cassian, 2000, p. 221). Though his description mirrors the work of Ponticus in that *acedia* is described as being accompanied by either low or high arousal (i.e., inactive and/or disturbed), Cassian's definition underscores *acedia*'s low arousal dimension; an emphasis that became more apparent in the early Middle Ages.

Cassian also reflects on the state-like qualities of *acedia*, which marked a shift from contemporary behavioural descriptions of *acedia*, providing additional insight into the construct. He states, "So filled is [the monk] with a kind of irrational confusion of mind, like a foul mist, and so disengaged and blank has he become with respect to any spiritual activity" (Cassian, 2000, p. 220). In emphasizing the punctuated and episodic aspect of *acedia*, Cassian highlights feeling disengaged and withdrawn from one's duties, which many in psychology view as the defining feature of boredom (Fahlman et al., 2009; Lee & Mittelstaedt, 2004; Lewinsky, 1943).

The depiction of *acedia* as a state of low arousal and disengagement was more readily apparent in the Middle Ages. In the twelth century, *acedia* became commonly associated with *tristitia*, which denotes dejection, sadness, and sorrow (Jackson, 1981). In fact, Gregory the Great (540-640 AD) did not include *acedia* in his list of cardinal sins as he believed it overlapped with the sin of dejection (Jackson, 1981). The depiction of *acedia* as a melancholic, low arousal state existed alongside the view that *acedia* was characterized by idleness and negligence. This view of *acedia* highlighted its lethargic, low arousal and disengagement components. At the same time, contemporaries recognized that this type of *acedia* was caused by an inability to sustain one's attention (Wenzel, 1967). This is evident in the recommendations of a twelth century writer: "If the psalms become burdensome, change to reading; if this begins to bore you[1], get up for prayer; when you are tired of these activities, take up some manual work, so that by healthy alteration you may refresh the mind and drive away *acedia*" (1456, as cited in Wenzel, 1967, p. 32). Overall, in the early Middle Ages, depictions of *acedia* became more focused on feelings of melancholy, listlessness, and disengagement with less focus on other facets introduced by Ponticus, such as restlessness and distortions in time perception. Regardless of transformations in its meaning, *acedia*

[1] This text was translated from its original form; thus, the word 'bore' is a modern interpretation.

was always discussed in relation to spiritual slackness or an aversion to spiritual duties, primarily resulting from an aversion to the monastic life (Wenzel, 1967).

In the late Middle Ages, *acedia* became secularized (Jackson, 1981; Wenzel, 1967). At this time, *acedia* became more formerly known as the sin of sloth, or laziness with respect to one's religious duties, and was discussed in reference to commoners in addition to monastics. Overall, the transformations in the meaning of *acedia* that occurred during the Middle Ages emphasized two dimensions. First, the "sorrow-dejection-despair" dimension apparent in *tristitia*, and second, the "neglect-idleness-indolence" dimension apparent in sloth (Jackson, 1981). These transformations in meaning were largely responsible for the term *acedia* falling out of use around the fifteenth century as *acedia* was replaced with more apropos or vernacular terms (Wenzel, 1967). *Tristitia* was used to refer to the melancholic, low arousal dimension of *acedia* whereas sloth was used to refer to the lethargic, low arousal and disengagement dimensions.

The word boredom itself did not appear in the English language until the mid- nineteenth century. Though Charles Dickens' (1853/2003) novel Bleak House is often cited as the first printed use of the term, other non-print (i.e., non-public) sources reveal that its use predated 1853. For example, in a letter dated 1831, an English woman writes of her experience as a model, "I have been three or four times to Mr. Pickersgill, and generally sit two hours at a time…I was in hopes that when I had done with him I should not have to sit to anybody for anything again. But I find I am to undergo that *boredom* [emphasis added] for a bust by Mr. Turnerelli" (Kemble, 1879, p. 365). Bearing similarity to the disengagement dimension of *acedia*, here boredom is described as an aversion towards participating in unsatisfying activity. Other early uses of boredom describe a desire to engage in satisfying activity. In 1831, an English woman writes to a friend: "How dare you complain of solitude and *boredom* [emphasis added] at Dieppe, – and to me too, who am

obliged to endure twice as much, and have no all-absorbing work, and can never drop into a café and engage the first-comer in conversation, as you so easily can!" (Mohl, 1984, p. 235). In addition to referencing the disengagement dimension of *acedia,* early uses of boredom are reminiscent of its low arousal dimension. For example, in Charles Dickens' (1853/2003) novel Bleak House, boredom is described as a "disorder attacking [one's]… spirits" (p. 857).

Across time, the experience of boredom has been described in relation to a number of different feelings, cognitions, and behaviours. This complexity makes it difficult to isolate exactly what it means to feel bored. In reviewing transformations in the meaning of *acedia*, however, it is clear that early broad conceptualizations of *acedia* later became narrower, focusing on *acedia*'s core dimensions: lethargic, low arousal and disengagement. These themes re-emerged with the introduction of the word boredom in the nineteenth century, suggesting that these dimensions may be at the heart of what it feels like to be bored. The transition from a broad to a narrow definition of boredom is important as it enables researchers to operationalize boredom without confounding it with its causes, outcomes, or related constructs. However, unlike the etymology of the term, modern definitions of boredom in psychology are fairly broad and can fail to differentiate between dimensions of boredom and related aspects. In the sections below, I review definitions of boredom in psychology and identify common themes in these definitions. Using theory and research on boredom's etymology, my goal was to delineate why some of these themes should be considered part of boredom and others should not. In doing so, I aimed to directly address definitional disagreements in the literature and build consensus on a historically informed and theoretically-grounded definition of state boredom.

Definitions of Boredom in Psychology

I conducted a literature review in order to capture the breadth with which boredom has been defined in psychology. I conducted my search using *PsychInfo* wherein I specified "boredom" as a keyword in peer-reviewed sources. My search yielded 444 hits. In reviewing each manuscript, I excluded those that were not written in English (n = 45), could not be retrieved (n = 40), were book reviews or erratums (n = 6), or that did not provide a definition of boredom (n = 300). These exclusion criteria resulted in a remaining 53 manuscripts. Of these, I excluded manuscripts in which authors repeated definitions of boredom that were provided in their earlier works (n = 3) and those that only defined boredom with respect to its causes (n = 2; e.g., "a unique psychophysiological state that is somehow produced by prolonged exposure to monotonous stimulation", O'Hanlon, 1981, p. 54). In addition, because I was interested in how boredom is defined in psychology, I excluded manuscripts from other disciplines (n = 4). This resulted in 44 manuscripts that either explicitly defined boredom (n = 29) or cited definitions of boredom from other sources in a way that indicated agreement (n = 15). I carefully reviewed each definition in order to identify themes. I coded each definition based on themes that were present in the definitions, with each definition being coded with as many themes as I could identify. Though these themes overlapped with content in the boredom literature, I selected themes based on my review of the definitions rather than *a priori* knowledge of what has been articulated in the literature. Themes that were not repeated in other definitions were coded as "other." Table 1 displays each definition and its themes.

Overall, I identified nine themes, with a mean of 2.63 themes present in each definition (SD = 1.35).[2] The nine themes were disengagement (n = 29; 66%), a negative/unpleasant state (n = 21; 48%), low arousal (n = 19; 43%), inattention (n = 10; 23%), time perception (n = 8; 18%), meaning

[2] Some definitions explicitly identified causes (n = 4; 9%) and outcomes (n = 1; 2%) of boredom; these themes are not included in the analysis.

(*n* = 7; 16%), attribution (*n* = 6; 14%), monotony (*n* = 6; 14%), and high arousal (*n* = 5; 11%). I review each of these themes in turn and rely on theory in addition to research on the etymology of boredom to evaluate whether each of these themes warrants being included in a definition of boredom.

Boredom and disengagement. Most definitions of boredom (*n* = 29; 66%) suggest that boredom involves feeling withdrawn from one's environment (e.g., Greenson, 1953; Fahlman et al., 2013; Mercer & Eastwood, 2010) and many researchers view this as the defining feature of boredom (e.g., Fahlman et al., 2009; Fenichel, 1951; Goldberg et al., 2011; Lewinsky, 1943; Passik et al., 2003). Consistent with this, in reviewing the etymology of boredom, *acedia* was defined as disengaging from one's spiritual duties and early uses of boredom refer to having nothing to do, engaging in unsatisfying activity, and wanting to do something interesting.

Psychodynamic theory is perhaps the most widely cited and relevant theory applicable to the disengagement dimension of boredom (Eastwood, Frischen, Fenske, & Smilek, 2012; Fahlman et al., 2013). According to psychodynamic theory, the bored individual experiences a state of displeasure in which he/she longs to engage in rewarding activity, but is unable to identify what he/she desires (Fenichel, 1951; Greenson, 1953; Lewinsky, 1943; Wangh, 1975). Lewinsky (1943) asserts that "this uncertainty and vagueness about one's own wishes is…characteristic of boredom" (p. 148). Based on these ideas, I propose that disengagement is an essential component of boredom, which I define as a longing to engage in an unspecified satisfying activity.

This conceptualization of disengagement can be contrasted with the content of some of the disengagement items from the MSBS. Though some of these items do capture the vague longing characteristic of boredom, a number of items deviate from this definition. Some items, for example, describe feelings of constraint ("I am stuck in a situation that I feel is irrelevant") or subjective

monotony (e.g., “Everything seems repetitive and routine to me”). Theory would suggest that this item content is too broad and may overlap with states other than boredom. Thus, it may be necessary to develop and refine additional disengagement items that more closely map onto feeling bored in order to obtain an accurate, valid measure of state boredom.

Some definitions of boredom (*n* = 6; 14%) claim that in order for one to be bored, one must attribute one’s current state to some deficiency in the environment (e.g., Mikulas & Vodanovich, 1993; Pattyn et al., 2008). However, psychodynamic theory suggests that the bored individual is not necessarily able to identify the cause of his/her current state. For example, Wangh (1975) states that the bored individual may simply feel discomfort as well as a vague longing to engage in activity, suggesting that the bored individual may lack awareness as to why he/she is bored. Thus, psychodynamic theory would suggest that one does not need to attribute one’s current state to a specific aspect of the environment in order to feel bored.

Boredom and arousal. The activation level associated with boredom is perhaps its most contentious aspect. Definitions of boredom tend to diverge quite severely with respect to the level of arousal associated with a bored state. Specifically, some researchers maintain that boredom is characterized by low arousal (e.g., Mikulas & Vodanovich, 1993; Russell, 1980) whereas others assert that feeling bored is characterized by high arousal (e.g., Berlyne, 1960; Hill & Perkins, 1985). Still, some researchers maintain that boredom is a state of both low and high arousal (e.g., Fahlman et al., 2013; Pattyn et al., 2008).

In reviewing the boredom literature, I found that many definitions of boredom reflected a state of low arousal (*n* = 19; 43%). This is consistent with the etymology of the term wherein *acedia* was thought to involve lethargic, low arousal or idleness. Current psychology definitions of boredom describe it as a “deactivating emotion” or as a state of low physiological arousal (Birdi,

Warr, & Oswald, 1995; Goetz, Preckel, Pekrun, & Hall, 2007; Mikulas & Vodonovizh, 1993; Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010; Perrin-Wallqvist, Archer, & Norlander, 2004; Tze, Daniels, Klassen, & Johnson, 2013). Elsewhere, researchers have described boredom as involving feelings of weariness, lethargy, fatigue, drowsiness, and emptiness (Bergler, 1945; Bergstein; 2009; Dexter, 1935; Geiwitz, 1966; Gensley, 1971; Greenson, 1953; Iso-Ahola & Weissinger, 1987; Levy, 1984; Marsh, 1983; Sundberg et al., 1991; Taylor et al., 1937). Consistent with these descriptions, qualitative data indicates that bored individuals report feeling tired, lethargic, and empty (Harris, 2000; Marsh, 1983; Martin, Sadlo, & Stew, 2006; Pekrun et al., 2010; Vandeweile, 1980).

Seemingly at odds with these ideas, other researchers contend that an increase in physiological arousal is a defining element of boredom (e.g., Berlyne, 1960; Hill & Perkins, 1985). My review of the literature, however, reveals that this view is actually espoused in very few definitions (n = 5; 11%). The idea that boredom is accompanied by high arousal is supported by qualitative data. Bored individuals indicate feeling restless, irritable, and anxious (Harris, 2000; Martin et al., 2006; Vandeweile, 1980). However, these reports tend to coincide with reports of lethargy, tiredness, and emptiness. These qualitative accounts of boredom are consistent with definitions (n = 2; 5%) in which boredom is seen as a state characterized by both low and high arousal (e.g., Fahlman et al., 2013; Pattyn et al., 2008). Though early behavioural descriptions of *acedia* are consistent with this dual low and high arousal perspective, later state-centered conceptualizations of *acedia* describe it solely in reference to low arousal.

It seems logically and physiologically inconsistent to suggest that boredom is comprised of both high and low arousal. However, arousal theories can provide insight into why and how this may occur. Arousal theories state that people are motivated to maintain an optimal level of arousal

and that physiological arousal below this level is perceived as unpleasant (see Eisenberger, 1972, for a review; Fiske & Maddi, 1961; Hebb, 1955). Consistent with arousal theory, researchers maintain that boredom occurs when one's arousal level falls below this customary level (Damrad-Frye & Laird, 1989; de Chenne, 1988; Mann & Robinson, 2009; Mikulas & Vodanovich, 1993; O'Hanlon, 1981). Because individuals are motivated to maintain an optimal level of arousal, bored individuals may make efforts to increase arousal either through changing their environment or, if this is not possible, by increasing their internal level of physiological arousal (Damrad-Frye & Laird, 1989; Loukidou, Lou-Clarke, & Daniels, 2009; Mikulas & Vodanovich, 1993; O'Hanlon, 1981). As a result, it is consistent with theory to expect that the state of lethargic, low arousal that is central to boredom can sometimes, but not always, result in high arousal. Reports of feeling restless and irritable when bored are often associated with situations involving constraint or force (Geiwitz, 1966; Martin et al., 2006; Mikulas & Vodanovich, 1993) and thus may be indicative of individuals attempting to escape boredom by altering their internal level of arousal given that changing the environment is not possible. Therefore, according to arousal theories, high arousal is likely a result of trying to escape feeling bored and, therefore, not central to the construct itself.

Characterizing boredom as a low arousal state is a rather broad conceptualization. This can be expanded on by considering the valence of boredom (i.e., positive versus negative) in addition to its activation level (i.e., high versus low). My review of the literature revealed that almost half the definitions of boredom explicitly implicated boredom as a negative, unpleasant or aversive state (*n* = 21; 48%; e.g., Fisher, 1993; Geller, 1994; Lin, Lin, & Wu, 2009; Preckel, Götz, & Frenzel 2010; Todman, 2003). This view of boredom is reminiscent of *acedia*, which was referred to as "the noonday demon" (Ponticus, 2006). The conceptualization of boredom as a negative, low activation state is consistent with how it is depicted in circumplex models of affect (e.g., Larsen & Diener,

1992; Russell, 1980; Yik, Russell, & Steiger, 2011) in which states are represented in a circular space and load onto two dimensions of valence and activation.

States that load similarly on the two continuums of valence and activation are often grouped into the same octant and boredom is typically depicted alongside drowsy, dull, sluggish, and tired (Remington, Fabrigar, & Visser, 2000; Stanley & Meyer, 2009; Yik et al., 2011). This is consistent with the boredom literature wherein boredom is described as feeling weary, lethargic, fatigued, or drowsy (e.g., Geiwitz, 1966; Marsh, 1983; Sundberg et al., 1991). Russell (1980) noted that octants are "a class without sharp boundaries, in which there is a gradual but specifiable transition from membership to nonmembership" (p. 1165). This implies that states within each octant may overlap with states in adjacent octants. The tiredness octant is adjacent to the octant containing sad, down, blue, and depressed (Stanley & Meyer, 2009; Yik et al., 2011), the latter of which is higher on the displeasure/negative affect dimension and the activation/arousal dimension. In addition to feelings of lethargy and listlessness, several researchers (e.g., Bergstein, 2009; Greenson, 1953) have posited that boredom is manifested in feelings of emptiness, which is consistent with qualitative reports (Harris, 2000). Emptiness can be considered as part of the sadness octant, but is potentially less negatively valenced and lower in arousal than sadness and depression. This suggests that feelings of emptiness may be implicated in boredom as well as lethargy. Taken together, research on affect and boredom suggest that low arousal is an essential component of boredom and can be defined as an unpleasant, deactivated state that is manifested in emotions such as weariness, lethargy, fatigue, drowsiness, and emptiness.

This conceptualization of the low arousal component of boredom can be contrasted with the content of the low arousal items from the MSBS. These items overlap with the sadness octant of the circumplex model (e.g., "I feel lonely") and exclude content from the tiredness octant. Thus, theory

would suggest that the MSBS low arousal items are not appropriate for measuring boredom and support the need for a new scale.

Boredom and inattention. Definitions of boredom often include an attentional component (*n* = 10; 23%) in which the bored individual has difficulty concentrating and maintaining his/her attention. Indeed, a number of researchers propose that inattention is the mechanism through which boredom operates (e.g., Culp, 2006; Eastwood et al., 2012; Leary et al., 1986; Skowronski, 2012) and scholars assert that the inability to maintain attention was implicated in *acedia* (Crislip, 2005). Consistent with this idea, qualitative data shows that bored individuals often report inattention, mind wandering, and daydreaming (Game, 2007; Harris, 2000; Marsh, 1983; Martin et al., 2006). According to attentional theories, boredom occurs when sustaining our attention is effortful (Eastwood et al., 2012; Fahlman et al., 2013; Leary et al., 1986). In support of this, tasks that require sustained attention, such as vigilance tasks, are often rated as being boring (London, Schubert, & Washburn, 1972; Scerbo, Greenwald, & Sawin, 1993).

Unlike disengagement and lethargic, low arousal, inattention was not predominant in writings on *acedia*. This is perhaps due to the modernity of attentional theories, which did not become a prominent school of thought until the 19th century and may have been poorly understood prior to that (Johnson & Proctor, 2004). Thus, though there was some recognition that inattention was implicated in *acedia*, a lack of understanding may have precluded it from ever being at the forefront of discussion. Recent theory suggests that boredom does involve an attentional component. Indeed, experimental data has shown that manipulating attention is likely to affect levels of boredom (Damrad-Frye, & Laird, 1989). Thus, attentional theory and research would suggest that inattention is an essential component of boredom, which can be defined as an inability to concentrate or focus attention and/or difficulty in maintaining attention.

Boredom and time perception. Some definitions of boredom (*n* = 8; 18%) identify a distorted perception of time as being a component of boredom, with most stating that the bored individual perceives time to be moving slowly or standing still (e.g., Gabriel, 1988; Greenson, 1953; Tze et al., 2013). Theory on why boredom encompasses changes in time perception is scant and most researchers rely on empirical and self-report data to support propositions that time perception is integral to the experience of boredom (Hawkins, French, Crawford, & Enzle, 1988). For example, research indicates that boring tasks coincide with reports of a slowed passing of time (London & Monello, 1974; London et al., 1972) and some qualitative data indicates that bored individuals perceive time as moving slowly (Martin et al., 2006).

In agreement with some researchers (e.g., Mikulas & Vodanovich, 1993), I propose that a distorted perception of time is a consequence of boredom rather than one of its integral components. This can be best explained using internal clock models (e.g., Gibbon, 1977) in which attentional processes are seen as being responsible for how time is perceived. According to scalar expectancy theory¸ our internal clock emits temporal pulses that are accumulated throughout a specific event or episode. An episode associated with greater temporal pulses is perceived as longer, lending to the perception that time is passing slowly (Casini, & Macar, 1999; Eastwood et al., 2012; Hansen & Trope, 2013; Smith, McIver, Di Nella, & Crease, 2011). Attentional resources are normally allocated to both stimulus and temporal information (Hansen & Trope, 2013). When we are engaged, our attention is divided and not all temporal pulses are perceived, making time appear to move faster. When we are unengaged, however, we allocate more attentional resources to temporal cues, enabling more temporal pulses to be perceived. This creates the perception that time is moving slowly. Drawing from internal clock models, I view distortions in time perception that occur when bored to be a consequence of being disengaged from one's environment. Indeed, in

order for time to be perceived as moving slowly, some amount of time has to pass. This chronological necessity places time perceptions downstream of other processes, making it a natural consequence of boredom and not central to the construct. Thus, I do not consider distortions in time perception to be central to boredom, but instead a consequence of it.

Boredom as the absence of meaning. Some researchers borrow from sociological or philosophical perspectives and define boredom as the absence of meaning (n = 7; 16%). This view of boredom is inconsistent with a psychological perspective in which lack of meaning is seen as being a cause of boredom (de Chenne, 1988; Fahlman et al., 2009; Fiske & Maddi, 1961; MacDonald & Holland, 2002; Perkins & Hill, 1985). That is, engaging in activities that one perceives as meaningless is more likely to induce a state of boredom than engaging in activities that one perceives as meaningful.

Discussions relating boredom to the absence of meaning are most prominent in philosophy (e.g., Bruss, 2012; Svendsen, 2005). Importantly, boredom is discussed differently in philosophy than it is in psychology. Specifically, in philosophy, two types of boredom have been identified: existential boredom and situational boredom. Existential boredom describes a "persistent, soul-wearying" condition (Bruss, 2012, p. 315) that is the result of accumulated experiences (Svendsen, 2005), thereby representing a chronic condition and is distinct from boredom as a state. Situational boredom describes "a temporary state of dissatisfaction or weariness prompted by a particular source" (Bruss, 2012, p. 316) and is consistent with the conceptualization of boredom as a state. Indeed, the latter perspective highlights boredom's disengagement (i.e., dissatisfaction) and lethargic, low arousal (i.e., weariness) components. Whereas existential boredom has been described in relation to a lack of meaning, situational boredom has been described as resulting from something specific in the environment and as being distinct from a lack of meaning (Bortolotti &

Nagasawa, 2009; Svendsen, 2005). Thus, it appears that even in philosophy there is little justification for defining state boredom with respect to the absence of meaning. Instead, perceived lack of meaning in one's environment may be a cause of boredom. Perceiving one's environment as meaningless can cause one to disengage from the environment. Meaningless stimuli may also not be captivating or stimulating and fail to capture one's attention, relating to the low arousal and attentional components of boredom.

Boredom and monotony. Few definitions of boredom (n = 6; 14%) view boredom as "a growing feeling of monotony" (Taylor et al., 1937, p. 433). Early research on boredom is consistent with this perspective: boredom was often discussed in relation to repetitive or monotonous work (Drory, 1982; Hill, 1975; O'Hanlon, 1981; Wyatt, 1927) and some researchers used boredom and monotony interchangeably (e.g., Smith, 1955; Thackray, 1981). This perspective, however, has shifted with most researchers asserting that monotony can be a precursor to boredom (Bailey, Thackray, Pearl, & Parish, 1976; Vogel-Walcutt et al., 2012) and that monotonous tasks do not produce boredom in all individuals (O'Hanlon, 1981; Perkins & Hill, 1985), thereby implying that monotony can be a cause, but not a necessary component of boredom. These assertions are consistent with qualitative data in which individuals identify monotony as preceding boredom (Daschmann, Goetz, & Stupnisky, 2011; Harris, 2000). Consistent with this contemporary perspective, I view monotony as a cause of boredom.

Defining State Boredom

Based on my review of the literature, I view boredom as a multidimensional construct consisting of three dimensions: disengagement, low arousal, and inattention. Together, I define boredom as *a lethargic, deactivated negative state in which one is unable to concentrate or focus attention and experiences a longing to engage in an unspecified satisfying activity*. This definition

is consistent with the etymology of the term wherein it was defined primarily in relation to disengagement and lethargic, low arousal, but incorporates recent theory by including an attentional component (see Appendix A for situational examples of feeling bored). Given that boredom is a multidimensional construct, it can be understand in terms of its dimensions, which are defined below.

> *Disengagement:* a longing to engage in an unspecified satisfying activity.
>
> *Low arousal:* a deactivated, negative state that is manifested in emotions such as weariness, lethargy, listlessness, and emptiness.
>
> *Inattention:* an inability to concentrate or focus attention and/or difficulty in maintaining attention.

A multidimensional construct refers to a construct that has "several distinct but related dimensions treated as a single theoretical concept" (Edwards, 2001, p. 144). Multidimensional constructs are understood in terms of their dimensions and do not exist independently of these dimensions. Thus, boredom can only be understood with respect to its dimensions of disengagement, low arousal, and inattention. Each of these three dimensions are distinct from one another, but are considered boredom when referred to collectively.

Boredom can be best understood as a superordinate construct, which is a type of multidimensional construct. Superordinate constructs refer to "a general entity that is manifested or reflected by the dimensions that serve as its indicators" (Williams, Edwards, & Vandenberg, 2003, p. 909-910). This means that boredom is an underlying latent construct that manifests itself in experiences of disengagement, low arousal, and inattention. This superordinate structure of boredom is displayed in Figure 1.

Superordinate constructs are analogous to reflective measures in which the arrows flow from the construct to its indicators. However, with superordinate constructs, the arrows flow from

the superordinate construct to its dimensions and the dimensions are latent variables in which the superordinate construct manifests itself (Edwards, 2001; Law, Wong, & Mobley, 1998). The relation between a superordinate construct and each of its dimensions can be observed in the factor loadings, which are driven by the relations among the dimensions; higher factor loadings indicate that the dimensions share more common variance (Williams et al., 2003). Variance that is common among all the dimensions is captured by the superordinate construct and variance that is not common is captured by the residuals for each dimension (Edwards, 2001; Johnson, Rosen, Chang, Djurdjevic, & Taing, 2012). Because superordinate constructs are expected to account for most of the variance in their dimensions, they should have high factor loadings (Johnson, Rosen, & Chang, 2011; Wright, Campbell, Thatcher, & Roberts, 2012).

In sum, I define boredom as a superordinate construct comprised of three related, yet distinct, dimensions that when considered together refer to boredom. As a superordinate construct, boredom manifests itself in experiences of disengagement, low arousal, and inattention and is the primary source of variance among its dimensions; therefore, each dimension should have a high factor loading. In the section below, I outline the development and validation of a new scale based on my definition of boredom.

Overview of the Present Studies

The present research consists of four studies on the development and validation of a state boredom measure. In Studies 1 and 2, I systematically evaluate the scale items created through a deductive method to ensure that they closely reflect my definition of boredom. I sought to retain only those items that were conceptually consistent with my definition of boredom and that did not overlap with the content of constructs related to boredom. In Study 3, I use SEM to evaluate the factor structure of the boredom scale. Specifically, I test a theoretically consistent model of

boredom (three factor superordinate model) and compare the fit of this model to alternative models. I also examine the factor loadings of the most theoretically consistent model to determine if any items warrant elimination from the scale. Finally, in Study 4, I evaluate the convergent and discriminant validity of the scale. Specifically, I investigate the extent to which my measure of boredom correlates with measures of constructs to which it should and should not relate.

Item Creation

I created items using a deductive approach to item development wherein items are created using an existing theoretical framework (Hinkin, 1998). Given that items should only assess one idea or construct (Hinkin, 1998), I created three subscales for each of the disengagement, low arousal, and inattention dimensions. Each item was designed to reflect the content of its respective dimension based on the definitions I created through my literature review. I also sought to ensure that the wording of each item was simple, clear, and succinct in order to facilitate respondents' interpretation of the items (Clark & Watson, 1995; Hinkin, 1998). In total, I created 22 items with the help of a faculty researcher.

I also included 19 additional items from the disengagement, low arousal, and inattention subscales of the MSBS. These items were chosen as they overlapped with my dimensions of boredom and, importantly, were not redundant with the content of the items that I had created. This process enabled me to empirically test if, and the extent to which, MSBS items were reflective of my definitions. Appendix B contains a list of the 41 items; MSBS items are indicated with an asterisk.

Studies 1 and 2

The purpose of Studies 1 and 2 was to assess the substantive validity of the items. Substantive validity refers to the extent to which an item or measure reflects the construct of

interest (Anderson & Gerbing, 1991).[3] Researchers recommend that tests of substantive validity be conducted early in the scale validation process as scales must show evidence of substantive validity in order to have construct validity (Anderson & Gerbing, 1991; Hinkin, 1998). Judges of substantive validity should be representative of the population of interest to ensure that target respondents' interpretation of each item is consistent with its conceptual meaning (Anderson & Gerbing, 1991). As a result, I recruited a non-student and student sample to investigate the substantive validity of the items. In Study 1, I used a non-student sample to ensure that each item was reflective of its respective dimension and not reflective of other dimensions. In Study 2, I used a student sample to ensure that each item did not reflect the content of constructs related to boredom. Following sample size recommendations for substantive validity studies, I sought to have 12 to 30 participants for each study (Hunt, Sparkman, & Wilcox, 1982).

Study 1: Dimension-Related Substantive Validity

In Study 1, I sought to assess the substantive validity of the 41 items. Because the scale is multidimensional, I aimed to retain items that were representative of their respective dimension and not reflective of other dimensions. As a result, the first study asks participants to evaluate items against the dimension definitions.

Method

Procedure

I presented participants with the definitions of each boredom dimension (disengagement, low arousal, inattention) as well as the 41 boredom items. Participants were instructed to match each item to the appropriate construct based on the definitions. They also had the option of assigning items to an 'other' category for items that they felt did not reflect any of the definitions

[3] Whereas substantive validity is concerned with the properties of a single item or measure, content validity refers to the properties of a group of items or measures (Anderson & Gerbing, 1991).

(see Appendix C for task instructions and materials). In order to account for order effects, I counterbalanced the presentation order of the items.

Participants

The present study consisted of 25 individuals recruited from Mechanical Turk at Amazon.com who were compensated with $0.50 in exchange for their participation. Only individuals who indicated that they were full-time workers were able to participate in the study. The mean age of participants was 40.08 (*SD* = 14.74; *range* = 19 to 67); 64% of the sample was female (*n* = 16) and 76% identified as being Caucasian (*n* = 19). With respect to education, 4% had a professional degree (*n* = 1), 32% had a Bachelor's degree (*n* = 8), 52% had completed some college (*n* = 13), and 12% had a high school diploma or equivalent (*n* = 3).

To ensure that participants were scrupulously assigning items to constructs, I included two distracter items that clearly did not overlap with the content of any of the definitions (e.g., "I would probably keep working even if I didn't need the money" and "I am highly involved in community activities"). Participants who did not correctly assign both items to the 'other' category were excluded from the analyses. Overall, 23 individuals from the initial sample of 48 were excluded, resulting in a final sample of 25 participants.

Statistical Analyses

Substantive validity was assessed using two statistical techniques developed by Anderson and Gerbing (1991). The first index of substantive validity is the proportion of substantive agreement (*psa*), which is, "the proportion of respondents who assign an item to its intended construct" (Anderson & Gerbing, 1991, p. 734). The *psa* is calculated by dividing the number of individuals who assigned the item to the intended construct by the total number of respondents. This value can range from 0 to 1 with the former value indicating that no one assigned the item to

the intended construct and the latter value indicating that everyone assigned the item to the intended construct. Because the *psa* only indicates whether or not an item reflects the construct of interest and not if it reflects other constructs, a second index of substantive validity is needed.

The substantive-validity coefficient (*csv*) provides an assessment of the degree to which an item overlaps with a construct other than the one of interest. The *csv* is calculated by subtracting the greatest number of respondents who assigned the item to another construct from the number of respondents who assigned the item to the intended construct. This number is then divided by the total number of respondents. This value can range from -1 to 1 with greater values reflecting more substantive validity for the construct of interest. Though there is no fixed cut-off criterion for both the *psa* and *csv*, researchers recommend using a cut-off of .75 (Hinkin, 1995; Rovinelli & Hambleton, 1977). Based on this recommendation, I sought to discard items with *psa* or *csv* values lower than .75.

Results

The *psa* and *csv* values for each item are displayed in Table 2.

Disengagement

Results for the disengagement subscale indicated that five of the 17 items met the cut-off criteria. These were items “I wish there was something for me to do”, “I want to do something interesting but don’t know what to do”, “I want to do something but I don’t know what”, “I wish I was doing something more exciting”, and “I want something to happen but I’m not sure what.”

Low arousal

Results for the low arousal subscale indicated that nine of the 12 items met the cut-off criteria. These were items “I feel listless”, “I feel tired”, “I feel lethargic”, “I feel drowsy”, “I feel fatigued”, “I am lacking energy”, “I feel sluggish”, “I feel empty”, and “I feel down.”

Inattention

Results for the inattention subscale indicated that all of the 12 items met the cut-off criteria.

Discussion

Overall, 26 items across the three subscales were retained with some dimensions retaining more items than others. Specifically, all of the inattention and most of the low arousal items were retained, whereas most of the disengagement items were not. The fact that a number of the disengagement items were judged to be conceptually inconsistent with the definition suggests that the item content for disengagement was outside the scope of this definition. In addition, close examination of the results revealed that 73% of the items that were dropped were from the MSBS. This supports the need for a new scale as scale items must closely reflect the construct definition in order for the scale to have construct validity (Anderson & Gerbing, 1991; Clark & Watson, 1995; Hinkin, 1998) and most of the MSBS items clearly do not satisfy this criterion. Overall, the results indicate that respondents found 26 items to be conceptually consistent with their definition, providing initial evidence for the substantive validity of these items.

Study 2: Construct-Related Substantive Validity

The purpose of Study 2 was to ensure that the content of the items retained from Study 1 did not overlap with constructs related to boredom. In order to reduce the cognitive demand on participants, I opted to include two other constructs; these were proactive personality and anger. These constructs were selected as they share some conceptual overlap with boredom, but are distinct in important ways. Namely, both boredom and proactive personality reflect a desire to engage in activity; however, the content of the boredom items reflects passively desiring change and the content of the proactive personality items reflects actively inciting change. I selected anger

as both anger and boredom are characterized by negative affect, though anger is a high arousal state and boredom is a low arousal state.

Method

Procedure

Participants read the definitions of disengagement, inattention, and low arousal in addition to definitions of anger and proactive personality. Participants were presented with the 26 boredom items retained from Study 1 as well as items from each of the State-Trait Anger Scale (Spielberger, Jacobs, Russell, & Crane, 1983) and the Proactive Personality Scale (Bateman & Crant, 1993; Seibert, Crant, & Kraimer, 1999). In order to reduce the cognitive load on participants, I only used half of the anger and proactive personality items from their respective scales (see Appendix D for task instructions and materials). As in the previous study, participants assigned each item to a construct based on its definition. If participants did not feel that the item fit into a particular category, they had the option of selecting the 'other' category. In addition, the presentation order of the items was counterbalanced to account for order effects.

Participants

The present study consisted of 21 undergraduate psychology students at the University of Guelph who were recruited online using the participant pool. Participants were compensated with course credit in exchange for their participation. The mean age was 19.95 (*SD* = .80; *range* = 18 to 20). 90.48% of the sample was female (*n* = 19) and 85.71% identified as being Caucasian (*n* = 18).

I included three distracter items that did not reflect the content of any of the definitions (e.g., "The performance appraisal system is too complex for the average salaried employee to understand", "I have mixed feelings about being close to others", and "The food truck offers fast food and soda to its customers"). Participants who did not correctly assign any one of these

distracter items to the ‘other’ category were excluded from the analyses. Overall, 47 participants from the initial sample of 68 were excluded, resulting in a final sample of 21 participants.

Results

The *psa* and *csv* values for each item are displayed in Table 3.

Disengagement

Results for the disengagement subscale indicated that four of the five items met the cut-off criteria. These were items “I wish there was something for me to do”, “I want to do something interesting but don’t know what to do”, “I want to do something but I don’t know what”, and “I want something to happen but I’m not sure what.”

Low arousal

Results for the low arousal subscale indicated that six of the nine items met the cut-off criteria. “I feel tired”, “I feel lethargic”, “I feel drowsy”, “I feel fatigued”, “I am lacking energy”, and “I feel sluggish.”

Inattention

Results for the inattention subscale indicated that all of the 12 items met the cut-off criteria.

Discussion

In total, 22 boredom items were retained. Importantly, most of the items that were retained in Study 1 were retained in Study 2. This suggests that there was high agreement between the two samples with respect to the substantive validity of the 26 items that were initially retained from Study 1. Importantly, all of the MSBS low arousal items across Studies 1 and 2 were judged to deviate from its definition, supporting theory that these items sample content outside of boredom and justifying the need for a new scale. Overall, respondents found 26 items to be conceptually

consistent with their definition and did not think that these items overlapped with constructs related to boredom. This provides evidence for the substantive validity of these items.

Study 3: Confirmatory Factor Analysis

The purpose of Study 3 was twofold. First, Study 3 sought to evaluate the factor structure of the 22-item scale by testing competing models of the scale's factor structure. This was done to ensure that the scale's factor structure was consistent with theory suggesting that boredom is a superordinate construct with three distinct dimensions. Results consistent with this interpretation would suggest that the 22-item boredom scale is assessing the intended construct (i.e., boredom), thereby supporting the validity of the scale. In addition, Study 3 served as a means to evaluate the items. Specifically, I examined the factor loadings of the items from the most theoretically consistent model to ensure that each item was a valid indicator of its respective construct. This was done to ensure that each item measured the intended construct, thereby contributing to the validity of the scale.

Method

Participants

The present study consisted of 296 undergraduate psychology students at the University of Guelph. Participants were recruited online using the participant pool and were compensated with course credit in exchange for their participation. Of these, 289 and 292 reported their age and gender, respectively. The mean age was 18.67 (*SD* = 1.61; *range* = 17 to 30) and 73.6% of the sample was female (*n* = 218). The minimum sample size recommendation for confirmatory factor analysis (CFA) ranges anywhere from 100 to 200 participants (Boomsma, 1982; Hinkin, 1998), with sample sizes over 200 being preferred (Russell, 2002). CFAs with larger samples tend to result in more stable estimates (Hinkin, 1998).

Procedure

Participants responded to the 22-item state boredom measure based on their current feelings using a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Statistical Analyses

Because of the expected hierarchical factor structure of boredom, I used SEM to evaluate three types of competing models for boredom using AMOS 21. First, consistent with theory, I tested a superordinate model of boredom wherein boredom is specified as a superordinate (i.e., higher-order) construct with three dimensions (i.e., disengagement, low arousal, and inattention). Consistent with this approach, boredom was modelled as a second-order latent construct, its dimensions as first-order latent constructs, and the items as observed variables, with arrows flowing from the second-order construct to its dimensions and from the dimensions to their respective items (Figure 2). The constraints added to the model were consistent with a congeneric model wherein the loadings and variances are free to vary. This model assumes that a unit level change in the latent construct will not necessarily result in the same unit level change in each indicator and that each indicator reflects the latent construct with different degrees of precision. The assumptions of this model hold at the higher-order level (i.e., the relation between boredom and its dimensions) as well as the lower-order level (i.e., the relation between each dimension and its items; Figure 2).

I also tested three superordinate models of boredom wherein boredom was depicted as having two dimensions to account for the possibility that some of the dimensions are not distinct from one another. Specifically, the inattention/disengagement combined model consisted of one dimension that combined the inattention and disengagement items with a separate dimension for the low arousal items. I also tested a disengagement/low arousal combined model and a low arousal/inattention combined model. Each of these three models had the same underlying

assumptions as the congeneric superordinate model described above. Moreover, because two factor models are necessarily unidentified, one additional constraint needed to be added for the model to run. Thus, I specified the variance of the latent construct of boredom as one (see Figure 3 for a depiction of the inattention/disengagement combined model).

Finally, I tested a unidimensional model of boredom to account for the possibility that boredom is a unidimensional (and not a multidimensional) construct. In contrast with the superordinate models, this model treats boredom as a single theoretical concept without separable dimensions. That is, boredom is modelled as a latent variable, its items as observed variables, and arrows flow from the latent construct to the items. I tested a congeneric unidimensional model (see Figure 4). The assumptions of a congeneric model are equivalent for both superordinate and unidimensional constructs.

Model comparisons were made using the Akaike information criterion (AIC), and, in accordance with standards for nested model comparisons, chi-square difference tests. Model fit was assessed using the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) statistics.

I also examined the item factor loadings and sought to remove items with factor loadings that were less than .40 on their respective dimension based on conventions (Henson & Roberts, 2006; Hinkin, 1998; Matsunaga, 2010).

Results

Factor Structure

Three factor superordinate models. The results for boredom as a congeneric superordinate model with three dimensions are displayed in Table 4. The congeneric superordinate model fit the data well. The CFI value was .93 and the RMSEA value was .08. These values are in

accordance with criteria stipulating that CFI values above .90 indicate acceptable fit (Hooper, Coughlan, & Mullen, 2008) and RMSEA values between .08 and .10 indicate mediocre fit (MacCallum, Browne, & Sugawara, 1996). The factor loadings of the dimensions are reported below.

Each of the disengagement, low arousal, and inattention dimensions had high factor loadings on the higher-order construct of boredom. Specifically, the factor loadings for disengagement, low arousal, and inattention were .57, .68, and .87, respectively. Taken together, these findings suggest that it is appropriate to model boredom as a superordinate construct with three dimensions.[4]

Two factor superordinate models. The results for boredom as a superordinate model with two dimensions are displayed in Table 4. These models did not meet the cut-off criteria for acceptable model fit. Specifically, the CFI and RMSEA values for the inattention/disengagement combined model were .86 and .11, respectively. The CFI and RMSEA values for the disengagement/low arousal combined model were .84 and .12, respectively. Finally, the CFI and RMSEA values for the low arousal/inattention combined model were .81 and .13, respectively. These values do not comply with model fit conventions as CFI values below .90 indicate less than acceptable fit (Hooper et al., 2008) and RMSEA values above .10 indicate poor fit (MacCallum et al., 1996). Chi-square difference tests could not be used to compare the relative fit of each model given that each model had equivalent degrees of freedom. However, inspection of the AICs indicated that the inattention/disengagement combined model had the best fit given that it had the lowest AIC value (Kline, 2005). The AICs for the inattention/disengagement, disengagement/low

[4] A principal axis factor analysis and parallel analysis were also conducted using a separate sample to explore the factor structure of the scale. These results are consistent with the results of Study 3 in that they support a three-factor solution. The methodology and results of these analyses are reported in Appendix E.

arousal, and low arousal/inattention combined models were 1113.61, 1185.12, and 1367.21, respectively.

Given that the inattention/disengagement combined model provided the best fit to the data of the three models, the fit of this model was compared to the fit of the three factor congeneric superordinate model. Chi-square difference tests indicated that the inattention/disengagement combined model fit the data significantly worse than the three factor model, $\Delta\chi^2_2 = 416.98$, $p < .001$. This is also evident in that the AIC value for the inattention/disengagement combined model, AIC = 1113.61, was higher than the AIC value for the three factor congeneric model, AIC = 700.63, and higher values indicate worse fit.

Overall, the two factor superordinate models provided an unacceptable fit to the data and fit the data significantly worse than the congeneric superordinate model. Therefore, none of these models was deemed to have an appropriate factor structure for the scale.

Unidimensional model. The results for boredom as a unidimensional model are displayed in Table 4. The fit of this model was not acceptable according to model fit conventions. The CFI and RMSEA values were .63 and .17, respectively, and do not comply with conventions for fit criteria as CFI values below .90 indicate less than acceptable fit (Hooper et al., 2008) and RMSEA values above .10 indicate poor fit (MacCallum et al., 1996). Chi-square difference tests indicated that the unidimensional model fit the data significantly worse than did the congeneric superordinate model, $\Delta\chi^2_{24} = 1672.35$, $p < .001$. The AIC value was 2234.98, which is substantially higher than the AIC value for the congeneric superordinate model, indicating worse fit (Kline, 2005). Overall, the unidimensional model was not an acceptable fit to the data and performed worse than the three factor congeneric superordinate model. These results demonstrate that a one-factor solution is not an appropriate factor structure for the scale.

Item Analysis

The means, standard deviations, and factor loadings of the 22 items are displayed in Table 5. Items were eliminated based on the factor loadings. Given that the congeneric superordinate model was the most theoretically consistent, this model was used to examine the factor loadings for each item on its respective dimension. Consistent with conventions for cut-off criteria, I sought to retain items that had a loading of .40 or greater on their respective dimension (Henson & Roberts, 2006; Matsunaga, 2010). The results indicated that each item met this cut-off criterion. The factor loadings for the disengagement items ranged from .45 to .92, the factor loadings for the low arousal items ranged from .64 to .87, and the factor loadings for the inattention items ranged from .70 to .91. Thus, each item was retained in the scale. Reliabilities were calculated using Cronbach's alpha. The reliability of the data for the disengagement, low arousal, and inattention subscales was .82, .90, and .96, respectively. These reliabilities exceed researchers' recommendations stating that reliabilities greater than or equal to .80 are considered adequate for research (Nunnally, 1978).

Discussion

Consistent with how I define boredom, the data indicated that the three factor congeneric superordinate model consisting of disengagement, low arousal, and inattention demonstrated acceptable model fit and provided the best fit to the data when compared to the alternative models.[5] In contrast, the model fit indices for each of the two factor congeneric superordinate models and the congeneric unidimensional model indicated that none of these models had acceptable model fit. These findings indicate that a one- and two-factor solution is not an appropriate factor structure for

[5] I selected a congeneric model as this model is the least restrictive. However, there are other models that incorporate different model assumptions; these are parallel and tau-equivalent models. Because the congeneric model fit the data significantly better than these models and because testing each of these models would not alter our understanding of the scale's factor structure, these results are reported in Appendix F.

the scale. Instead, the results are consistent with theory indicating that boredom is a superordinate construct with three dimensions and provide evidence for the validity of the scale.[6]

The results of the item analysis suggest that all of the 22 items are a valid indicator of their respective dimension. This is not surprising given that, in Studies 1 and 2, these items were judged to be conceptually consistent with my definition of boredom. Overall, examination of the factor loadings and reliabilities suggest that each item and subscale is an appropriate assessment of the intended construct and supports the validity of the overall scale.

Study 4: Convergent and Discriminant Validity

The purpose of Study 4 was to test if the 22-item boredom scale correlated with measures of constructs within its nomological network and did not correlate with measures of constructs outside of this network (Cronbach & Meehl, 1955). According to Cronbach and Meehl (1955), a construct's nomological network relates that construct to other theoretical constructs. Researchers can investigate the validity of a scale by testing hypotheses relating the construct of interest to other constructs within its nomological network (Cronbach & Meehl, 1955). Using this framework, I sought to investigate the convergent and discriminant validity of the scale by examining the empirical relations between boredom and theoretically (un)related constructs. I examined potential causes, correlates, and outcomes of boredom (i.e., convergent validity) as well as constructs that should be unrelated to boredom (i.e., discriminant validity). Below, I outline theory and hypotheses regarding boredom's relations with other variables.

Causal Constructs

Previous research (Mercer-Lynn et al., 2013) has indicated that trait boredom, as measured by the BPS, is characterized by withdrawal from one's environment and negative affect. Given that

[6] I also tested a model wherein the three dimensions were correlated with one another. However, this model was necessarily equivalent to the three factor congeneric model (i.e., chi-square and degrees of freedom were equal), making model comparisons impossible. The results for the correlated dimensions model are displayed in Appendix G.

state boredom is accompanied by dissatisfaction with one's current situation and low arousal negative affect, it is reasonable to expect that trait boredom should significantly and positively predict feelings of boredom.

H1: Trait boredom will be significantly and positively related to state boredom.

Second, researchers (Eastwood et al., 2012; Fahlman et al., 2013; Leary et al., 1986) have posited that boredom is related to effortful maintenance in attention. Thus, individuals who experience chronic attentional difficulties should be more likely to feel bored.

H2: The inattention component of attention deficit hyperactivity disorder (ADHD) will be significantly and positively related to state boredom.

Researchers have also argued that the absence of meaning causes boredom. This view is consistent with existentialist theory in which boredom is seen as stemming from meaninglessness and purposelessness (Fahlman et al., 2013; Frankl, 1984; Mercer-Lynn et al., 2013). At the same time, individuals who find their life meaningful and purposeful should be less inclined to experience boredom.

H3: Life meaning will be significantly and negatively related to state boredom.

Finally, researchers posit that work engagement may be related to boredom (Reijseger, Schaufeli, Peeters, Taris, van Beek, & Ouweneel, 2013). Like boredom, work engagement is a multidimensional construct that is characterized by three dimensions: vigour, dedication and absorption. Engaged employees typically experience high levels of energy (vigour), strong involvement, enthusiasm, and pride in their work (dedication), and high concentration and engrossment in their work along with the perception that time is passing quickly (Bakker & Demerouti, 2008). Given that boredom is characterized by low arousal negative affect, a

detachment from one's environment, and attentional difficulties, I expect that individuals high in work engagement will be less likely to experience boredom.

H4: Work engagement will be significantly and negatively related to state boredom.

Correlate Constructs

Correlates were selected based on overlap in affective content. Thus, constructs characterized by negative affect were expected to relate positively to boredom. I predicted that negative affect, depression, apathy, anhedonia, neuroticism, state anxiety, and perceived stress would positively correlate with boredom. These hypotheses are consistent with theory indicating that boredom is related to depression (Fahlman et al., 2013; Farmer & Sundberg, 1986; Goldberg et al., 2011), apathy and anhedonia (Goldberg et al., 2011), neuroticism (Fahlman et al., 2013; Farmer & Sundberg, 1986), anxiety (Barbalet, 1999; Fahlman et al., 2013) and stress (Parasuraman & Purohit, 2000).

H5 to H11: Boredom will be significantly and positively related to negative affect, depression, apathy, anhedonia, neuroticism, state anxiety, and perceived stress.

I also predicted that boredom would be negatively related to positive affect given that boredom is a negative affective state.

H12: Boredom will be significantly and negatively related to positive affect.

Outcome Constructs

Theory suggests that individuals are motivated to get out of a bored state by engaging in behaviours that increase one's level of arousal (Fiske & Maddi, 1961; Mikulas & Vodanovich, 1993). Indeed, research has found that boredom is linked to risk taking and other sensation seeking behaviours (Farmer & Sundberg, 1986). In organizational contexts, researchers (Skowronski, 2012; Spector & Fox, 2010) have proposed that boredom can lead to counterproductive work behaviours

(CWBs), defined as intentional acts that harm the organization and/or its members, such as taking longer lunch breaks, daydreaming, and spreading rumours (Robinson & Bennett, 1995). That is, bored individuals may attempt to seek stimulation by engaging in destructive behaviours that harm the organization (i.e., CWB-Os), such as personal web surfing, or that harm organizational members (i.e., CWB-Is), such as gossiping or spreading rumours.

H13a and 13b: CWB-Os and CWB-Is will be significantly and positively related to boredom.

At the same time, researchers (Skowronski, 2012; Spector & Fox, 2010) posit that boredom may result in organizational citizenship behaviours (OCBs), which are productive and helpful behaviours that promote organizational effectiveness. These behaviours can be directed at the organization (i.e., OCB-Os), such as by taking on new responsibilities, or at organizational members (i.e., OCB-Is), such as helping others (Organ, 1988). These prosocial behaviours would satisfy the same need for stimulation and increased arousal that destructive behaviours do.

H14a and 14b: OCB-Os and OCB-Is will be significantly and positively related to boredom.

Discriminant Validity

In addition to examining the causes, correlates, and outcomes of boredom, I examined the discriminant validity of the measure to ensure that boredom does not relate to theoretically unrelated constructs. Work centrality is an attitude that encompasses one's beliefs about the value or centrality of work in one's life (Paullay, Alliger, & Stone-Romero, 1994). Perceptions of corporate social responsibility refer to beliefs regarding the extent to which one's organization is socially and environmentally responsible (Menon & Kahn, 2003). Given that these constructs should not theoretically relate to boredom, they should provide evidence for the discriminant

validity of the scale. I also expected that perceptions of government environmental policy and impression management would not be related to boredom.

H15 to H18: Work centrality, perceptions of corporate social responsibility, perceptions of government environmental policy, and impression management will not be statistically significantly related to boredom.

Method

Participants

I recruited 323 full-time workers using Mechanical Turk at Amazon.com who were to complete a series of questionnaires at two different points in time separated by one week. Participants were compensated with $0.75 for participating at Time 1 and an additional $1.75 for participating at Time 2. 33 participants did not participate in the study at Time 2 and were excluded from the analyses (indicating an overall response rate of 90%). An additional 18 participants were excluded for not meeting the criteria of being full-time workers. Finally, 127 participants were excluded for careless responding at either Time 1 or Time 2 as indicated by their responses to inattention check items (e.g., "Donate my entire year's pay cheques to another employee" from 1 (*never*) to 5 (*every day*); see Appendix H for a list of inattention check items). This resulted in a final sample of 145 participants. The mean age was 37.03 (*SD* = 10.90; *range* = 20 to 65); 56.6% of the sample was female (*n* = 82) and 83.4% identified as being Caucasian (*n* = 121). The mean organizational tenure was 6.57 years (*SD* = 5.29; *range* = 2 months to 25.83 years). Of the 140 participants who reported on their education status, 22.1% of the sample had at least a post-graduate degree (*n* = 32), 51.1% had either an undergraduate degree (or equivalent) or at least some college (*n* = 74), and 23.4% had a high school diploma (*n* = 34).

Procedure

Participants completed measures of boredom and (un)related constructs at two points in time separated by one week. This design was chosen in order to reduce some concerns regarding common method variance, which refers to variance due to methods effects rather than the constructs under examination (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Common method variance can threaten construct validity as it provides an alternative explanation for the observed relations between two variables (Podsakoff et al., 2003) and is especially important during the scale validation process (Conway & Lance, 2010). In substantive research, researchers can be more confident that common method variance is not a problem by using scales that have established construct validity (Conway & Lance, 2010). Thus, by accounting for common method variance in the present study, thereby contributing to the scale's construct validity, researchers who use this scale in the future can be less concerned with common method variance in their substantive research.

In the present study, boredom was measured at Time 1 and Time 2 at the beginning of each set of questionnaires. Causal constructs and neuroticism were measured at Time 1 only and correlations between boredom and these constructs were made using boredom scores from Time 2. This approach was chosen as scores for stable constructs (e.g., trait boredom, neuroticism) are not expected to fluctuate greatly over time. The separation in time of both constructs was done to alleviate some concern regarding common method variance (Podsakoff et al., 2003). Correlate constructs (excluding neuroticism) were measured at Time 2 only and correlations between boredom and these constructs were made using boredom scores from Time 2. This approach was chosen as any affective overlap between boredom and other constructs could only be assessed by measuring both constructs at the same point in time. Outcome constructs were measured at Time 2 only and correlations between boredom and these constructs were made using boredom scores from

Time 1. Given that outcome constructs represented behaviours in which participants typically engage (see measures section below), and therefore should be relatively stable across time, it was not necessary to measure boredom and these constructs simultaneously. Thus, to account for common method variance, I chose to measure these constructs at two different points in time. Finally, each of the constructs for discriminant validity was measured at either Time 1 or Time 2 and correlations between boredom and each of these constructs were made using boredom scores from Time 1 and Time 2. This was done to ensure that there was no substantive overlap in these constructs or any methods effects. Specifically, perceptions of government environmental policy and impression management were measured at Time 1 and work centrality and corporate social responsibility were measured at Time 2.

Measures

State boredom. The 22-item boredom measure was used to measure state boredom. Participants responded to statements for each of the disengagement (α = .94 for Time 1 and .96 for Time 2), low arousal (α = .96 for Time 1 and .95 for Time 2), and inattention (α = .97 for both Time 1 and Time 2) subscales using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Trait boredom. The BPS (Farmer & Sundberg, 1986; Appendix I; α = .88) is a 28-item questionnaire that measures one's propensity to feel bored. Participants responded to statements (e.g., "Many things I have to do are repetitive and monotonous") using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Attention Deficit Hyperactivity Disorder. The inattention subscale of the Adult ADHD Self-rating Scale (ASRS; Kessler et al., 2005; Appendix J; α = 85) is a 9-item questionnaire that measures the inattention component of ADHD. Participants responded to statements (e.g., "How

often are you distracted by activity or noise around you?") based on how they felt in the last six months using a 5-point scale ranging from 0 (*never*) to 4 (*very often*).

Meaning in life. The presence of life meaning subscale of The Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006; Appendix K; α = .94) is a 5-item questionnaire that measures the extent to which one sees meaning and purpose in their life. Participants responded to statements (e.g., "My life has a clear sense of purpose") using a 7-point scale ranging from 1 (*absolutely untrue*) to 7 (*absolutely true*).

Work engagement. The short form of the Utretch Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006; Appendix L) is a 9-item questionnaire that measures work engagement along its three dimensions of vigour (α = .88), dedication (α = .93), and absorption (α = .81). Participants responded to statements (e.g., "At my work, I feel bursting with energy") based on how they typically feel at work using a 7-point scale ranging from 0 (*never*) to 6 (*always/every day*).

Negative affect. The negative affect subscale of the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988; Appendix M; α = .90) is a 10-item questionnaire that measures negative affect. Participants responded to statements (e.g., "distressed") based on their current feelings using a 5-point scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*).

Depression. The depression subscale of the Depression Anxiety Stress Scales-21 (DASS-21; Lovibond & Lovibond, 1995; Appendix N; α = .93) is a 7-item questionnaire that measures clinical depression. Participants responded to statements (e.g., "I felt that I had nothing to look forward to") based on how they felt over the past week using a 4-point scale ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*).

Apathy. The self-rated Apathy Evaluation Scale (Marin, Biedrzycki, & Firinciogullari, 1991; Appendix O; α = .81) is an 18-item questionnaire that measures apathy or lack of motivation.

Participants responded to statements (e.g., "I put little effort into anything") based on how they felt in the last four weeks using a 4-point scale ranging 1 (*not at all*) to 4 (*a lot*).

Anhedonia. The Snaith-Hamilton Pleasure Scale (Snaith, Hamilton, Morely, Humayan, Hargreaves, & Trigwell, 1995; Appendix P; α = .84) is a 14-item questionnaire that measures anhedonia or the loss of ability to experience pleasure. Participants responded to statements (e.g., "I would enjoy my favourite television or radio programme") based on their experiences in the past few days using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Neuroticism. The neuroticism subscale of the International Personality Item Pool (Goldberg, 1992; Appendix Q; α = .94) is a 10-item questionnaire that measures neuroticism. Participants responded to statements (e.g., "I often feel blue") using a 5-point scale ranging from 1 (*very inaccurate*) to 5 (*very accurate*).

State anxiety. The State Trait Anxiety Inventory short-form (Marteau & Bekker, 1992; Appendix R; α = .91) is a 6-item questionnaire that measures state anxiety. Participants responded to statements (e.g., "I am tense") using a 4-point scale ranging from 1 (*not at all*) to 4 (*very much*).

Perceived stress. The Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983; Appendix S; α = .92) is a 10-item questionnaire that measures the degree to which one perceives one's life as unpredictable, uncontrollable, and overloaded. Participants responded to statements (e.g., "In the last month, how often have you felt nervous and 'stressed'?") based on how they felt in the last month using a 5-point scale ranging from 0 (*never*) to 4 (*very often*).

Positive affect. The positive affect subscale of the Positive and Negative Affect Schedule (Watson et al., 1988; Appendix T; α = .92) is a 10-item questionnaire that measures positive affect. Participants responded to statements (e.g., "excited") based on their current feelings using a 5-point scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*).

Counterproductive work behaviour. The short form of the CWB Checklist (Spector, Bauer, & Fox, 2010; Appendix U) is a 10-item questionnaire that measures discretionary work behaviours that harm the organization (CWB-O; α = .64) and/or its members (CWB-I; α = .75). The CWB-O and CWB-I subscales were five items each. Participants responded to statements (e.g., "Came to work late without permission" for CWB-O and "Insulted or made fun of someone at work" for CWB-I) based on how they typically behave at work using a 5-point scale ranging from 1 (*never*) to 5 (*every day*).

Organizational citizenship behaviour. The OCB Scale (Lee & Allen, 2002; Appendix V) is an 18-item questionnaire that measures discretionary work behaviours that help the organization (OCB-O; α = .89) and/or its members (OCB-I; α = .86). Each subscale was eight items. Participants responded to statements (e.g., "Express loyalty towards the organization" for OCB-O and "Help others who have been absent" OCB-I) based on how they typically behave at work using a 5-point scale ranging from 1 (*never*) to 5 (*every day*).

Work centrality. The Work Centrality scale (Paullay et al., 1994; Appendix W; α = .89) is a 12-item questionnaire that measures work centrality. Participants responded to statements (e.g., "Work should be considered central to life") using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Corporate social responsibility. The Corporate Social Responsibility measure (Menon & Kahn, 2003; Appendix X; α = .88) is a 5-item questionnaire that measures the belief that one's organization is socially responsible. Participants responded to statements (e.g., "[My organization] believes in philanthropy and giving generously to worthy causes") using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Perceptions of government environmental policy. A four-item questionnaire (Ferris, Brown, Berry, & Lian, 2008; Appendix Y; α = .94) that measures one's perceptions of government environmental policy was used. Participants responded to one statement ("My national government's environmental policies are") using four semantic differential scales using a 5-point scale (i.e., good-bad; wise-foolish; beneficial-harmful; useful-useless).

Impression management. The impression management subscale of the Balanced Inventory of Desirable Responding (Paulhaus, 1984; Appendix Z; α = .87) is a 20-item questionnaire that measures purposeful attempts at self-presentation. Participants responded to statements (e.g., "I always obey laws, even if I'm unlikely to get caught") using a 7-point scale ranging from 1 (*not true*) to 7 (*very true*).

Statistical Analyses

I used SEM using AMOS 21 to examine the correlations between boredom and (un)related constructs. This program was used as it enabled me to model boredom as a superordinate latent structure, which is consistent with theory and the scale's factor structure. Other statistical software, like SPSS, do not enable researchers to examine latent constructs; thus, use of such software would result in measuring boredom differently (i.e., taking an aggregate score) than its definition and would undermine the validity of the findings.

Boredom was modelled using the congeneric superordinate model described in Study 3. The causal, correlate, outcome, and discriminant validity variables were modelled as observed variables with the exception of work engagement, which was modelled as a congeneric superordinate construct and its dimensions as observed variables given its multidimensionality (Hallberg & Schaufeli, 2006). The relation between boredom and each construct was depicted using a single-headed arrow between the latent construct of boredom and the observed variable (with the

exception of work engagement) as a standardized bivariate regression is equivalent to a correlation. A separate model was created for each construct given that including all of the constructs in the same model would yield partial, rather than whole correlations.

Results

The correlations between boredom and causal, correlate, and outcome constructs are reported in Table 6. The correlations between boredom and discriminant validity constructs are reported in Table 7.

Causal Constructs

Consistent with Hypotheses 1 through 4, the results for the convergent validity of the causal constructs indicated that boredom at Time 2 was significantly and positively related to boredom proneness, $r = .58$, $p < .001$ and the inattention component of ADHD, $r = .46$, $p < .001$, and significantly and negatively related to life meaning, $r = -.33$, $p < .001$, and work engagement, $r = -.29$, $p < .01$.

Correlates

Consistent with Hypotheses 5 through 11, boredom at Time 2 was shown to significantly and positively relate to negative affect, $r = .55$, $p < .001$, depression, $r = .61$, $p < .001$, apathy, $r = .42$, $p < .001$, anhedonia, $r = .39$, $p < .001$, neuroticism, $r = .49$, $p < .001$, state anxiety, $r = .65$, $p < .001$, and perceived stress, $r = .57$, $p < .001$. Moreover, in support of Hypothesis 12, boredom was significantly and negatively related to positive affect, $r = -.43$, $p < .001$.

Outcomes

Consistent with Hypotheses 13a and 13b, boredom was significantly and positively related to CWB-Os, $r = .40$, $p < .001$, and CWB-Is, $r = .23$, $p < .05$. However, H14a and 14b were not

supported as boredom was not significantly related to either OCB-Os, $r = .00$, $p = .97$, or OCB-Is, $r = .08$, $p = .43$.

Discriminant Validity

The results for discriminant validity were consistent with Hypotheses 15 through 17. Specifically, boredom at Time 1 was not significantly related to work centrality, $r = -.17$, $p = .08$, corporate social responsibility, $r = -.14$, $p = .15$, or perceptions of government environmental policy, $r = .18$, $p = .07$. Likewise, boredom at Time 2 was not significantly related to work centrality, $r = -.12$, $p = .21$, corporate social responsibility, $r = .00$, $p = 1.00$, or perceptions of government environmental policy, $r = .12$, $p = .22$. Impression management was significantly negatively related to boredom at Time 1, $r = -.24$, $p < .05$, but not statistically significantly related to boredom at Time 2, $r = -.15$, $p = .12$. Thus, Hypothesis 18 was partially supported.

Discussion

The results provided support for 16 of the 18 hypotheses. This indicates that boredom was significantly related to theoretically relevant constructs and not statistically significantly related to conceptually unrelated constructs, providing support for the convergent and discriminant validity of the scale, respectively. With respect to convergent validity, this study supports theory on potential causes, correlates and outcomes of boredom. First, predictor variables at Time 1 produced substantial variation in respondents' boredom scores at Time 2 and in the expected direction. In addition, consistent with the idea that boredom is a negative affective state, boredom showed strong, positive correlations with other states characterized by negative affect like depression and anxiety, indicating that these constructs share meaningful affective overlap. Finally, consistent with organizational theory on outcomes of boredom, higher levels of boredom were significantly and positively associated with engaging in more counterproductive work behaviours.

Contrary to expectations, boredom was not significantly related to either OCB-Os or OCB-Is. This may be due to the study design and nature of the OCB scales. As stated earlier, boredom was expected to relate to OCBs as individuals high in boredom are likely to seek stimulation in order to alleviate feelings of boredom. However, OCBs were not measured directly following feeling bored. In addition, individuals were asked to indicate the extent to which they typically engage in OCBs, indicating that this measure may have reflected dispositional attributes leading to OCBs rather than transient factors (i.e., state boredom).

This study also found support for the scale's discriminant validity as boredom was not significantly related to constructs for which there was no theoretical rationale as to why boredom and these constructs would be related. Interestingly, the results demonstrated that boredom was significantly and negatively related to impression management at Time 1, but not at Time 2. Given that impression management was measured at Time 1, it is possible that the significant correlation between the two constructs at Time 1 is due to method effects. Future research may be needed to investigate this possibility further.

Overall, the results of Study 4 provide evidence for the convergent and discriminant validity of the 22-item boredom scale. Because boredom demonstrated the expected relations with (un)related constructs (outside)within its nomological network, we can be confident that this measure is assessing boredom, and not another construct, as it is unlikely that another construct would demonstrate these same patterns of relations.

General Discussion

Boredom is a prevalent phenomenon that is frequently experienced at work (Carvel, 2006). In organizations, boredom has the potential to hinder employee performance and productivity (Drory, 1982; Watt & Hargis, 2010) and may also lead to deviant behaviours (Bruursema, Kessler,

& Spector, 2011; Spector & Fox, 2010). This suggests that organizational researchers and practitioners would benefit from a thorough understanding of how boredom functions within organizations. In order to conduct substantive research on boredom, however, there needs to be a theoretically grounded definition and psychometrically sound measure of boredom. To date, researchers have not been able to agree on a definition of boredom (Vodanovich, 2003). This makes it difficult for researchers to build theory on boredom as they are essentially theorizing about different constructs, but calling them all boredom. Moreover, because researchers define boredom differently, they also tend to measure it differently. Measures of boredom often have unknown psychometric properties (Vodanovich, 2003) and are not appropriate for measuring boredom as a state. The scarcity of validated measures of state boredom makes it difficult for organizational researchers to conduct substantive research on boredom as they have no appropriate tool to do so. In the present research, I advance the study and measurement of boredom by developing a theoretically rigorous definition and measure of boredom.

In four studies, I developed and validated a measure of state boredom. This measure was based on my definition of boredom, which I formulated using theory and a comprehensive literature review that integrated historical and contemporary perspectives on boredom. The resulting multidimensional measure enables boredom to be modelled as a superordinate construct with three dimensions: disengagement, low arousal, and inattention. Studies 1 and 2 provided evidence for the substantive validity of 22 of the 41 items, indicating that these items are conceptually consistent with my definition of boredom and do not overlap with the content of related constructs.

Using SEM, Study 3 demonstrated that a three factor superordinate structure was an appropriate factor structure for the scale whereas alternative structures were not. These results are consistent with theory suggesting that boredom is a superordinate construct comprised of three

dimensions. Study 3 also indicated that each item had a high factor loading on its respective dimension, indicating that the items are reflective of the expected dimensions. Moreover, the reliability of the data for each of the subscales was high. Overall, these results provide support for the hypothesized factor structure of the scale and suggest that each subscale is an appropriate measure of its respective dimension, supporting the validity of the overall scale.

Study 4 provided evidence for the convergent and discriminant validity of the scale. Specifically, 16 of the 18 hypotheses were supported, demonstrating that boredom was significantly correlated with theoretically relevant constructs and not statistically significantly related to theoretically irrelevant constructs. The fact that the measure demonstrated the expected relations with other constructs strongly suggests that it is assessing boredom and not another construct (Cronbach & Meehl, 1955). Taken together, these four studies demonstrate that the 22-item boredom measure is a valid measure of boredom.

Theoretical Contributions

By developing a theoretically rigorous definition and measure of boredom, the present research makes several important contributions to organizational research on boredom. First, by critically analyzing the etymology of boredom, reviewing current definitions of boredom in psychology, and using theory, I built consensus on a theoretically defensible definition of boredom. This is important as there is considerable disagreement among researchers as to how boredom should be defined. Moreover, few researchers have attempted to build theory on boredom while addressing definitional disagreements in the literature (e.g., Vogel-Walcutt et al., 2012). Thus, researchers who wish to study boredom may be unsure of which definition to choose as there is little or no framework for understanding why one definition may be more or less accurate than another. The present research attempts to overcome this issue by using theory to clearly distinguish

between causes, outcomes, and components of boredom so that researchers can understand why some constructs make up boredom and others do not.

I anticipate that the existence of a theoretically grounded, well-understood definition of boredom will encourage researchers to adopt this definition in their future research. An agreed-upon definition of boredom is essential for building theory on how boredom relates to other variables as it is clear that researchers are theorizing about the same construct. In contrast, researchers who use different definitions of boredom are essentially studying separate constructs. This makes it difficult to integrate theories on "boredom" as it is unclear whether researchers are theorizing about boredom or a related, but distinct construct. Overall, I expect that the present research will stimulate organizational research on boredom by promoting a theoretically rigorous, widespread and accepted definition of boredom.

The present studies also make a strong contribution to research in that they provide researchers with a valid measure of boredom that is operationally consistent with its construct definition. Current measures of boredom tend to be inadequate as they fail to capture its multidimensionality, are too context-specific, or assess trait rather than state boredom. Moreover, most of these measures lack research evaluating their validity and reliability (Vodanovich, 2003). Thus, the 22-item boredom scale marks a significant advancement for boredom research as it is theoretically-derived and shows evidence of validity and reliability, in contrast to existing scales. The present research also supports the use of the 22-item boredom scale over the 29-item MSBS, which is the only other validated measure of state boredom. Unlike the current research, the MSBS confounds boredom with its outcomes and includes subscales that measure these outcomes (e.g., high arousal). In addition to including additional dimensions, the content of the MSBS items may be too broad given how boredom is defined. Notably, the low arousal items are reflective of

depressed, low arousal rather than lethargic, low arousal, the latter of which is consistent with theory and research on boredom. Studies 1 and 2 support claims regarding the broad content of the MSBS items as all five of the low arousal items and nine of the 10 disengagement items were judged to be conceptually inconsistent with the definitions of low arousal and disengagement, respectively. These findings indicate that the MSBS is not appropriate for measuring boredom as it is defined in the current research.

A validated boredom measure is essential for testing theories on boredom. Other measures of boredom preclude researchers from accurately studying boredom as these measures do not necessarily assess boredom. The 22-item boredom scale will enable researchers to understand causes, correlates, and outcomes of boredom. Researchers will be able to test hypotheses and add to existing theory. Overall, the current research presents a significant contribution to the field as it enables researchers to conduct substantive research on boredom.

Practical Applications

Organizations are motivated to avoid unnecessary costs, such as those incurred by absenteeism, poor performance, and deviant behaviours. Research suggests that feeling bored at work may be linked to each of these factors (Bruursema et al., 2011; Game, 2007; Kass et al., 2001; Watt & Hargis, 2010) and that boredom is a fairly common experience (Carvel, 2006). Thus, a better understanding of boredom may help organizations to reduce costs and promote organizational effectiveness. The present research provides organizations with a valid measure of boredom that can be used to achieve these goals. More specifically, knowledge of workplace boredom could enable organizations to redesign work environments to either reduce boredom or to promote better coping behaviours when bored. For example, using job characteristics theory (Hackman & Oldham, 2005), researchers and practitioners can investigate what aspects of one's job

and work environment are more likely to prevent boredom or to negate its effects. Given boredom's prevalence and negative impact on organizational effectiveness, organizations could benefit from using the 22-item boredom scale to reduce costs associated with boredom in their organization.

Limitations

Though the present research possesses a number of strengths, there are some limitations that should be addressed. First, the purpose of Study 2 was to ensure that the content of the boredom items did not overlap with the content of related constructs. Though proactive personality and anger were appropriate constructs to evaluate the substantive validity of the disengagement and low arousal items, respectively, I did not include a construct that directly challenged the content of the inattention items. However, I do not believe that this omission undermines the substantive validity of these items. Namely, respondents had the option of assigning items to the 'other' category in both Studies 1 and 2. Thus, if participants felt that any of the inattention items reflected another construct, this would have been reflected in their use of the 'other' category. Indeed, most of the boredom items from the item development stage were dropped in Study 1, partially due to their assignment to the 'other' category.

In addition, the decision to include only proactive personality and anger was based on the fact that adding more constructs would have increased the cognitive demands of the task, thereby decreasing respondents' accuracy when assigning the items. In order to minimize cognitive error, I opted to include only two other constructs. I chose to omit a construct parallel to inattention, rather than to disengagement or low arousal, as the items for the inattention dimension appeared to be highly similar to one another and to their definition. This is evident in the fact all of the participants assigned 11 of the 12 inattention items to the intended construct in Study 1, indicating that there is little or no ambiguity in the content of these items.

Another limitation of the present research is the length of the resulting 22-item measure. The goal of this research was to eliminate items based on the substantive validity findings from Studies 1 and 2 and examination of item properties (e.g., factor loadings) in Study 3. Using these criteria, a large number of items were retained across the three studies. The decision to refrain from further item deletion is predicated on another important limitation of the present research. Specifically, though boredom is a state and is expected to fluctuate over time, Study 3 relied on a cross-sectional design to measure boredom. This is important as such a design only allows for the examination of between-person variance (i.e., different levels of boredom across people) and not within-person variance (i.e., different levels of boredom within the same person over time). The use of a cross-sectional design for a state scale is not uncommon in both scale validation and substantive research. For example, other measures of boredom were validated using cross-sectional designs (e.g., Fahlman et al., 2013) and most substantive research on positive and negative affect relies on this design (see Rush & Hofer, 2014, for a review).

However, item properties of the scale may differ depending on the level of analysis (single- versus multilevel data; Dedrick & Greenbaum, 2011). Thus, rather than eliminating non-problematic items from the scale based on the analyses from Study 3, I suggest the need for future research to examine properties of the scale using a multilevel design (i.e., repeated measures). This would enable more informed decisions regarding item deletion that more closely reflect the purpose of the scale. For example, items that demonstrate little within-person variance (i.e., stability over time) can be eliminated as this suggests that these items are assessing trait-like qualities, which is inconsistent with the state conceptualization of boredom.

In addition, though efforts were made to reduce common method variance in Study 4, this possibility cannot be eliminated when considering the relations between boredom and its correlates

as these variables were measured at the same time. Importantly, however, decisions to account for common method variance during the study design process should be made with reference to theory (Conway & Lance, 2010). Given that I expected the relations between boredom and its correlates to be driven by affective overlap, it did not make sense to temporally separate the measurement of these constructs. Additionally, each correlate measure I used had a different scale format than boredom's, which has been suggested to reduce common method variance (Podsakoff et al., 2003). For these reasons, I do not believe that the choice to use a cross-sectional design in Study 4 should negate the contribution of my findings.

Future Directions

Given the potential of boredom to lead to negative outcomes at work, such as lower performance and counterproductive work behaviours (Drory, 1982; Skowronski, 2012; Spector & Fox, 2010), researchers may want to investigate the extent to which boredom leads to these outcomes. At the same time, it is also possible that boredom results in more positive coping behaviours, such as OCBs (Spector & Fox, 2010), as these behaviours satisfy the same need for stimulation as destructive behaviours do. Researchers could investigate moderator variables that either increase or decrease the likelihood that individuals will perform these behaviours when bored. For example, conscientious individuals may be less likely to engage in deviant behaviours and more likely to engage in OCBs given that these individuals are industrious and future- and achievement-oriented (Goldberg, 1999). It is also possible that organizational norms may affect what individuals do when bored. For example, the cooperative norm encourages cooperative and helping behaviour (Wageman, 1995). Thus, individuals who believe that others in their organization promote this norm may have a stronger tendency to engage in OCBs when bored. A better understanding of what factors discourage engaging in CWBs and/or encourage engaging in

OCBs when bored could enable organizations to redesign work environments to elicit desired behaviours in bored employees, thereby promoting organizational effectiveness.

Another direction for future research is to study boredom within the context of work engagement and the Job-Demands Resources Model. There are a number of conceptual similarities in the construct definitions of boredom and work engagement with the caveat that boredom is not a work-centered construct. Like boredom, work engagement is a multidimensional construct with three dimensions: vigour, dedication, and absorption, which can be contrasted with boredom's dimensions of low arousal, disengagement, and inattention, respectively. Research establishing that boredom and work engagement are two disparate constructs would help support the validity of the 22-item boredom scale. Within the context of the Job-Demands Resources Model, researchers could investigate the extent to which job resources and demands affect boredom levels. For example, individuals with more job autonomy, which is considered a job resource (Bakker & Demerouti, 2008), may be less likely to experience boredom as these individuals have more discretion in the job tasks they perform. (Bakker & Demerouti, 2008). Knowledge of what demands and resources affect boredom could enable organizations to redesign jobs to reduce boredom; alternatively, such knowledge would enable employees to engage in job crafting to reduce the likelihood of boredom at work.

Conclusion

I developed a measure of boredom based on a theoretically-defensible definition of boredom. The results of this research are important in that they enable researchers to build theory and test hypotheses on boredom. In four studies, I demonstrated that the 22-item boredom measure is a valid measure. More specifically, in Studies 1 and 2, I showed that the 22 items were conceptually consistent with my definition of boredom, providing evidence for substantive validity.

In Study 3, I showed that the factor structure of the scale is consistent with theory and that each of the items had high factor loadings. Finally, in Study 4, I provided evidence for the convergent and discriminant validity of the scale by demonstrating boredom's significant relations with theoretically related constructs and non-significant relations with theoretically irrelevant constructs. Overall, I anticipate that the existence of a theory-driven and sound definition of boredom along with a valid measure will enable researchers to acquire a better and more accurate understanding of boredom.

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Table 1

Definitions and Measures of Boredom in Psychology

Source	Definition	Themes	Boredom measure
Barmack (1939)	"a state of conflict between the tendency to continue and the tendency to get away from a situation which has become unpleasant principally because of inadequate adjustments to it, resulting from inadequate motivation" (p. 495)	disengagement negative	Nine-point scale ranging from *bored* to *interested*
Bergler (1945)	"a feeling of emptiness and dissatisfaction and… the inability to concentrate on work or other endeavors which might give some kind of pleasure" (p. 38).	disengagement inattention low arousal	Non-experimental
Binnema (2004)	"an emotion interconnected with … [the absence of] meaning [Barbalet, 1999]" (p. 834).	meaning	Non-experimental
Birdi, Warr, & Oswald (1995)	"low pleasure in conjunction with low arousal [Fisher, 1993]" (p. 437).	low arousal negative	"How often are you bored at work?" using a 5-point scale ranging from *always* to *never*
Bracke & Verhaeghe, 2010	"a form of anxiety, about the lack of meaningfulness of an activity, a condition, and (possibly) a life [Barbalet, 1999, p. 637]" (p. 1971).	high arousal meaning	Four items adapted from the BPS (e.g., "I often find myself at loose ends, not knowing what to do") using a 5-point scale ranging from *never* to *often*
Bruursema, Kessler, & Spector (2011)	" 'a state of relatively low arousal and dissatisfaction which is attributed to an inadequately stimulating environment' (Mikulas & Vodanovich, 1993, p. 3)" (p. 94).	attribution disengagement low arousal	Adaptations of LJBS and the BPS

Campagne (2012)	"feeling that one's professional activity is not of much importance, that is does not do much good, that one's place in the world is not (much) supported by what one is doing, that one's work it is not really worth the effort" (p. 80).	meaning	Non-experimental
Culp (2006)	"a subjective state characterized by a lack of attentional focus (Mikulas & Vodanovich, 1993)" (p. 999)	inattention	The BPS
Danckert & Allman (2005)	"'unpleasant, transient affective state, in which the individual feels a pervasive lack of interest' (Fisher, 1993, p. 396) in an activity" (p. 236).	disengagement negative	The BPS
de Chenne (1988)	"negative affect involving a sense of inadequate stimulation from the environment" (p. 73).	low arousal negative	Non-experimental
Eastwood, Frischen, Fenske, & Smilek (2012)	"the aversive state that occurs when we (a) are not able to successfully engage attention with internal (e.g., thoughts or feelings) or external (e.g., environmental stimuli) information required for participating in satisfying activity; (b) are aware of the fact that we are not able to engage attention and participate in satisfying activity, which can take the form of either awareness of a high degree of mental effort expended in an attempt to engage with the task at hand or awareness of engagement with task-unrelated concerns (e.g., mind wandering); and (c) attribute the cause of our aversive state to the environment (e.g., "this task is boring", "there is nothing to do")" (p. 484).	attribution disengagement inattention negative other	Non-experimental
Fahlman, Mercer, Gaskovski,	"dissatisfaction with and disengagement from one's	disengagement	The BPS, the BCS, and the 24-item

Eastwood, & Eastwood (2009)	environment and/or current activity (e.g., Fenichel, 1951; Mikulas & Vodanovich, 1993)" (p. 307-308).		MSBS
Fahlman, Mercer-Lynn, Flora, & Eastwood (2013)	"the aversive experience of having an unfulfilled desire to be engaged in satisfying activity. In terms of arousal, the bored individual experiences either agitated, high arousal and/or lethargic, low arousal. Cognitively, the bored individual experiences a slow passage of time and an inability to focus his or her attention" (p. 69-70).	disengagement high arousal inattention low arousal negative time perception	Scale validation of the MSBS
Finkelstein (2003)	"Boredom is the opposite of engagement. It is a state of mind associated with the routines and tedium found in the patterned life of the highly industrialized and bureaucratized society (Spacks, 1995)" (p. 188).	disengagement monotony	Non-experimental
Fisher (1993)	"an unpleasant, transient affective state in which the individual feels a pervasive lack of interest in and difficulty concentrating on the current activity" (p. 396).	disengagement inattention negative	Non-experimental
Gabriel (1988)	"an unpleasant state marked by the absence of any strong feeling…wherein there is coexistence of the following: (1) unspecific longing; (2) a disinclination to action; (3) a passive expectant attitude that the external world will provide gratification; (4) a distorted sense of time wherein time stops or is moving very slowly; and (5) absence of fantasy [Greenson, 1953]" (p. 157).	disengagement negative time perception	Non-experimental
Game (2007)	" 'an unpleasant, transient affective state in which the individual feels a	disengagement inattention	Adapted version of the BCS

	pervasive lack of interest in and difficulty concentrating on the current activity' [Fisher, 1993, p. 396]" (p. 702).	negative	
Geller (1994)	" 'a state of dissatisfaction with and a disinclination to action; a state of longing and an inability to designate what is longed for, a sense of emptiness; a passive expectant attitude with the hope that the external world will supply the satisfaction; a distorted sense of time in which time seems to stand still' [Greenson, 1953, p. 46]" (p. 7-8).	disengagement low arousal time perception	Non-experimental
Gemmill & Oakley (1992)	"occurs in organizational life when members are unable to emotionally and intellectually experience personal meaning in what they are doing in their work process" (p. 358).	meaning	Non-experimental
Greenson (1953)	"a state of dissatisfaction and a disinclination to action; a state of longing and an inability to designate what is longed for; a sense of emptiness; a passive, expectant attitude with the hope that the external world will supply the satisfaction; a distorted sense of time in which time seems to stand still" (p. 46).	disengagement low arousal time perception	Non-experimental
Hill & Perkins	"may be viewed as having cognitive and affective components. The cognitive component is subjective monotony and the affective component is a high level of frustration" (p. 235).	high arousal monotony	Non-experimental
Iso-Ahola & Weissinger (1987)	"a negative mood or state of mind that reflects a mismatch between 'optimal' experiences and the experiences that are actually	causes disengagement low arousal negative	Sixteen-item measure of boredom in leisure

	available to the individual. This 'low arousal, drowsy sort of boredom' (Hamilton, 1981) tends to arise when there is low perceived meaning, intensity, or variability of involvement in leisure" (p. 358).		
Leary, Rogers, Canfield, & Coe (1986)	"effortful maintenance of attention to a particular stimulus event" (p. 968).	inattention	Experimental – state boredom was not measured
Lee & Mittelstaedt (2004)	" 'a subjective feeling, characterized as sensory deficit and dissatisfaction with passing time and in failing to reach an optimal level of flow or arousal, originating from underload due to the lack of meaning or purpose during a person's free time…with less mental and physical involvement' [Ragheb & Merydith, 2001]" (p. 1143).	causes disengagement low arousal time perception	Two-item measure developed by Caldwell and Weissinger (1994; e.g., "I am usually bored in my free time") using a 5-point scale ranging from *strongly disagree* to *strongly agree*
Lewinsky (1943)	" 'a feeling of displeasure due to the conflict between the urge for intense psychic occupation and the lack of stimulation or the incapacity to allow oneself to be stimulated' [Lipps]… the urge for intense psychic occupation is at the same time accompanied by an inhibition of doing anything and that the individual does not know what to do … One may add that he usually does not even know what he wants to do. This uncertainty and vagueness about one's own wishes is-I think-characteristic of boredom" (p. 147-148).	disengagement low arousal negative	Non-experimental
Lin, Lin, & Wu (2009)	"a negative state of mind that reflects an inner conflict between expected optimal and perceived experiences" (p. 994).	negative other	The LBS

Mann & Robison (2009)	"a state of relatively low arousal and dissatisfaction, which is attributed to an inadequately stimulating situation (Fiske & Maddi, 1961)" (p. 243).	attribution disengagement low arousal	Five-item short form of the BPS
Mercer & Eastwood (2010)	"Although boredom can be broadly understood as lack of engagement and dissatisfaction with one's environment and/or one's life more generally, there appear to be distinct types or varieties of this experience. Whereas one type is characterised by sensation seeking, restlessness and a desire for arousal…the other is characterised by negative affect and withdrawal of one's self and/or his/her attention from the world" (p. 93).	disengagement high arousal negative	ZBS, BPS
Mikulas & Vodanovich (1993)	"a state of relatively low arousal and dissatisfaction, which is attributed to an inadequately stimulating situation" (p. 3).	attribution disengagement low arousal	Non-experimental
Parasuraman & Purohit (2000)	"Fisher (1993, p. 396) defined boredom as 'an unpleasant transient affective state in which the individual feels a pervasive lack of interest in and difficulty concentrating on the current activity'" (p. 77).	disengagement inattention negative	Three-item measure using a frequency scale (e.g., "bored with being a musician")
Pattyn, Neyt, Henderickx, & Soetens (2008)	"The subjective experience of boredom has been described as composed of a cognitive and affective component [Hill & Perkins, 1985]. The cognitive component arises from the operator's perception of the demands, which are imposed by the task. If the task is perceived as meaningless and lacking challenge, requiring limited activity or repetitive and constraining, it may give rise to boredom. The affective	attribution causes disengagement high arousal inattention low arousal monotony	Experimental – state boredom was not measured

	component describes the subjective experience which arises from the operator's interpretation of the imposed demands. This has been related to feelings of monotony, frustration, distraction, daydreaming, dissatisfaction and satisfaction, a lack of interest and fatigue" (p. 377).		
Pekrun, Goetz, Daniels, Stupnisky, & Perry (2010)	"a negative, deactivating emotion, because it is experienced as unpleasant and involves a reduction of physiological activation" (p. 532).	disengagement low arousal negative	Participants indicated whether they had experienced boredom and rated its intensity using a 5-point scale ranging from *weak* to *strong* and the boredom scale from the AEQ
Perrin-Wallqvist, Archer, & Norlander (2004)	"a state of relatively low arousal and dissatisfaction, that is attributed to an inadequately stimulating situation and restlessness [Harris, 2000]" (p. 864).	attribution disengagement low arousal	Experimental – state boredom was not measured
Preckel, Gotz, & Frenzel (2010)	"an emotion consisting of affective (e.g., unpleasant feeling), cognitive (e.g., alerted perceptions of time), physiological (e.g., reduced arousal), expressive (e.g., vocal expression), and motivational components (e.g., motivation to change the activity)… [and] absence of interest" (p. 454).	disengagement low arousal negative other time perception	The boredom scale from the AEQ
Skowronski (2012)	" 'Fisher (1993) defined boredom as "an unpleasant, transient affective state in which an individual feels a pervasive lack of interest in and difficulty concentrating on the current activity' (p. 396)" (p. 144).	disengagement inattention negative	Non-experimental
Studak &	"…two conditions. The first	disengagement	The BPS

Workman (2004)	condition is passage of time and refers to the notion that time loses its value in relation to activities. The second condition is a consciously recognized mental state characterized by a lack of interest in participating in an activity" (p. 67).	time perception	
Sundberg, Latkin, Farmer, & Saoud (1991)	"an internal state ranging from mild to severe unpleasantness, which people describe as a feeling of tedium, meaninglessness, emptiness, wearisomeness, and lack of interest or connection with the current environment" (p. 210).	disengagement low arousal meaning monotony negative	The BPS
Taylor, Thompson, & Spassoff (1937)	"a lack of interest in the work, a growing feeling of monotony" (p. 433).	disengagement monotony	Nine-point scale ranging from *completely bored* to *very much interested in work*
Todman (2003)	"an unpleasant state that is invariably accompanied by attributions of environmental sameness" (p. 147).	monotony negative	Non-experimental
Tze, Daniels, Klassen, & Johnson (2013)	"an unpleasant (negative) emotion with low physiological arousal…[that] also includes a motivational component (e.g., having an intention to avoid or leave a boring situation) and a cognitive component (e.g., thinking that time is dragging)" (p. 32).	disengagement low arousal negative time perception	The boredom scale from the AEQ
van der Heijden, Schepers, & Nijssen (2012)	"an unpleasant affective state resulting from the underuse of a person's physical or cognitive capacity" (p. 350).	causes negative	Seven-item measure comprised of items from the LJBS and the VBBA using a 4-point scale ranging from *never* to *always*
van Tilburg & Igou (2012)	" 'feeling unchallenged' and perceiving one's activities as	meaning other	Seven-item measure that assesses lack of

	meaningless" (p. 182).		purpose, meaning, and feeling unchallenged
Vogel-Walcutt, Fiorella, Carper, & Schatz (2012)	"occurs when an individual experiences both the (objective) neurological state of low arousal and the (subjective) psychological state of dissatisfaction, frustration, or disinterest in response to the low arousal" (p. 102).	low arousal outcomes	Non-experimental
Yocum, Anderson, DaVigo, & Lee (2006)	"an activity or situation that causes one to lose a sense of meaning for the activity or situation (Barbalet, 1999)" (p. 1795).	meaning	Adaptation of the LJBS

Note. The BPS = Boredom Proneness Scale (Farmer & Sundberg, 1986); LJBS = Lee's Job Boredom Scale (1986); BCS = Boredom Coping Scale (Hamilton, 1984); LBS = Leisure Boredom Scale (Iso-Ahola & Weissinger, 1990); ZBS = Boredom Susceptibility Scale (Zuckerman, 1979); AEQ = Achievement Emotions Questionnaire (Pekrun, Goetz, & Frenzel, 2005) ;VBBA = Questionnaire on the Experience and Assessment of Work (van Veldhoven, Meijman, Broersen, & Fortuin, 1997)

Table 2

Study 1 PSA and CSV Values

Item	*psa*	*csv*
I wish there was something for me to do.	**1.00**	**1.00**
I want to do something but nothing appeals to me.	.60	-.04
I want to do something interesting but don't know what to do.	**.92**	**.84**
I want to do something but it feels like nothing will happen.	.84	.72
It seems like there is nothing for me to do.	.56	.16
I want to do something but I don't know what.	**.96**	**.92**
I feel like doing something.	.84	.68
I am stuck in a situation that I feel is irrelevant.*	.28	-.04
Everything seems repetitive and routine to me.*	.24	-.12
I seem to be forced to do things that have no value to me.*	.36	.00
I feel bored.*	.20	-.40
I am indecisive or unsure of what to do next.*	.32	-.04
I want to do something fun, but nothing appeals to me.*	.84	.68
I wish I was doing something more exciting.*	**.92**	**.88**
I am wasting time that would be better spent on something else.*	.44	.16
I want something to happen but I'm not sure what.*	**.84**	**.76**
I feel like I'm sitting around waiting for something to happen.*	.72	.48
I feel listless.	**.88**	**.84**
I feel tired.	**.88**	**.80**
I feel lethargic.	**.96**	**.92**
I feel drowsy.	**.84**	**.76**
I feel fatigued.	**.88**	**.80**
I am lacking energy.	**.96**	**.92**
I feel sluggish.	**.96**	**.92**
I feel cut-off from the rest of the world. *	.68	.44
I feel empty.*	**.92**	**.84**
I feel down.*	**.92**	**.84**
I feel lonely. *	.48	.16
It seems like there's no one around for me to talk to.*	.32	-.04
I am having trouble concentrating.	**1.00**	**1.00**
I am inattentive.	**1.00**	**1.00**
It is taking a lot of effort to maintain my attention.	**1.00**	**1.00**
I am having difficulty maintaining my attention.	**1.00**	**1.00**
It is difficult for me to concentrate.	**1.00**	**1.00**
I can't focus on one thing for very long.	**1.00**	**1.00**
It is difficult for me to focus.	**1.00**	**1.00**
I am unable to pay attention.	**1.00**	**1.00**
I am easily distracted.*	**1.00**	**1.00**
It is difficult to focus my attention.*	**1.00**	**1.00**
My attention span is shorter than usual.*	**1.00**	**1.00**
My mind is wandering.*	**.96**	**.92**

Note. Bolded items met the cut-off criteria; asterisk denotes MSBS items.

Table 3

Study 2 PSA and CSV Values

Item	*psa*	*csv*
I wish there was something for me to do.	**.86**	**.76**
I want to do something interesting but don't know what to do.	**.95**	**.90**
I want to do something but I don't know what.	**.95**	**.90**
I wish I was doing something more exciting.*	.81	.67
I want something to happen but I'm not sure what.*	**.90**	**.86**
I feel listless.	.71	.57
I feel tired.	**.90**	**.85**
I feel lethargic.	**.95**	**.90**
I feel drowsy.	**.95**	**.90**
I feel fatigued.	**.90**	**.86**
I am lacking energy.	**.95**	**.90**
I feel sluggish.	**1.00**	**1.00**
I feel empty.*	.67	.48
I feel down.*	.76	.57
I am having trouble concentrating.	**.95**	**.90**
I am inattentive.	**.95**	**.90**
It is taking a lot of effort to maintain my attention.	**.90**	**.86**
I am having difficulty maintaining my attention.	**.95**	**.90**
It is difficult for me to concentrate.	**.95**	**.90**
I can't focus on one thing for very long.	**.90**	**.86**
It is difficult for me to focus.	**.95**	**.90**
I am unable to pay attention.	**.90**	**.86**
I am easily distracted.*	**.90**	**.86**
It is difficult to focus my attention.*	**1.00**	**1.00**
My attention span is shorter than usual.*	**.90**	**.81**
My mind is wandering.*	**1.00**	**1.00**

Note. Bolded items met the cut-off criteria; asterisk denotes MSBS items.

Table 4

Study 3 Model Fit Statistics

Model	χ^2	df	CFI	RMSEA	AIC
Three Factor Superordinate					
Congeneric superordinate	562.63	206	.93	.08	700.63
Two Factor Superordinate					
Inattention/disengagement	979.61	208	.86	.11	1113.61
Disengagement/low arousal	1051.12	208	.84	.12	1185.12
Low arousal/inattention	1233.21	208	.81	.13	1367.21
Unidimensional					
Congeneric unidimensional	2234.98	230	.63	.17	2234.98

Note. χ^2 = chi-square; df = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; AIC = the Akaike information criterion.

Table 5

Study 3 Item Means, Standard Deviations, and Factor Loadings

Item	Mean	SD	Factor Loading
I wish there was something for me to do.	3.21	1.54	.45
I want to do something interesting but don't know what to do.	3.61	1.76	.92
I want to do something but I don't know what.	3.52	1.72	.89
I want something to happen but I'm not sure what.	3.76	1.77	.71
I feel tired	5.24	1.50	.72
I feel lethargic.	3.86	1.70	.64
I feel drowsy.	4.23	1.78	.78
I feel fatigued.	4.44	1.74	.83
I am lacking energy.	4.38	1.74	.87
I feel sluggish.	3.86	1.84	.82
I am having trouble concentrating	4.32	1.73	.76
I am inattentive.	3.51	1.55	.70
It is taking a lot of effort to maintain my attention.	3.52	1.73	.89
I am having difficulty maintaining my attention.	3.81	1.73	.85
It is difficult for me to concentrate.	3.76	1.74	.91
I can't focus on one thing for very long.	3.75	1.71	.79
It is difficult for me to focus.	3.83	1.77	.90
I am unable to pay attention.	3.44	1.72	.88
I am easily distracted.	3.99	1.75	.73
It is difficult to focus my attention.	3.57	1.78	.91
My attention span is shorter than usual.	3.45	1.75	.80
My mind is wandering.	3.91	1.84	.74

Note. SD = standard deviation; factor loadings are for the three factor congeneric superordinate model.

Table 6

Convergent Validity Correlations between Boredom and Other Constructs

	2	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1. Boredom Time 1	.90	.74	.53	-.40	-.26	.45	.53	.49	.10	.62	.50	.58	-.42	.40	.23	.00	.08
2. Boredom Time 2		.58	.46	-.33	-.29	.55	.61	.42	.39	.49	.65	.57	-.43	.29	.30	.02	-.04
3. Trait boredom			.52	-.51	-.55	.35	.50	.49	.17	.59	.40	.52	-.40	.44	.33	-.21	-.12
4. ADHD				-.33	-.17	.19	.30	.27	.04	.41	.23	.40	-.24	.27	.31	-.01	-.01
5. Life meaning					.28	-.25	-.51	-.37	-.26	-.41	-.28	-.41	.37	-.09	-.19	.10	.16
6. Work engagement						-.29	-.43	-.40	-.19	-.55	-.35	-.42	.52	-.37	-.06	.60	.31
7. Negative affect							.68	.25	.36	.49	.76	.57	-.18	.10	.11	-.01	-.09
8. Depression								.37	.41	.62	.69	.74	-.35	.20	.17	-.12	-.07
9. Apathy									.11	.38	.27	.42	-.52	.22	.14	-.35	-.23
10. Anhedonia										.09	.37	.28	-.17	-.04	.11	.03	-.09
11. Neuroticism											.56	.68	-.33	.30	.16	-.13	-.08
12. State anxiety												.67	-.37	.21	.06	-.08	-.09
13. Perceived stress													-.38	.30	.18	-.17	-.12
14. Positive affect														-.25	-.06	.42	.34
15. CWB-Os															.39	-.25	-.08
16. CWB-Is																.04	-.05
17. OCB-Os																	.54
18. OCB-Is																	

Note. Correlations between either boredom or work engagement and other constructs were estimated using AMOS 21; all other correlations were estimated using SPSS. Correlations |.17| or higher are significant at the $p < .05$ level with the exception of the correlation between trait boredom and anhedonia. All correlations were estimated using a sample size of 145 except for anhedonia, which had a sample size of 136.

Table 7

Discriminant Validity Correlations between Boredom and Other Constructs

	2	*3*	*4*	*5*	*6*
1. Boredom Time 1	.90	-.17	-.14	.18	-.24
2. Boredom Time 2		-.12	.00	.12	-.15
3. Work centrality			.40	-.22	.13
4. Corporate social responsibility				-.15	.02
5. Perceptions of government environmental policy					-.04
6. Impression management					

Note. Correlations between boredom and other constructs were estimated using AMOS 21; all other correlations were estimated using SPSS. Correlations |.22| or higher are significant at the $p < .05$ level. All correlations were estimated using a sample size of 145.

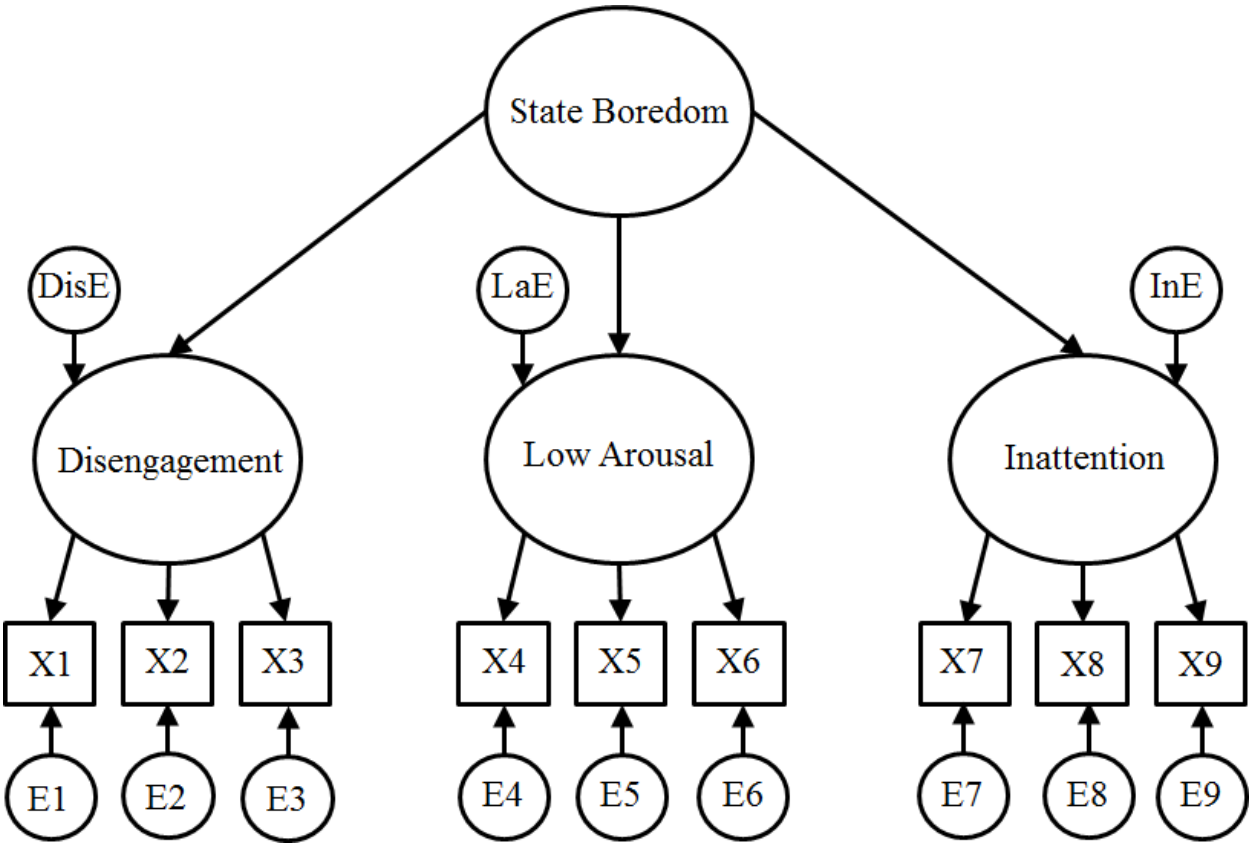

Figure 1. Superordinate structure for state boredom.

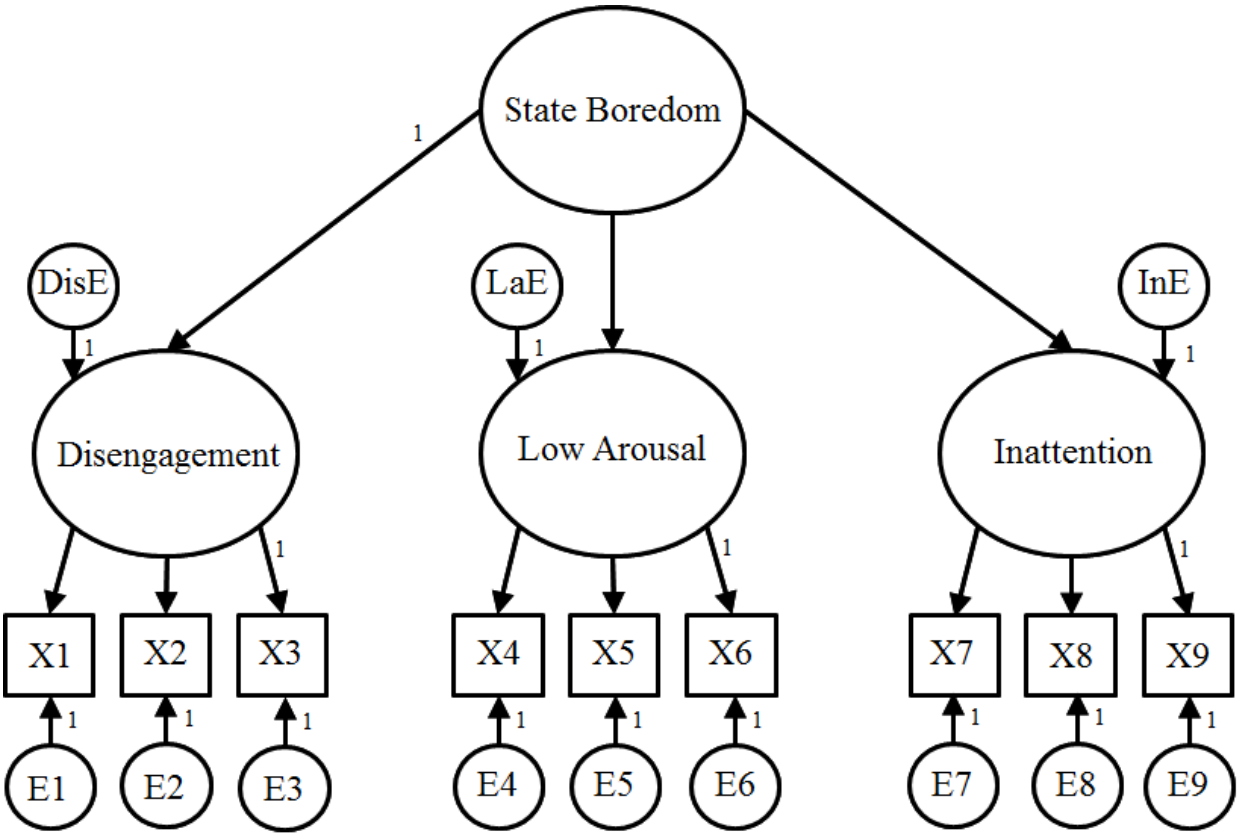

Figure 2. Congeneric superordinate model of state boredom.

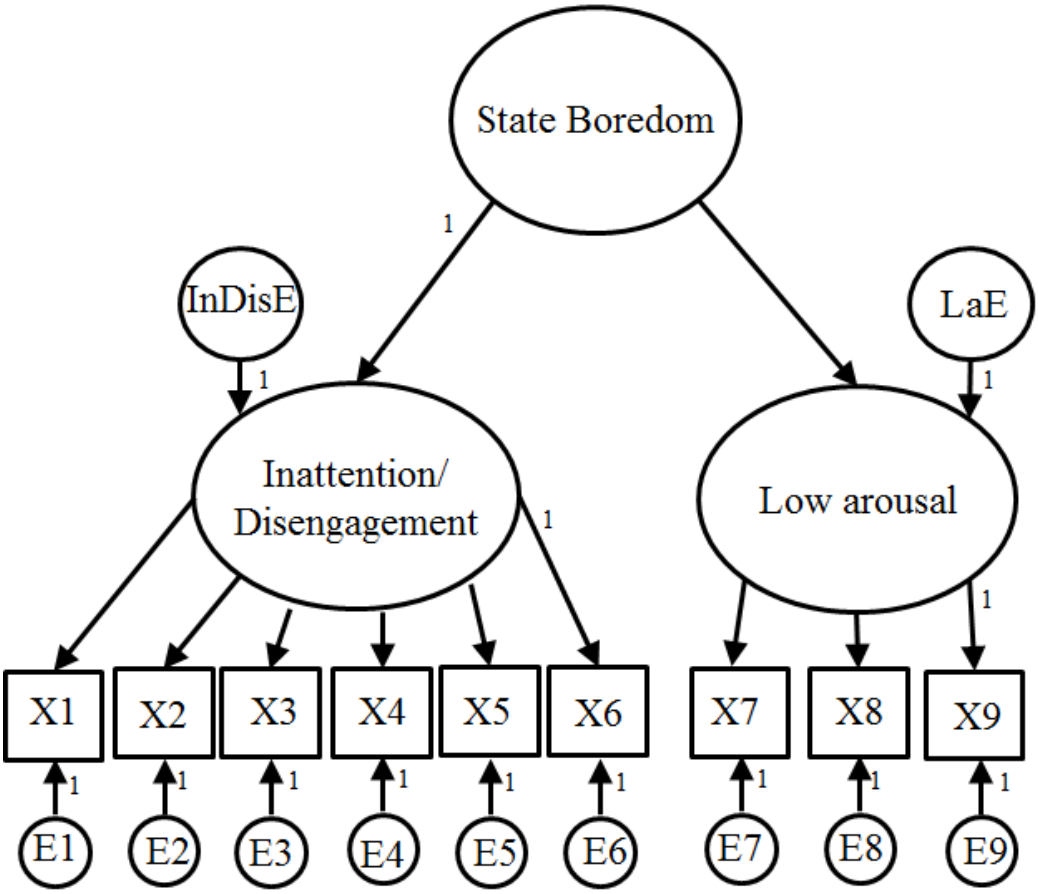

Figure 3. Inattention/disengagement combined congeneric superordinate model of state boredom.

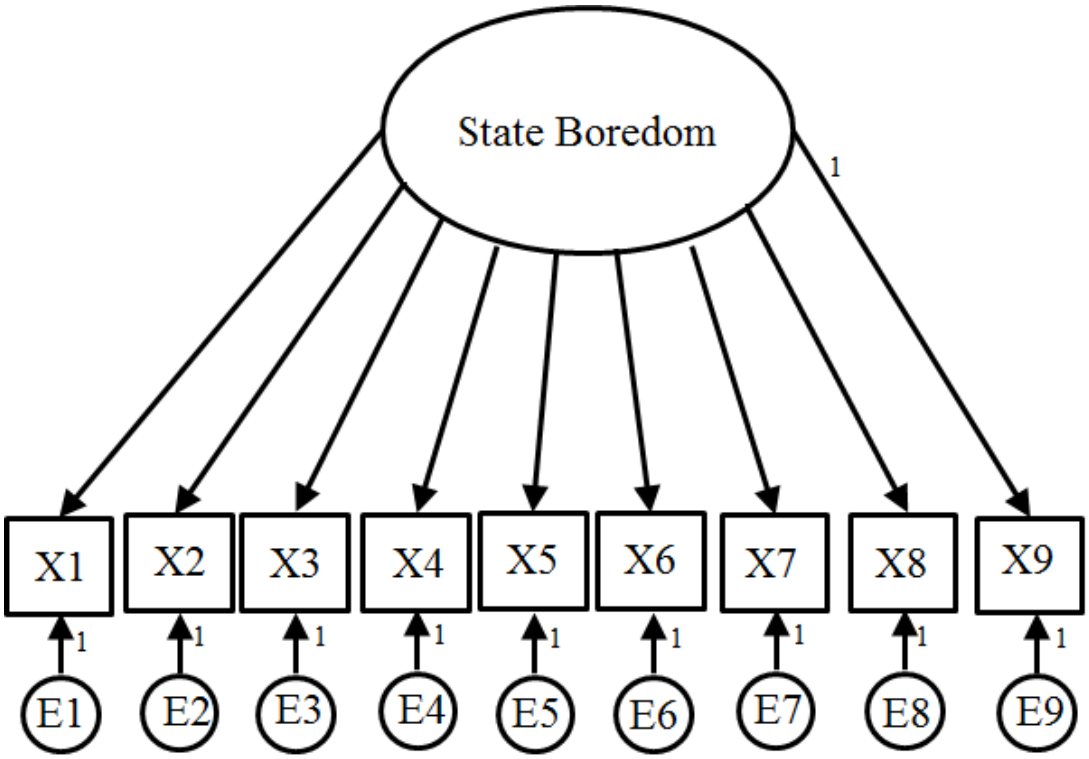

Figure 4. Congeneric unidimensional model of state boredom.

Appendix A: Situational Examples of Feeling Bored

Wedding Scenario

Imagine you're at a wedding reception and the best man is giving a speech. As is customary, wedding guests are expected to be attentive and engaged in the speech (e.g., laughing when prompted). While listening to the speech, you may have a distinct affective experience that may or may not be boredom.

1. You find the content of the speech to be dry and, consequently, have difficulty attending to what the best man is saying. Though you do not have a clear idea of what else you would rather do, you do know that you are dissatisfied with your current situation and that you are overcome with a desire to do something. You feel rather passive and lethargic. You sit there motionless, wishing there was something else you could do and your attention shifts as the best man drones on. *High in disengagement, high in low arousal, and high in inattention.*
    a. This *is* boredom. This individual is dissatisfied with their environment and has a vague longing to engage in some other activity. They are having difficulty maintaining their attention and their affective state is characterized by low arousal negative affect.
2. You find the content of the speech to be dry and, consequently, have difficulty attending to what the best man is saying. You find it rather unpleasant to sit quietly and listen to this dull speech. Glancing around your table, you have the urge to talk to the other guests and continue the conversation you were having before the best man interrupted with his speech. You start to become irritable and are anxious for the speech to finish so that you

can re-engage in conversation with your friends. *Low in disengagement, low in low arousal, and high in inattention.*

   a. This is *not* boredom. Like the bored individual, this person is dissatisfied with his/her current situation. The bored individual, however, is unable to specify an activity preferable to his/her current situation whereas this individual has a clear idea of what he/she would rather be doing (i.e., talk to friends). In addition, this individual is experiencing high arousal negative affect (e.g., irritability) whereas boredom is characterized by low arousal negative affect. Similar to boredom, this individual is inattentive.

3. You find it difficult to focus on the content of the speech as a result of your low spirits. You feel empty and lethargic. Though you would rather be at home on the couch, you try to listen to the best man so that the other guests don't notice your lack of enthusiasm. Despite your efforts, you find your mind constantly wandering to thoughts of what you would rather do. *Low in disengagement, high in low arousal, and high in inattention.*

   a. This individual is *not* bored. Like the bored individual they are experiencing low arousal negative affect (lethargy, emptiness) and inattention. Unlike the bored individual, they have a clear idea of what they would rather do and thus lack the disengagement component of boredom.

4. You find the content of the speech to be interesting and, consequently, are easily able to attend to what the best man is saying. You find it rather enjoyable to sit and listen to this engaging speech. You are less aware of the other guests at your table as your attention is focused on the best man. You feel enthused and excited and are completely engaged in the speech. *Low in disengagement, low in low arousal, and low in inattention.*

   a. This individual is clearly *not* bored. Unlike the bored individual, this individual is enjoying his/her current situation, is very alert and attentive, and is experiencing high arousal positive affect.

Running Scenario

1. You are running on the treadmill at home, which you have been doing for the last 20 minutes. As you run, you experience high physiological arousal, as evidenced by an increase in heart rate and perspiration. You find that your mind is rather blank expect for thoughts about your current task: you keep track of your heart rate, calories burned, your speed, etc. *Low in disengagement, low in low arousal, and low in inattention*
   a. This individual is *not* bored. They are experiencing high arousal, which is in contrast to the low arousal characteristic of boredom. Unlike the bored individual, they are not inattentive or disengaged. Their attention is focused on their current activity and they show no indication of wanting to engage in some other activity.
2. You are running on the treadmill at home, which you have been doing for the last 20 minutes. As you run, you experience high physiological arousal, as evidenced by an increase in heart rate and perspiration. While running, you are also watching your favourite show on television. You find the show really engaging and focus your attention on the television rather than your bodily movements.
   a. This individual is *not* bored. They are experiencing high arousal, which is in contrast to the low arousal characteristic of boredom. Unlike the bored individual, they are not inattentive or disengaged. Their attention is focused on their favourite television programme and they show no indication of wanting to engage in some other unspecified activity.

Appendix B: Boredom Items

Disengagement

1. I wish there was something for me to do.
2. I want to do something but nothing appeals to me.
3. I want to do something interesting but don't know what to do.
4. I want to do something but it feels like nothing will happen.
5. It seems like there is nothing for me to do.
6. I want to do something but I don't know what.
7. I feel like doing something.
8. I am stuck in a situation that I feel is irrelevant.*
9. Everything seems repetitive and routine to me.*
10. I seem to be forced to do things that have no value to me.*
11. I feel bored.*
12. I am indecisive or unsure of what to do next.*
13. I want to do something fun, but nothing appeals to me.*
14. I wish I was doing something more exciting.*
15. I am wasting time that would be better spent on something else.*
16. I want something to happen but I'm not sure what.*
17. I feel like I'm sitting around waiting for something to happen.*

Low arousal

1. I feel listless.
2. I feel tired.
3. I feel lethargic.
4. I feel drowsy.
5. I feel fatigued.
6. I am lacking energy.
7. I feel sluggish.
8. I feel cut off from the rest of the world.*
9. I feel empty.*
10. I feel down.*
11. I am lonely.*
12. It seems like there's no one around for me to talk to.*

Inattention

1. I am having trouble concentrating.
2. I am inattentive.
3. It is taking a lot of effort to maintain my attention.
4. I am having difficulty maintaining my attention
5. It is difficult for me to concentrate.
6. I can't focus on one thing for very long.
7. It is difficult for me to focus.
8. I am unable to pay attention.
9. I am easily distracted*
10. It is difficult to focus my attention*
11. My attention span is shorter than usual*
12. My mind is wandering*

Appendix C: Study 1 Instructions and Materials

PAGE 1

Please read below before moving on.

On the next page are definitions of three concepts. In this study, you will be presented with statements (e.g., "I am someone who likes to cooperate with others") that belong to one of these three concepts. **Your task is to indicate which concept you feel each statement belongs to.**

If you think a particular statement does not belong to any of the concepts, select the **"other"** category. If you feel a particular statement fits into more than one concept, select the concept that you feel is the best choice.

PAGE 2

Carefully read the three concepts below and their definitions. You will need to remember them throughout the study. These definitions will also appear at the top of the screen, which will make it easier for you to refer to them throughout the study.

Disengagement: a longing to engage in an unspecified satisfying activity.

Inattention: being unable to concentrate or focus attention.

Low arousal: a deactivated, negative state manifested in emotions such as weariness, lethargy, listlessness, and emptiness.

PAGE 3

Remember to assign the statements to the concept that it fits best based on the definitions. If you do not believe that the statement belongs to any of the concepts, select the 'other' category. Then rate how well the statement fits the concept you selected.

The definitions are displayed at the top of every page so that you can refer to them at any time. You can also use the navigation bar on the right-hand side to refer back to the definitions and instructions.

INATTENTION CHECK ITEMS

I am highly involved in community activities.
I would probably keep working even if I didn't need the money.

Appendix D: Study 2 Instructions and Materials

Below are definitions of five constructs. On the next page are statements. **Your task is to indicate which construct you feel each statement belongs to.** If you think a particular statement does not belong to any of the constructs, select the **"other"** category. If you feel a particular statement fits into more than one concept, select the concept that you feel is the best choice.

Please note that the total number of statements is not equally distributed amongst each construct. That is, some concepts have more statements devoted to them than others.

Anger: a state consisting of angry feelings that may vary in intensity, from mild irritation or annoyance to fury and rage.

Disengagement: a longing to engage in an unspecified satisfying activity.

Inattention: being unable to concentrate or focus attention.

Low arousal: a deactivated, negative state manifested in emotions such as weariness, lethargy, listlessness, and emptiness.

Proactive Personality: a trait describing someone who is relatively unconstrained by situational forces and who effects environmental change.

STATE-TRAIT ANGER SCALE ITEMS

I feel angry.
I feel like banging on the table.
I am mad.
I am burned up.
I feel like yelling at somebody.

PROACTIVE PERSONALITY SCALE ITEMS

I am constantly on the lookout for new ways to improve my life.
Nothing is more exciting than seeing my ideas turn into reality.
No matter what the odds, if I believe in something I will make it happen.
I excel at identifying opportunities.
If I believe in an idea, no obstacle will prevent me from making it happen.

INATTENTION CHECK ITEMS

I have mixed feelings about being close to others.
The food truck offers fast food and soda to its customers.
The performance appraisal system is too complex for the average salaried employee to understand.

Appendix E: Principal Axis Factor Analysis

In order to explore the factor structure of the scale, I conducted a principal axis factor analysis (PAF) and a parallel analysis. I expected that the data would yield a three-factor solution consistent with boredom's disengagement, low arousal, and inattention dimensions.

Method

Participants

260 undergraduate psychology students at the University of Guelph participated in the present study; however, only 252 participants were used in the analyses based on SPSS's listwise deletion procedure. Of these 252 participants, 245 reported their age and gender; the mean age was 18.58 (*SD* = 1.5; *range* = 17 to 32) and 73.5% of the sample was female (*n* = 180).

Procedure

Participants responded to the 22-item boredom items based on their current feelings using a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Statistical Analyses

To evaluate the factor structure of the scale, I conducted a PAF with an oblique Promax rotation. I opted for an oblique rotation given theory suggesting that boredom is a superordinate multidimensional construct; thus, I expected the dimensions to be correlated with one another. I selected a Promax rotation ($k = 4$) as this type of oblique rotation has been found to be efficient at producing simple structure (Gorsuch, 1983; Rummel, 1988; Thompson, 2004).

To determine the number of factors to use for the PAF, I conducted a parallel analysis using O'Connor's (2000) syntax for SPSS. The parallel analysis compared the raw data to 10,000 permutations of the raw data. Only raw data eigenvalues greater than the simulated eigenvalues

at the 95th percentile were deemed to be statistically meaningful and their corresponding factors were retained (O'Connor, 2000).

When interpreting the results of the PAF, I focused on the factor pattern matrix, and not the factor structure matrix. Whereas pattern coefficients indicate the amount of unique variance in an item accounted for by the factor, structure coefficients indicate the item's direct relation with the factor (Rummel, 1988). Thus, pattern matrices are more useful for understanding to which factor each item belongs (Rummel, 1988). For the pattern matrix, items with pattern coefficients greater than .40 on their respective factor and cross-loadings less than .32 are typically retained in the final scale (Costello & Osborne, 2005; Tabachnick & Fidell, 2007). These criteria were used to evaluate the items.

Results

Parallel Analysis

The results of the parallel analysis indicated that only three eigenvalues exceeded the 95th percentile cut-off criterion. The eigenvalues for the three factors were 11.09, 1.71, and 1.33, respectively, which were greater than the eigenvalues at the 95th percentile; these were, .78, .65, and .55, respectively. In contrast, the fourth eigenvalue was lower than the eigenvalue at the 95th percentile (.42 and .48, respectively), indicating that this factor was not statistically meaningful. Moreover, inspection of the scree plot in Figure 1e below clearly indicates the existence of three factors.

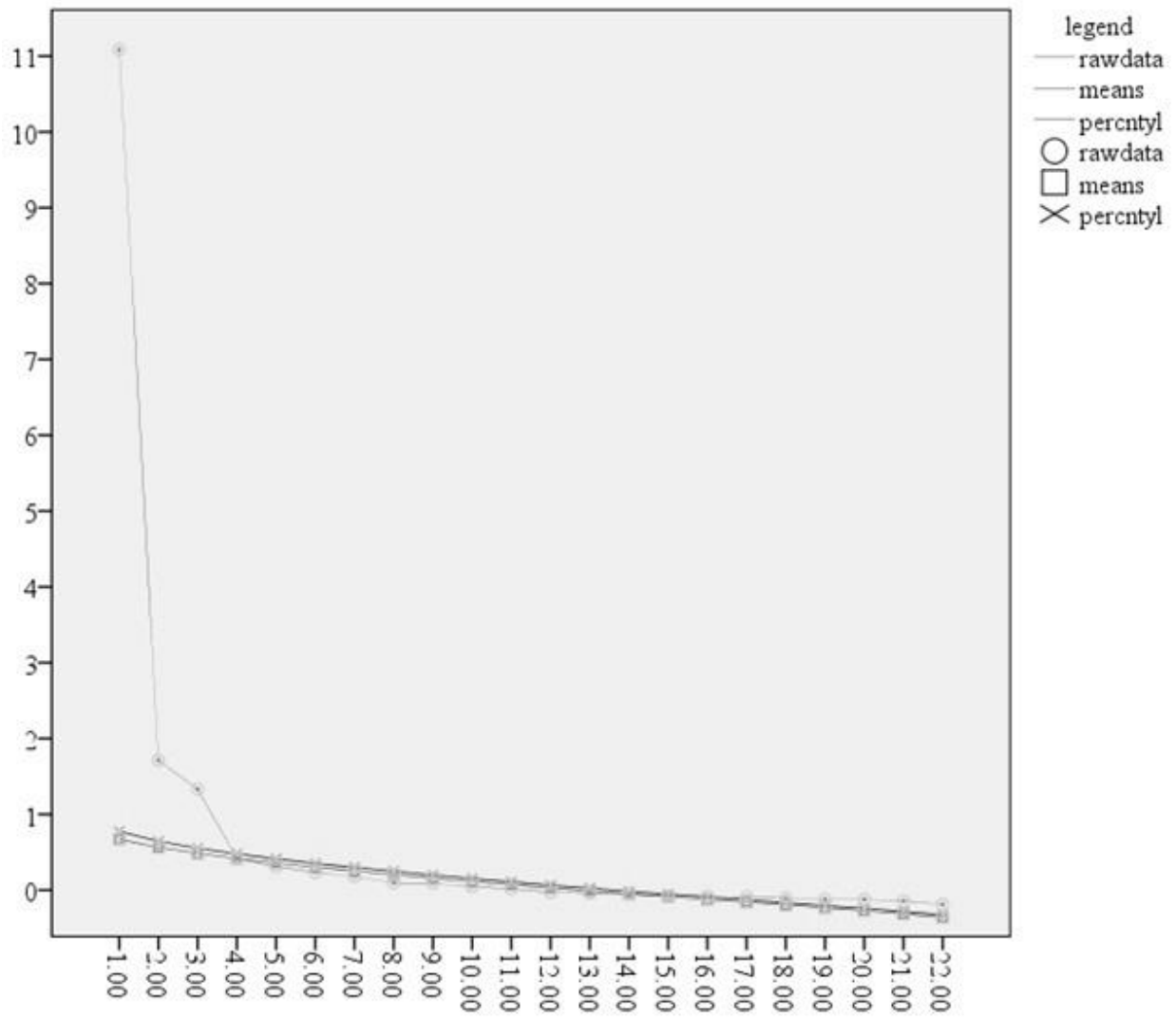

Figure 1e. Scree plot from parallel analysis.

Principal Axis Factor Analysis

The PAF with a Promax rotation indicated that the first factor accounted for 35.82% of the variance, the second factor accounted for 17.59% of the variance, and the third factor accounted for 10.91% of the variance. In total, all three factors accounted for 64.26% of the variance. The factor pattern and structure coefficient matrices are displayed in Table 1e below.

Table 1e

Factor Pattern (P) and Structure (S) Matrices Rotated to the Promax Criterion (k = 4)

	I		II		III		
Item	P	S	P	S	P	S	h^2
I wish there was something for me to do.	.12	.31	-.15	.16	**.61**	.61	.39
I want to do something interesting but don't know what to do.	-.02	.40	.04	.33	**.80**	.80	.65
I want to do something but I don't know what.	-.05	.32	-.07	.23	**.88**	.82	.69
I want something to happen but I'm not sure what.	-.01	.40	.12	.38	**.68**	.72	.53
I am having trouble concentrating	**.69**	.79	.24	.67	-.14	.29	.67
I am inattentive.	**.57**	.67	.09	.51	.07	.38	.45
It is taking a lot of effort to maintain my attention.	**.89**	.87	-.01	.60	-.04	.39	.75
I am having difficulty maintaining my attention.	**.86**	.83	.02	.58	-.11	.32	.69
It is difficult for me to concentrate.	**.90**	.86	-.02	.58	-.05	.38	.74
I can't focus on one thing for very long.	**.68**	.73	-.02	.50	.12	.44	.54
It is difficult for me to focus.	**.89**	.89	.05	.64	-.07	.38	.80
I am unable to pay attention.	**.92**	.88	-.05	.59	.01	.43	.78
I am easily distracted.	**.70**	.71	-.03	.48	.07	.39	.51
It is difficult to focus my attention.	**.90**	.90	-.03	.61	.05	.48	.82
My attention span is shorter than usual.	**.76**	.78	-.02	.54	.06	.43	.61
My mind is wandering.	**.59**	.72	.12	.56	.10	.43	.54
I feel tired	-.02	.47	**.83**	.75	-.15	.16	.59
I feel lethargic.	.21	.57	**.43**	.62	.13	.40	.44
I feel drowsy.	-.01	.58	**.86**	.85	.00	.32	.73
I feel fatigued.	-.05	.57	**.90**	.86	-.03	.30	.74
I am lacking energy.	.11	.66	**.80**	.87	.00	.36	.77
I feel sluggish.	.16	.70	**.65**	.83	.18	.50	.74
Trace	7.88		3.87		2.40		
Variance	35.82 %		17.59 %		10.91 %		

Note. I = Inattention; II = Low arousal; III = Disengagement; P = pattern coefficient; S = structure coefficient; h^2 = communality coefficient. Pattern coefficients greater than |.40| are in boldface. Percent variance is post-rotation. The fourth, unretained, prerotated eigenvalue was .42.

As evidenced in the factor pattern matrix, the inattention items loaded onto the first factor, the low arousal items loaded onto the second factor, and the disengagement items loaded on the third factor. All of the items had a factor pattern coefficient greater than .40 for their respective factor and less than .32 for the other factors, indicating that each item clearly loaded onto one factor. Furthermore, the high correlations between the factors suggest the presence of a higher-order factor. Specifically, the correlation between inattention and low arousal was .69, the correlation between inattention and disengagement was .48, and the correlation between disengagement and low arousal was .39. This is consistent with theory suggesting that boredom is a superordinate construct comprised of three dimensions.

Discussion

Overall, the results of these analyses are consistent with the results of the CFA in Study 3. Specifically, the parallel analysis indicated that a three factor solution was the appropriate factor structure for the data. These findings are consistent with those of Study 3 in which a superordinate model with three dimensions fit the data significantly better than did a superordinate model with two dimensions and a unidimensional model (i.e., one dimension). Moreover, interpretation of the factor pattern coefficients from the PAF yielded the same conclusions as those made when interpreting the factor loadings from the CFA. Overall, the results clearly demonstrate that a three-factor solution is the most appropriate factor structure for the scale.

Appendix F: Model Constraints for the Three Factor Superordinate Model

I also conducted additional analyses on the three factor superordinate model to explore whether disengagement, low arousal, and inattention were equivalent indicators of boredom. Specifically, I tested a parallel, tau-equivalent, and congeneric superordinate model. Each of these models is explained below.

The parallel superordinate model treats the dimensions as parallel such that they have equal loadings on the superordinate construct and the variances of each dimension are constrained to be equal (see Figure 1f below). This model assumes that a unit level change in the superordinate construct will result in the same unit level change in the dimensions and that each dimension reflects the superordinate construct with the same precision.

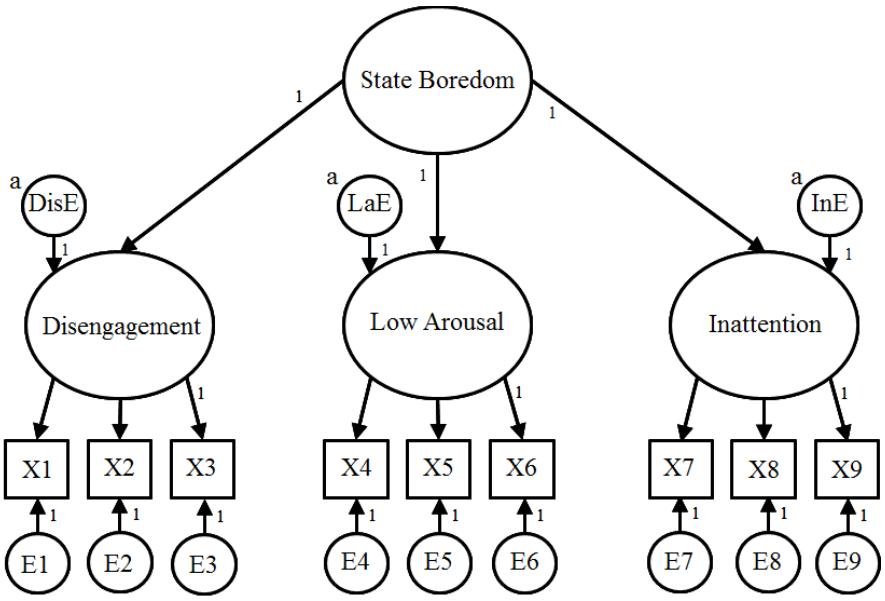

Figure 1f. Parallel superordinate model of state boredom.

The tau-equivalent superordinate model specifies that dimension loadings on the superordinate construct are equivalent, but that the variances of each dimension are free to vary (see Figure 2f below). This model assumes that a unit level change in the superordinate construct

will result in the same unit level change in the dimensions, but that each dimension reflects the superordinate construct with different precision. The assumptions of both of these models hold at the higher-order level (i.e., the relation between boredom and its dimensions) and not at the lower-order level (i.e., the relation between each dimension and its indicators).

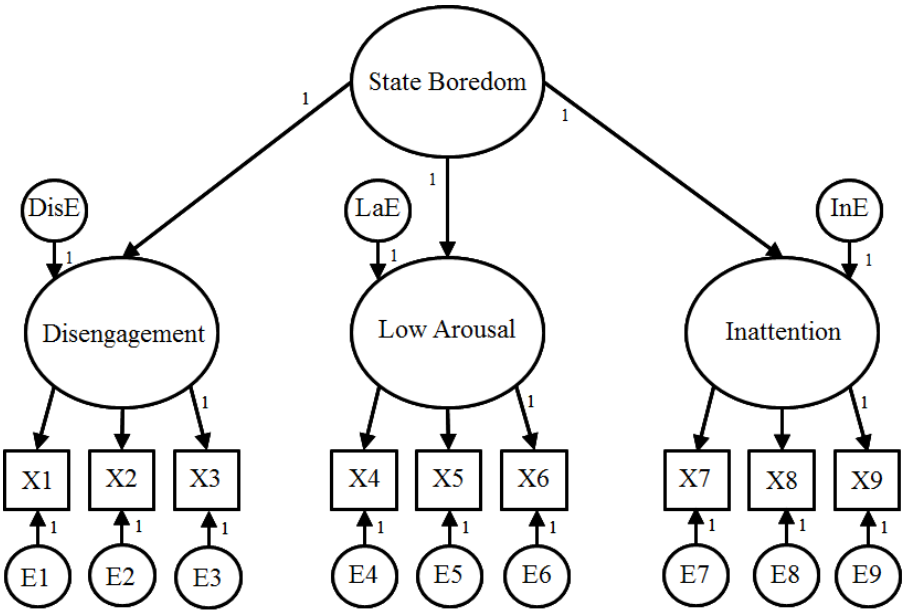

Figure 2f. Tau-equivalent superordinate model of state boredom.

The congeneric superordinate model allows the dimension loadings on the superordinate construct and the dimension variances to vary freely (see Figure 2 in the Figures section). This model assumes that a unit level change in the latent construct will not necessarily result in the same unit level change in each indicator and that each indicator reflects the latent construct with different degrees of precision.

Results

The parallel, tau-equivalent, and congeneric superordinate models fit the data well. The CFI values were .93 for each of the parallel, tau-equivalent, and congeneric models and the RMSEA values were .08 for each model. These values are in accordance with criteria stipulating

that CFI values above .90 indicate acceptable fit (Hooper et al., 2008) and RMSEA values between .08 and .10 indicate mediocre fit (MacCallum et al., 1996).

Chi-square difference tests revealed that the congeneric model fit the data significantly better than did the tau-equivalent model, $\Delta\chi^2_2 = 11.93$, $p < .01$, and that the tau-equivalent model fit the data significantly better than did the parallel model, $\Delta\chi^2_2 = 6.04$, $p < .05$. The AIC values for the parallel, tau-equivalent, and congeneric models were 710.60, 708.56, and 700.63, respectively, with lower values indicating better fit (Kline, 2005). Overall, the congeneric model satisfied model fit conventions and provided the best fit to the data, as indicated by chi-square difference tests and AIC values.

Appendix G: Results for the Correlated Dimensions Model

The factor structure of the correlated dimensions model is depicted in Figure 1g below. The correlated dimensions model fit the data well, $\Delta\chi^2_{206} = 562.63$, $p < .001$. The CFI and RMSEA values were .93 and .08, respectively. These values comply with conventions for good model fit (Hooper et al., 2008; MacCallum et al., 1996). The correlated dimensions model and the three factor congeneric superordinate model had identical degrees of freedom and chi-square values (i.e., $\Delta\chi^2_0 = 0$), making comparisons using chi-square difference tests impossible. Inspection of the AIC revealed that the AIC values for the two models were also identical (*AIC* = 700.63). The correlations between each of the three dimensions are reported below.

Each of the three dimensions demonstrated high correlations with one another. Specifically, inattention and low arousal were the most highly correlated with a correlation of .59 whereas disengagement and low arousal had the lowest correlation of .39. The correlation between inattention and disengagement was .49. Overall, the results indicated that modelling boredom as three distinct, but correlated, dimensions is an appropriate factor structure for the scale.

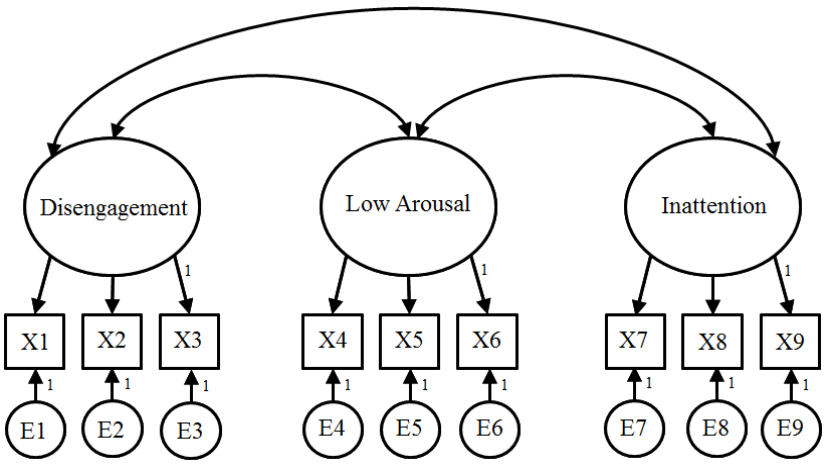

Figure 1g. Correlated dimensions model of state boredom.

Appendix H: Study 4 Inattention Check Items

1. At work, I get so excited that I start singing, “London Bridge” (Utrecht Work Engagement Scale; Time 1).
2. I am seriously considering quitting my job to work as a beaver logger (Boredom Proneness Scale; Time 1).
3. I would enjoy tasting dirt after a light rain (Snaith-Hamilton Pleasure Scale; Time 2).
4. Donate my entire year’s pay cheques to another employee (Organizational Citizenship Behavior Scale; Time 2).
5. Asked your granddaughter to cover you at work (Counterproductive Work Behaviour Checklist; Time 2).

Appendix I: The Boredom Proneness Scale

Please respond to each question indicating how you **TYPICALLY** feel or behave.

1 Strongly disagree
2 Disagree
3 Somewhat disagree
4 Neither agree or disagree
5 Somewhat agree
6 Agree
7 Strongly agree

1. It is easy for me to concentrate on my activities.
2. Frequently when I am working I find myself worrying about other things.
3. Time always seems to be passing slowly.
4. I often find myself at "loose ends", not knowing what to do.
5. I am often trapped in situations where I have to do meaningless things.
6. Having to look at someone's home movies or travel slides bores me tremendously.
7. I have projects in mind all the time, things to do.
8. I find it easy to entertain myself.
9. Many things I have to do are repetitive and monotonous.
10. It takes more stimulation to get me going than most people.
11. I get a kick out of most things I do.
12. I am seldom excited about my work.
13. In any situation I can usually find something to do or see to keep me interested.
14. Much of the time I just sit around doing nothing.
15. I am good at waiting patiently.
16. I often find myself with nothing to do, time on my hands.
17. In situations where I have to wait, such as a line, I get very restless.
18. I often wake up with a new idea.
19. It would be very hard for me to find a job that is exciting enough.
20. I would like more challenging things to do in life.
21. I feel that I am working below my abilities most of the time.
22. Many people would say that I am a creative or imaginative person.
23. I have so many interests, I don't have time to do everything.
24. Among my friends, I am the one who keeps doing something the longest.
25. Unless I am doing something exciting, even dangerous, I feel half-dead and dull.
26. It takes a lot of change and variety to keep me really happy.
27. It seems that the same things are on television or the movies all the time; it's getting old.
28. When I was young, I was often in monotonous and tiresome situations.

Appendix J: Inattention Subscale of the ASRS

Please respond to the statements below by indicating **HOW OFTEN** you felt or conducted yourself a certain way **OVER THE PAST 6 MONTHS.**

0 Never
1 Rarely
2 Sometimes
3 Often
4 Very Often

1. How often do you make careless mistakes when you have to work on a boring or difficult project?
2. How often do you have difficulty keeping your attention when you are doing boring or repetitive work?
3. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?
4. How often do you have trouble wrapping up the fine details of a project, once the challenging parts have been done?
5. How often do you have difficulty getting things in order when you have to do a task that requires organization?
6. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?
7. How often do you misplace or have difficulty finding things at home or at work?
8. How often are you distracted by activity or noise around you?
9. How often do you have problems remembering appointments or obligations?

Appendix K: Meaning in Life Questionnaire

Please take a moment to think about what makes **YOUR LIFE FEEL IMPORTANT TO YOU** and respond to each statement below.

1 Absolutely untrue
2 Mostly untrue
3 Somewhat untrue
4 Can't say true or false
5 Somewhat true
6 Mostly true
7 Absolutely true

1. I understand my life's meaning.
2. My life has a clear sense of purpose.
3. I have a good sense of what makes my life meaningful.
4. I have discovered a satisfying life purpose.
5. My life has no clear purpose.

Appendix L: 9-Item Utrecht Work Engagement Scale

The following statements are about how **YOU FEEL AT WORK**. Please read each statement and decide **IF YOU EVER FEEL THIS WAY ABOUT YOUR JOB** using the scale provided.

0 Never
1 Almost never/a few times a year or less
2 Rarely/once a month or less
3 Sometimes/a few times a month
4 Often/once a week
5 Very often/a few times a week
6 Always/every day

1. At my work, I feel bursting with energy. (vigour)
2. At my job, I feel strong and vigorous. (vigour)
3. I am enthusiastic about my job. (dedication)
4. My job inspires me. (dedication)
5. When I get up in the morning, I feel like going to work. (vigour)
6. I feel happy when I am working intensely. (absorption)
7. I am proud of the work that I do. (dedication)
8. I am immersed in my work. (absorption)
9. I get carried away when I am working. (absorption)

Appendix M: Negative Affect Subscale of the PANAS

Indicate to what extent you **FEEL THIS WAY RIGHT NOW**, at this present moment.

1 Very slightly or not at all
2 A little
3 Moderately
4 Quite a bit
5 Extremely

1. Afraid
2. Scared
3. Nervous
4. Jittery
5. Irritable
6. Hostile
7. Guilty
8. Ashamed
9. Upset
10. Distressed

Appendix N: Depression Subscale of the DASS-21

Please indicate to what extent each statement applied to you **OVER THE PAST WEEK.**

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1. I couldn't seem to experience any positive feeling at all.
2. I found it difficult to work up the initiative to do things.
3. I felt that I had nothing to look forward to.
4. I felt down-hearted and blue.
5. I was unable to become enthusiastic about anything.
6. I felt I wasn't worth much as a person.
7. I felt that life was meaningless.

Appendix O: Apathy Evaluation Scale

For each statement, circle the answer that best describes your thoughts, feelings, and activity over the **LAST MONTH.**

1 Not at all
2 Slightly
3 Somewhat
4 A lot

1. I am interested in things.
2. I get things done during the day.
3. Getting things started on my own is important to me.
4. I am interested in having new experiences.
5. I am interested in learning new things
6. I put little effort into anything.
7. I approach life with intensity.
8. Seeing a job through to the end is important to me.
9. I spend time doing things that interest me.
10. Someone has to tell me what to do each day.
11. I am less concerned about my problems than I should be.
12. I have friends.
13. Getting together with friends is important to me.
14. When something good happens, I get excited.
15. I have an accurate understanding of my problems.
16. Getting things done during the day is important to me.
17. I have initiative.
18. I have motivation.

Appendix P: The Snaith-Hamilton Pleasure Scale

Please respond based on how you have felt over **THE LAST FEW DAYS.**

1 Strongly disagree
2 Disagree
3 Neither agree or disagree
4 Agree
5 Strongly agree

1. I would enjoy my favourite television or radio programme.
2. I would enjoy being with my family or close friends.
3. I would find pleasure in my hobbies and pastimes.
4. I would be able to enjoy my favourite meal.
5. I would enjoy a warm bath or refreshing shower.
6. I would find pleasure in the scent of flowers or the smell of a fresh sea breeze or freshly baked bread.
7. I would enjoy seeing other people's smiling faces.
8. I would enjoy looking smart when I have made an effort with my appearance.
9. I would enjoy reading a book, magazine or newspaper.
10. I would enjoy a cup of tea or coffee or my favourite drink.
11. I would find pleasure in small things, e.g., bright sunny day, a telephone call from a friend.
12. I would enjoy a beautiful landscape or view.
13. I would get pleasure from helping others.
14. I would feel pleasure when I receive praise from other people.

Appendix Q: Neuroticism Subscale of the IPIP

Please indicate how accurately each statement describes you, **IN GENERAL.**

1 Very inaccurate
2 Moderately inaccurate
3 Neither inaccurate or accurate
4 Moderately accurate
5 Very accurate

1. I get stressed out easily.
2. I am relaxed most of the time.
3. I worry about things.
4. I seldom feel blue.
5. I am easily disturbed.
6. I get upset easily.
7. I change my mood a lot.
8. I have frequent mood swings.
9. I get irritated easily.
10. I often feel blue.

Appendix R: State Anxiety (STAI)

Please respond to each question indicating how you **FEEL RIGHT NOW**, even if it is different from how you usually feel.

1 Not at all
2 Somewhat
3 Moderately
4 Very much

1. I feel calm
2. I am tense
3. I feel upset
4. I am relaxed
5. I feel content
6. I am worried

Appendix S: Perceived Stress Scale

Please respond to the statements below by indicating **HOW OFTEN** you felt or thought a certain way **DURING THE LAST MONTH**.

0 Never
1 Almost Never
2 Sometimes
3 Fairly Often
4 Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and "stressed"?
4. In the last month, how often have you felt confident about your ability to handle your personal problems?
5. In the last month, how often have you felt that things were going your way?
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
7. In the last month, how often have you been able to control irritations in your life?
8. In the last month, how often have you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that were outside of your control?
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Appendix T: Positive Affect Subscale of the PANAS

Indicate to what extent you **FEEL THIS WAY RIGHT NOW**, at this present moment.

1 Very slightly or not at all
2 A little
3 Moderately
4 Quite a bit
5 Extremely

1. Interested
2. Alert
3. Excited
4. Inspired
5. Strong
6. Determined
7. Attentive
8. Enthusiastic
9. Proud
10. Active

Appendix U: 10-Item Counterproductive Work Behavior Checklist

Please indicate **HOW OFTEN** you engage in the following behaviours using the scale provided.

1 Never
2 Once or twice per year
3 Once or twice per month
4 Once or twice per week
5 Every day

CWB-O

1. Purposely wasted your employer's materials/supplies.
2. Complained about insignificant things at work.
3. Told people outside the job what a lousy place you work for.
4. Came to work late without permission.
5. Stayed home from work and said you were sick when you weren't.

CWB-I

1. Insulted someone about their job performance.
2. Made fun of someone's personal life.
3. Ignored someone at work.
4. Started an argument with someone at work.
5. Insulted or made fun of someone at work.

Appendix V: Organizational Citizenship Behavior Scale

Please indicate **HOW OFTEN** you engage in the following behaviours using the scale provided.

1 Never
2 Once or twice per year
3 Once or twice per month
4 Once or twice per week
5 Every day

OCB-I

1. Help others who have been absent.
2. Willingly give your time to help others who have work-related problems.
3. Adjust your work schedule to accommodate other employees' requests for time off.
4. Go out of the way to make newer employees feel welcome in the work group.
5. Show genuine concern and courtesy toward coworkers, even under the most trying business or personal situations.
6. Give up time to help others who have work or non-work problems.
7. Assist others with their duties.
8. Share personal property with others to help their work.

OCB-O

1. Attend functions that are not required but that help the organizational image.
2. Keep up with developments in the organization.
3. Defend the organization when other employees criticize it.
4. Show pride when representing the organization in public.
5. Offer ideas to improve the functioning of the organization.
6. Express loyalty toward the organization.
7. Take action to protect the organization from potential problems.
8. Demonstrate concern about the image of the organization.

Appendix W: Work Centrality Scale

Please indicate your agreement with each statement using the scale provided.

1 Strongly disagree
2 Disagree
3 Somewhat disagree
4 Neither agree or disagree
5 Somewhat agree
6 Agree
7 Strongly agree

1. Work should only be a small part of one's life.
2. In my view, an individual's personal life goals should be work oriented.
3. Life is worth living only when people get absorbed in work.
4. The major satisfaction in my life comes from my work.
5. The most important things that happen to me involve my work.
6. I have other activities more important than my work.
7. Work should be considered central to life.
8. I would probably keep working even if I didn't need the money.
9. To me, my work is only a small part of who I am.
10. Most things in life are more important than work.
11. If the unemployment benefit was really high, I would still prefer to work.
12. Overall, I consider work to be very central to my existence.

Appendix X: Corporate Social Responsibility

Please indicate the extent to which the following statements are **true of your organization** using the scale provided.

1 Strongly disagree
2 Disagree
3 Somewhat disagree
4 Neither agree or disagree
5 Somewhat agree
6 Agree
7 Strongly agree

1. [My organization is] genuinely concerned about consumer welfare.
2. [My organization is] believes in philanthropy and giving generously to worthy causes.
3. [My organization is] likely to follow employee-friendly rules and policies.
4. [My organization is] highly involved in community activities.
5. [My organization is] highly concerned about environmental issues.

Appendix Y: Perceptions of Government Environmental Policy

For each scale, please pick the option that best describes your attitude towards the current environmental policies of your national government. Please note that the scale endpoints change with each question.

My national government's environmental policies are:

1	2	3	4	5
Good		Neutral		Bad
1	2	3	4	5
Wise		Neutral		Foolish
1	2	3	4	5
Beneficial		Neutral		Harmful
1	2	3	4	5
Useful		Neutral		Useless

Appendix Z: Impression Management Subscale of the Balanced Inventory of Desirable Responding

1 Not true
4 Somewhat true
7 Very true

1. I sometimes tell lies if I have to.
2. I never cover up my mistakes.
3. There have been occasions when I have taken advantage of someone
4. I never swear.
5. I sometimes try to get even rather than forgive and forget.
6. I always obey laws, even if I'm unlikely to get caught.
7. I have said something bad about a friend behind his or her back.
8. When I hear people talking privately, I avoid listening.
9. I have received too much change from a salesperson without telling him or her.
10. I always declare everything at customs.
11. When I was young I sometimes stole things.
12. I have never dropped litter on the street.
13. I sometimes drive faster than the speed limit.
14. I never read sexy books or magazines.
15. I have done things that I don't tell other people about.
16. I never take things that don't belong to me.
17. I have taken sick-leave from work or school even though I wasn't really sick.
18. I have never damaged a library book or store merchandise without reporting it.
19. I have some pretty awful bad habits.
20. I don't gossip about other people's business.