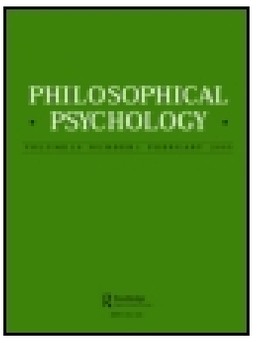

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The good of boredom

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ABSTRACT

I argue that the state of boredom (i.e., the transitory and non-pathological experience of boredom) should be understood to be a regulatory psychological state that has the capacity to promote our well-being by contributing to personal growth and to the construction (or reconstruction) of a meaningful life.

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1. Boredom: A tale of two constructs

In recent years, boredom has become the topic of an active inter-disciplinary research program. What is at least partly responsible for this surge of interest in boredom research is the development and validation of various ways of conceptualizing and measuring boredom. Two such measures focus on job boredom (Grubb, 1975; Lee, 1986), one examines the ability to cope with boredom (Hamilton, Haier, & Buchsbaum, 1984), one assesses leisure or boredom during free time (Iso-Ahola & Weissinger, 1987; Ragheb & Merydith, 2001), one appraises sexual boredom (Watt & Ewing, 1996), one investigates academic boredom (Acee et al., 2010), and yet another considers purposelessness, under-stimulation, and boredom in cancer patients (Passik, Inman, Kirsch, Theobald, & Dickerson, 2003). Despite the availability of such measures, most of them are limited in scope: they measure boredom only in specific contexts. Two existing measures that are not subject to such a shortcoming are the Boredom Proneness Scale (BPS) (Farmer & Sundberg, 1986) and the Boredom Susceptibility Scale (ZBS) (Zuckerman, 1979). Of these two scales, only BPS is a full-scale measure of boredom; ZBS is a subscale of the Sensation Seeking Scale (Zuckerman, 1979; Zuckerman, Eysenck, & Eysenck, 1978). On account of its full-scale character, BPS is to date the most commonly used measure of boredom.

BPS is designed to "assess one's proneness toward experiencing boredom" and as such it is a measure of *trait boredom*—the propensity to experience boredom frequently and in a wide range of situations (Farmer & Sundberg, 1986, p. 5). Its

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use has allowed researchers to study the correlates of boredom proneness (i.e., the construct that BPS operationalizes and measures and which is thought to correspond to trait boredom) and to document its profoundly harmful effects (for reviews see Vodanovich, 2003; Vodanovich & Watt, 2015). For example, boredom proneness has been found to be positively correlated with anger and aggression (Gana & Akremi, 1998; Gordon, Wilkinson, McGown, & Jovanoska, 1997; Mercer-Lynn, Flora, Fahlman, & Eastwood, 2011; Rupp & Vodanovich, 1997), depression (Ahmed, 1990; Farmer & Sundberg, 1986; Goldberg, Eastwood, LaGuardia, & Danckert, 2011; Malkovsky, Merrifield, Goldberg, & Danckert, 2012), anxiety (Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009; Fahlman, Mercer-Lynn, Flora, & Eastwood, 2013), hostility (Dahlen, Martin, Ragan, & Kuhlman, 2004; Vodanovich, Verner, & Gilbride, 1991), apathy (Goldberg et al., 2011), loneliness (Farmer & Sundberg, 1986), and hopelessness (Farmer & Sundberg, 1986). Within an educational context, boredom proneness has been linked to poor grades (Mikulas & Vodanovich, 1993) and early dropout rates (Farmer & Sundberg, 1986; Farrell, Peguero, Lindsey, & White, 1988). Within the workplace, boredom has been associated with lower job satisfaction (Abdolahi, Damirchi, & Ganjeh, 2011; Kass, Vodanovich, Stanny, & Taylor, 2001) and job involvement (Seib & Vodanovich, 1998), increased accident rates (Kass, Beede, & Vodanovich, 2010; O'Hanlon, 1981; Weinger, 1999), and increased job stress (Wan, Downey, & Stough, 2014). In everyday life, boredom proneness is related to poor performance on tasks that require sustained attention (Malkovsky et al., 2012; Seib & Vodanovich, 1998; Watt & Blanchard, 1994). It is also related to a propensity to make mistakes in completing common tasks (Carriere, Cheyne, & Smilek, 2008).

In turn, boredom proneness has been found to lead to poor interpersonal and social relationships (Leong & Schneller, 1993; Tolor, 1989; Watt & Vodanovich, 1999). It is also associated with lower life satisfaction (Farmer & Sundberg, 1986), and boredom prone individuals have a harder time finding meaning in life than those who are not prone to boredom (Fahlman et al., 2009; Van Tilburg & Igou, 2011; Vodanovich & Watt, 1999; Watt & Vodanovich, 1999; Weinstein, Xie, & Cleanthous, 1995). What is more, boredom prone individuals experience impulse control deficits (Dahlen et al., 2004; Leong & Schneller, 1993). Looking for something to excite them, they are more likely to engage in risk-taking behavior, such as reckless driving (Dahlen, Martin, Ragan, & Kuhlman, 2005; Kass et al., 2010), and are more prone to binge eating (Stickney & Miltenberger, 1999; see also Ganley, 1989), drug and alcohol abuse (Lee, Neighbors, & Woods, 2007; LePera, 2011; Paulson, Coombs, & Richardson, 1990), and problem gambling (Blaszczynski, McConaghy, & Frankova, 1990; Mercer & Eastwood, 2010).

Much of boredom research can thus be seen as an attempt, on the one hand, to understand the nature of trait boredom and its correlates and, on the other hand, to explore ways in which the effects of trait boredom can be mitigated. Still, not all of boredom research concerns itself with trait boredom and it would be a mistake to suggest so. Recently, boredom researchers have begun to explore the

nature of the *state* of boredom, a construct distinct from trait boredom. Unlike trait boredom, which is a personality trait, the state of boredom is a transitory, aversive experience that signals a failure to engage with one's environment in a desired manner despite one's desire to do so (Danckert & Merrifield, 2016; Eastwood, Frischen, Fenske, & Smilek, 2012).

An adequate account of the state of boredom—a description of its antecedents, effects, experiential profile, and neurophysiological correlates—turns out to be crucial for our understanding of the phenomenon of boredom. First, the idea of state boredom is conceptually prior to the idea of trait boredom. That is, the actual experience of boredom is presupposed both by our notion of trait boredom (after all, trait boredom is a propensity to frequently experience boredom) and by the manner in which trait boredom is measured (Farmer & Sundberg, 1986; see also Fahlman et al., 2013). Thus, without an adequate understanding of state boredom (to which I will subsequently refer simply by the term "boredom"), it is unclear whether we can have a good grasp of the notion of trait boredom.

Second, as a transitory affective state, boredom appears to be ever-present. It affects both healthy individuals and patient populations (Binnema, 2004; Eastwood, Cavaliere, Fahlman, & Eastwood, 2007; Hamilton et al., 1984; Newell, Harries, & Ayres, 2011; Seel & Kreutzer, 2003; Vodanovich, 2003). It affects individuals of all genders and from all cultures (see, e.g., Musharbash, 2007; Ng, Liu, Chen, & Eastwood, 2015; Sundberg, Latkin, Farmer, & Saoud, 1991; Vodanovich, Watt, & Piotrowski, 1997; Weinstein et al., 1995). And it is also experienced in a wide range of situations (Acee et al., 2010; Belton & Priyadharshini, 2007; Fisher, 1993; Game, 2007; Grassian, 2006; Grubb, 1975; Iso-Ahola & Weissinger, 1987; Larson & Richards, 1991). Therefore, any attempt to come to terms with our affective existence needs to study and understand the state of boredom.

Third, there is strong evidence in support of the claim that boredom is an emotion (or at least, an affective state) in its own right, and as such ought to be distinguished from other related affective states. For example, Van Tilburg and Igou (2012) found that boredom has a unique experiential content (study 1) and that manipulation of the state of boredom did not affect other emotional states (anger, sadness, or frustration) (study 4). Furthermore, using structural equation modeling, Goldberg and colleagues found that boredom is distinct from apathy, anhedonia, and depression—all of which are taken to be phenomenologically akin to boredom (Goldberg et al., 2011).

Last, it has been recently proposed that the state of boredom could serve an important function in our mental economy. Specifically, it has been suggested that boredom acts as a regulatory state that keeps one in line with one's projects (Bench & Lench, 2013; Elpidorou, 2014, 2015a, forthcoming; Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010; Sansone, Weir, Harpster, & Morgan, 1992; Smith, Wagaman, & Handley, 2009; Van Tilburg & Igou, 2012). The state of boredom can motivate one to pursue a new goal when the current goal ceases to be satisfactory, attractive, or meaningful. As such, boredom can help to promote the

restoration of the perception that one's activities are meaningful and congruent with one's overall projects.

In this paper, my aim is to offer an in-depth and critical examination of boredom's role as a regulatory state and present both its nature and its potentially beneficial effects. Although the present article is not the first study to propose a relationship between boredom and self-regulation, it goes beyond the findings and claims of extant articles in at least two important respects. First, it articulates clearly the relationship between the state of boredom and self-regulation. It does so by emphasizing boredom's distinctive capacity to move us out of uninteresting, unfulfilling, or meaningless situations and relates this capacity to the locomotion aspect of the Regulatory Mode Theory (Higgins, Kruglanski, & Pierro, 2003; Kruglanski et al., 2000). Second, it makes a novel case for the importance of boredom in our lives. Whereas extant studies on boredom and self-regulation conclude by defending, proposing, or simply noting a link between boredom and self-regulation, the present article takes a further step: it shows how boredom's capacity to keep us in motion is beneficial to our well-being. To put it rather simply and in a manner that passes over many of the complexities that will be addressed later on, this article makes the following argument: boredom promotes movement; movement is essential to well-being; ergo, boredom promotes well-being. As agents with projects, goals, and inter-personal relationships, we are much better off having the capacity to be bored than lacking it.

2. Caution!

This article does not argue that our well-being is promoted by the chronic or frequent experience of boredom. Nor does it in any way suggest that we should strive to be bored. I have already presented some of the many detrimental effects (or at least, correlates) of boredom proneness. Still, there is value in boredom *when it is experienced occasionally by healthy individuals*. To see where its value lies, it is instructive to draw a parallel between pain and boredom. Although the sensation of pain is unpleasant, the capacity to feel pain is good for us. Just consider what happens in cases where the capacity to feel pain is missing. Subjects with congenital insensitivity to pain live difficult and often short lives. Their lives contain harmful and dangerous stimuli and their bodies become injured easily and often severely (Bar-On et al., 2002; Baxter & Olszewski, 1960; Nagasako, Oaklander, & Dworkin, 2003; Swanson, 1963; Thrush, 1973). Yet, they cannot sense harm done to them and thus, cannot protect themselves. Pain is a mechanism that both signals the presence of harm and motivates us to change our behavior in order to protect ourselves (Eccleston & Crombez, 1999; Koster, Crombez, Van Damme, Verschuere, & De Houwer, 2004; Van Damme, Crombez, & Lorenz, 2007). As such, pain is valuable to us.

Something similar holds for boredom. Or so this article will show. Boredom protects us from certain situations. It does so by informing us of the presence of

situations that are not in line with our interests and desires and by motivating us to do something else. If we were to lack the capacity to be bored, we would not notice when we are faced with an unsatisfying, non-stimulating, or monotonous situation. Nor would we do something to get out of it. So, the main claim that this article will defend is that boredom (in its non-pathological, state form) is valuable to us precisely because its presence helps us to keep moving, and in doing so, it brings us closer to what is in line with our desires and goals. It is not news to state that there is a place for negative emotions and affective states in our well-being (Diener & Seligman, 2002). It is news, however, to propose that boredom can be an element of the good life.

3. Describing boredom

What is state boredom? Here is not the place to provide a systematic and exhaustive review of the literature on the state of boredom—others and I have done so elsewhere (see, e.g., Eastwood et al., 2012; Elpidorou, forthcoming; Fahlman et al., 2013). Still, in order to be in a position to argue for the claim that boredom is a regulatory state that has the potential to benefit us I need to present, at least in broad outline, the character of boredom. For ease of explication, I follow a component processes account of emotions (e.g., Kleinginna & Kleinginna, 1981; Scherer, 1984) and hold (a) that emotions consist of a set of interrelated components[1] and (b) that the task of characterizing a given emotion amounts to that of specifying its different components. Thus, in order to describe boredom and to separate it from other related affective states, we have to present its affective, cognitive, physiological, and volitional components.[2]

3.1. Affective character

Boredom is an aversive state (Harris, 2000; Hartocollis, 1972; Mikulas & Vodanovich, 1993; Pekrun et al., 2010; Todman, 2003). It does not feel good to be bored. Bored individuals report feelings of constraint or a perceived lack of agency (Eastwood et al., 2012; Fahlman et al., 2013; Fenichel, 1951; Geitwitz, 1966; Hill & Perkins, 1985; Todman, 2013; Vodanovich & Kass, 1990). Furthermore, individuals who find themselves in a state of boredom comment both that they feel tired and lethargic and that they experience feelings of restlessness and irritability (Harris, 2000; Martin, Sadlo, & Stew, 2006; O'Brien, 2014).

3.2. Cognitive character

It is integral to the experience of boredom that one is both disengaged and dissatisfied with one's environment (Anderson, 2007; Fahlman et al., 2009; Fenichel, 1951; Goldberg et al., 2011; Greenson, 1953; Passik et al., 2003). Bored individuals experience difficulties in concentrating and maintaining attention (Ahmed, 1990; Damrad-Frye & Laird, 1989; Eastwood et al., 2012; Fisher, 1993; Gordon et al.,

1997; Hamilton, 1981; Hamilton et al., 1984; Harris, 2000)[3] and they often engage in mind-wandering (Game, 2007; Harris, 2000; Martin et al., 2006).

Furthermore, qualitative studies have found that bored individuals experience an altered passage of time (Martin et al., 2006): during a state of boredom, time appears to move more slowly (Gabriel, 1988; Greenson, 1953; Hartocollis, 1972; London & Monello, 1974; Tze, Daniels, Klassen, & Johnson, 2013; Wangh, 1975). When completing a tedious task, high boredom prone individuals perceived time as passing more slowly than low boredom prone individuals (Watt, 1991). This finding is consistent with a recent study by Danckert and Allman (2005) which reports that individuals who are prone to boredom are likely to make mistakes in judging the duration of perceptual events.

Finally, boring situations are ones that are perceived as being non-optimal for the subject (Damrad-Frye & Laird, 1989; De Chenne, 1988; Mann & Robinson, 2009; Mikulas & Vodanovich, 1993). Often subjects report that boring situations are meaningless or trite (Barbalet, 1999; Fiske & Maddi, 1961; Perkins & Hill, 1985; Van Tilburg & Igou, 2012), that they lack a sense of challenge (Csikszentmihalyi, 1975; Van Tilburg & Igou, 2012), or even that they are too challenging (Daschmann, Goetz, & Stupnisky, 2011; Goetz, Pekrun, Hall, & Haag, 2006; cf. Pattyn et al., 2008).

3.3. Physiological character

Currently, there is no agreement as to whether boredom is a state of low or high arousal. Indeed, in the literature one finds proposals that describe boredom as a state of low arousal (Hebb, 1955; Mikulas & Vodanovich, 1993; Russell, 1980), as a state of high arousal (Bench & Lench, 2013; Berlyne, 1960; Fisher, 1993; Harris, 2000; Hill & Perkins, 1985; London, Schubert, & Washburn, 1972), or even as a state that can be both (Bernstein, 1975; Eastwood et al., 2012; Elpidorou, forthcoming; Fahlman et al., 2013; Fenichel, 1951; Fiske & Maddi, 1961; O'Brien, 2014; Van Tilburg & Igou, 2012). Qualitative studies on the phenomenological character of boredom and studies on the physiological correlates of boredom are consistent with all three proposals (for a more detailed discussion of this issue, see Elpidorou, forthcoming).

For instance, bored individuals not only describe boredom as a low energy or apathetic state, but also as one that contains feelings of restlessness, anxiety, and irritability (Goetz & Frenzel, 2006; Harris, 2000; Martin et al., 2006). Furthermore, boredom has been associated with both a decrease and an increase of physiological arousal (Barmack, 1937; Braby, Harris, & Muir, 1993; Geiwitz, 1966; London et al., 1972; Lundberg, Melin, Evans, & Holmberg, 1993; Pattyn et al., 2008). London and colleagues (1972) reported that a boring task can yield an increase in levels of galvanic skin potential (study 1) and heart rate (study 2). However, in a different study, Pattyn and colleagues observed that during a prolonged target detection

task—a task that is often described as boring—participants' heart rate decreased over time (Pattyn et al., 2008; see also Merrifield & Danckert, 2014).

Although we do not have an adequate picture of the neurological underpinnings of boredom, the following findings are noteworthy. First, Oswald (1962) has reported the presence of alpha waves during the experience of boredom. This finding relates boredom to mental fatigue, insofar as studies of the neural correlates of the latter show similar brain activation (Barwick, Arnett, & Slobounov, 2012; Fan, Zhou, Liu, & Xie, 2015; Lal & Craig, 2002; Phipps-Nelson, Redman, & Rajaratnam, 2011; Schier, 2000; Zhao, Zhao, Liu, & Zheng, 2012). Second, there is evidence suggesting that boredom might be correlated with lower beta activity in the left Dorso-Lateral Pre-frontal Cortex area (DLPFC) (Tabatabaie et al., 2014). Such a finding about the neurological correlates of boredom, coupled with the observation that a similar activity reduction in DLPFC has been observed in ADHD children (Sangal & Sangal, 2015), provides further support for the claim that attention is an important mechanism of boredom (Eastwood et al., 2012). Third, Danckert and Merrifield (2016) undertook a comparative study of fMRI scans of individuals in three different conditions: during resting state, during boredom mood induction, and during a sustained attention task. A comparison of the scans showed that in all three conditions there is common activation of components of the default mode network (DMN). Such commonality supports the claim that boredom is similar both to the resting state and to the sustained attention task condition insofar as it is a state of disengagement from one's environment. Having said that, Danckert and Merrifield note that despite similarities, observed brain activation in the resting state differs from that of boredom in one important respect: only during boredom was there anti-correlated activity in the anterior insular cortex. Danckert and Merrifield propose that activity in that region may indicate a failed attempt to engage with the situation, and in this way, the state of boredom differs from the resting state. Even though both are states of disengagement, only the former is one in which individuals were motivated to try to engage with their situation.

3.4. Volitional character

The state of boredom is marked by a strong desire to engage in a task other than the one with which one is currently engaged. A state of boredom is a negative, aversive state of discontent. As such, bored individuals wish to be doing something else and will try, when it is possible, to escape a boring situation (Bench & Lench, 2013 Berlyne, 1960; De Chenne, 1988; Fahlman et al., 2013; Fenichel, 1951; Fiske & Maddi, 1961; Greenson, 1953; Hebb, 1966; Mikulas & Vodanovich, 1993; Todman, 2003; Van Tilburg & Igou, 2012). The motivational power of the unpleasantness of boredom is strong. In fact, studies that have found that boredom proneness is correlated with risk-taking activities (Dahlen et al., 2005; Kass et al., 2010) are indications of the ability of boredom to motivate individuals to search for situations that will alleviate boredom, even if such situations are harmful to them.

4. Boredom and self-regulation

Some authors have suggested that boredom should be understood as a self-regulatory state (Bench & Lench, 2013; Elpidorou, 2014, 2015a, forthcoming; Pekrun et al., 2010; Sansone et al., 1992; Smith et al., 2009; Struk, Scholer, & Danckert, 2016; Van Tilburg & Igou, 2011, 2012). Given the summary of boredom's character just offered, such a proposal is not only reasonable, but also warranted by what we know about the experiential profile of boredom. Boredom is an aversive state from which one seeks escape. During boredom one experiences feelings of weariness and frustration. One is disengaged from and dissatisfied with one's situation. The situation does not capture the attention of, nor does it interest, the individual. Instead, the individual is moved to consider alternative situations, goals, and actions (Bench & Lench, 2013; Elpidorou, 2014, forthcoming; Fahlman et al., 2013; Van Tilburg & Igou, 2012). Lastly, through its physiological features—increase in arousal and the presence of anti-correlated activity in the anterior insular cortex—boredom can facilitate the pursuit of alternative goals and situations.

A synthesis of the above characteristics of boredom strongly suggests that boredom is both an informative and motivational state: it signals that we need to change something about ourselves or about our environment and it motivates us to do so. Specifically, what boredom does is to promote the pursuit of alternative situations (physical or mental) when the current situation ceases to be interesting, engaging, or meaningful. Boredom strives to get us unstuck when we find ourselves stuck (Fahlman et al., 2013, p. 68). It moves us out of non-interesting situations and into interesting ones. For that reason, boredom is best understood as a regulatory state that helps to keep us in line with what we find interesting and meaningful. Boredom's function is movement, and through movement, it promotes self-regulation.

4.1. Boredom's relationship to movement and self-regulation

Self-regulation can be understood to be the set of processes that aim to minimize the discrepancy between an individual's current state and a desired state. Through self-regulatory processes one becomes aware of such a discrepancy and utilizes the needed resources to achieve the desired state (Carver & Scheier, 1998; Higgins et al., 2003; Kruglanski et al., 2000; Kuhl, 1985). Self-regulation contributes to the completion of goals and allows individuals to act, think, and even feel in a way that is consistent with their standards and desires (Baumeister & Vohs, 2003). Self-regulation is often hard and requires the exertion of effort (Baumeister, Heatherton, & Tice, 1994) but success in self-regulation has been shown to be associated with positive psychological adjustment, positive interpersonal relations, lower anger, better grades, and fewer impulse control problems (Tangney, Baumeister, & Boone, 2004). Furthermore, in a longitudinal study that followed a cohort of 1000 children from birth to the age of 32, Moffitt and colleagues (2011)

found that poor self-control in childhood can lead to poor health, financial issues, and even criminal convictions.

According to Regulatory Mode Theory, a specific model of self-regulation, human behavior is guided by two largely independent components: *assessment* and *locomotion* (Higgins et al., 2003; Kruglanski, Pierro, Mannetti, & Higgins, 2013; Kruglanski et al., 2000). Assessment constitutes the comparative aspect of self-regulation (Higgins et al., 2003). It involves the critical evaluation and comparison of different entities (e.g., means and goals) in order to determine which is most worthy of pursuit. In contrast, locomotion is the aspect of self-regulation that involves the commitment of one's psychological resources in order to initiate and maintain goal-directed activity (Kruglanski et al., 2000). Locomotion is not characterized by a specific end state but rather by movement itself (Higgins et al., 2003; Pierro, Kruglanski, & Higgins, 2006), where movement is understood to be any change from one state (psychological or behavioral) to another (Higgins et al., 2003, p. 295).

A large body of evidence supports the claim that locomotion is a unique construct. For example, locomotion is conceptually distinct from promotion (Higgins, 2012), implementation (Gollwitzer, 1990; Scholer & Higgins, 2012), and action orientation (Kuhl, 1985). Furthermore, studies have obtained significant locomotion effects while controlling for the Big Five personality factors (Kruglanski et al., 2000; Pierro, Giacomantonio, Pica, Kruglanski, & Higgins, 2011). Locomotion, just like assessment, is a dimension: it varies from low to high, and both individuals and situations can be characterized as low or high in locomotion. It is measured by the Regulatory Mode Questionnaire (Kruglanski et al., 2000) and can be induced experimentally (Avnet & Higgins, 2003; Mauro, Pierro, Mannetti, Higgins, & Kruglanski, 2009).

There are conceptual reasons to think that the state of boredom and locomotion are related. Given its affective, cognitive, volitional, and physiological aspects, boredom is a psychological state that has the capacity to help us achieve movement. Boredom not only signals a dissatisfaction with our current situation, it also acts as a push that motivates us to get out of uninteresting or meaningless situations. As such, the state of boredom contributes to the exercise of locomotion. In line with the characterization of movement assumed by Regulatory Mode Theory (Kruglanski et al., 2013), the movement that boredom calls for and promotes does not have to be physical (or behavioral); it can also be mental. That is, in order to alleviate boredom, an individual might be motivated to change her (physical or social) situation or she might engage in a different mental activity, such as mind-wandering (Game, 2007; Harris, 2000; Martin et al., 2006).

I should be quick to point out that although boredom promotes locomotion, its proposed function is not movement pure and simple. Boredom aims not simply to move us from one situation to another but to facilitate a type of *goal*-directed motion—one that takes us from an uninteresting or meaningless situation into one that is interesting or meaningful. Indeed, boredom would be incapable of

playing an integral role in self-regulation if its aim were not this type of goal-directed movement. But why suppose that boredom plays this self-regulatory role by promoting goal-directed movement? I offer three reasons.

First, such a proposal is supported both by phenomenological descriptions of the experience of boredom (Fahlman et al., 2013; Harris, 2000; Van Tilburg & Igou, 2012) and by what we know about the affective, volitional, and cognitive aspects of boredom. Although bored individuals have a strong desire to escape their current situation, they do not simply wish to replace their situation with *any* alternative situation. Clearly, they do not want to move from one boring situation to another. Instead, in a state of boredom, one wishes *both* to stop doing what one is currently doing and to engage in a more satisfactory task (Fahlman et al., 2013; Harris, 2000; Van Tilburg & Igou, 2012). The latter aspect of the volitional content of boredom is necessary because without a desire to engage in some other task, the experienced state would not be one of boredom but perhaps one of apathy. Furthermore, even if the volitional content of boredom is not fully specified, it is still "thicker" than a mere "do something else!" That is to say, even if bored individuals do not know precisely what they want to do, they do know that they want to be doing something that is interesting, exciting, or meaningful (Fahlman et al., 2013).[4] On account of this volitional content, boredom will motivate individuals to seek out a more fulfilling task.

Second, the proposed function of boredom is consistent with the commonplace observation that mere movement is not always capable of alleviating boredom. The act of flipping through channels, for example, constitutes both some type of movement and change—at the very least, we have changed our immediate sensory environment and we are directing our attention to something else. Yet, such a change does not guarantee that boredom will be removed. The same holds for certain types of physical movement. Truck drivers driving through a monotonous desert road experience boredom (Drory, 1982) despite the fact that they are clearly moving and experience some kind of change. The observation that boredom can be present during change (physical or psychological) makes it unlikely that boredom's function is the promotion of movement pure and simple. If boredom had such a function, then it would be out of line with what we seem to know about the function of other (negative) emotions. Disgust and fear, for example, dissipate once their function has been fulfilled. More importantly, if boredom's function were simply motion, it would be hard to make sense of boredom within a functional account of emotions (e.g., Keltner & Gross, 1999; Keltner, Haidt, & Shiota, 2006; Tooby & Cosmides, 2008). According to such an account, emotions are solutions to problems of physical or social survival. Pure movement, however, does not seem sufficient to offer such solutions for complex organisms like us. Or, alternatively, if pure movement is capable of solving problems pertaining to physical or social survival, then the need for boredom as a distinct affective state becomes hard to discern. Other affective states or physiological states could serve the same function and do so more efficiently.

Third, the proposed claim about the function of boredom has the additional theoretical benefit that it allows us to make sense of boredom proneness as the result of a dysfunction of the state of boredom. Boredom may fail to fulfill its function either because it fails to move us or because it moves us into situations that fail to alleviate our boredom—that is, it moves us into situations which are not meaningful or interesting to us. In either case, such a failure of boredom's function could lead—if it is systematic—to the more frequent or prolonged experience of boredom (i.e., boredom proneness).[5]

In making such a claim about the function and dysfunction of boredom, the proposal leads to empirically testable predictions. For one, it predicts that lack of movement will be a good indicator of boredom proneness—either because one is incapable of moving out of uninteresting situations when such situations arise, or because by remaining stuck in the same situation for a prolonged period of time, one ceases to be interested in the situation. Additionally, the proposal predicts that having the ability to move from one situation to another will decrease the likelihood of being stuck in unsatisfactory situations and consequently decrease the frequency with which one experiences boredom. The latter prediction is in fact supported by evidence that shows that high locomotion is strongly negatively correlated with boredom proneness (Struk et al., 2016).

In turn, it has been shown that high boredom prone individuals are more likely to engage in risky behaviors than low boredom prone individuals. Such a finding is prima facie puzzling. If high boredom prone individuals *tend* to engage in risky behavior, shouldn't then that tendency reduce the frequency of their experience of boredom? After all, isn't risky behavior exciting and as such not boring? Unfortunately, this is not an issue that has received sustained attention in the literature. Still, the proposed account of the function (and dysfunction) of boredom allows us to make some progress in accounting for it. Boredom functions optimally when it (a) informs us of the presence of a boring situation and (b) successfully motivates us to pursue a more interesting, fulfilling, or meaningful situation.[6] Boredom proneness could thus be the result of a lack of motion, but it could also be the result of a failure to properly direct the motivating force of boredom. In the case of high boredom prone individuals who engage in risky behavior, it is more reasonable to maintain that boredom proneness is the product of the latter type of failure. In their attempts to escape boredom, such individuals may rely on what situations most readily afford them or on quick fixes of boredom instead of trying to find activities that are in line with their personal interests. Engaging in risky activities is the easy solution and one that in all likelihood will temporarily assuage one's feelings of boredom. But if such an activity is not one that is in some sense meaningful to the agent and does not promote the agent's interests, boredom will return.

All in all, we have strong reasons to accept the claim that boredom is a self-regulatory state. Not only is this conclusion supported by what we know about the character of boredom —its affective, cognitive, and motivational aspects—it also

carries a number of important theoretical advantages. It permits us to account for boredom proneness in terms of the function or dysfunction of the *state* of boredom; it gives rise to empirically testable predictions; and lastly, it is in line with functional accounts of emotions. By promoting movement, boredom contributes to locomotion. But boredom does more than that. Due to its affective, cognitive, and volitional character, boredom can, when it functions optimally, facilitate goal-directed movement and move us closer to what we find interesting and meaningful.

4.2. The limits of boredom

The fact that boredom can promote the pursuit of more interesting, stimulating, or meaningful situations does not render it a psychological panacea. Most emotional states are ones that have both beneficial and harmful consequences—fear, for example, protects us from threats and dangers, yet it often forecloses opportunities and possibilities for action. Boredom is no exception and, in this section, I highlight three potential issues with boredom, that is, three ways in which boredom may cease to be beneficial to us. I argue, however, that the fact that boredom does not always play a salutary role in our lives does not mean that it is not valuable. An understanding of the limitations of boredom is not a demonstration of its uselessness, but a necessary step in seeing more clearly how boredom can be used optimally and to our own advantage.

4.2.1. From boredom to boredom

Boredom, I have argued, serves a two-fold function. First, it informs us of a mismatch between what we desire and what is being offered to us; in doing so, it signals the presence of an unsatisfactory, meaningless, or trite situation. Second, boredom acts as a motivational force that helps us to move out of such unsatisfactory, meaningless, or trite situations. It should be noted that the very state of boredom does not always carry information about what would alleviate our boredom. It is common among bored individuals to have a strong desire to do something other than what they are currently doing without knowing exactly what that alternative is (e.g., Fahlman et al., 2013). Still, boredom's motivational force is not aimless: even if boredom itself does not specify what we should be doing, it does motivate us to seek out a more interesting or fulfilling task. However, our pursuit for an interesting or fulfilling task need not always be successful. In an attempt to escape boredom, it is possible that we find ourselves in yet another unsatisfactory, meaningless, or trite situation—one that did not appear to us to be so beforehand. Of course, if boredom is successful in promoting movement, then it should motivate us once again to do something else and, hopefully, this time we will be more successful in finding something that satisfies our need for stimulation and engagement. Having said that, the very possibility that boredom may lead to another boring state highlights the need both for self-knowledge and

for knowledge of our possibilities. Motion is good, but not when it is purposeless. In order to fulfill its potential, boredom needs our guidance.

4.2.2. The interesting isn't always beneficial

Boredom may be successful in moving us both out of unsatisfactory and uninteresting situations *and* into situations that are perceived by us to be interesting, engaging, and stimulating. Nonetheless, the fact that boredom has the ability to do so does not guarantee that the new interesting, engaging, or stimulating situation is one that is beneficial to us. As was already discussed, individuals who score high on BPS are more likely than low boredom prone individuals to engage in potentially unsafe and dangerous activities (Dahlen et al., 2005; Kass et al., 2010). Such risky behavior is exciting but may either harm individuals or fail to promote their well-being.

4.2.3. The boring shouldn't always be avoided

A subject may experience a situation as boring for a variety of reasons. Often, such a reaction is deemed to be appropriate insofar as it correctly represents features of the situation. Consider, for example, waiting in line to pay for groceries, attending a lecture on a topic that is utterly familiar to us, or having the same conversation over and over again. Such situations are not only boring from the perspective of the agent (insofar as they fail to stimulate her), but they are appropriately boring: we recognize that these are situations in which the agent is not afforded with meaningful or engaging opportunities. However, not all situations that are experienced as boring are appropriate in this sense.

Consider, for instance, the experience of boredom within an academic context. Students often experience boredom when they are attending lectures or completing challenging assignments (Acee et al., 2010; Belton & Priyadharshini, 2007; Mann & Robinson, 2009). In one sense, such an experience is a fitting reaction to the situation insofar as the situation is one that has failed to engage the subject. In another sense, however, boredom can be said to be an inappropriate reaction. Assuming that the class is important for the subject, the experience of boredom does not allow the subject to focus on the material, leading potentially to a bad outcome. Classes may be boring, but often they should not be.

If I am correct to emphasize the motivational and aversive character of boredom, the onset of boredom will motivate the individual to do something that alleviates the experience of boredom. In doing so, boredom could lead to harmful results. If one is bored during class, boredom could lead to irrelevant mind-wandering or motivate the individual to engage in an activity that is unrelated to the class. While, such actions are often employed as means to alleviate boredom, they are not the only ones available to the agent. For example, there is some preliminary evidence that suggests that boredom can foster creativity (Gasper & Middlewood, 2014; Mann & Cadman, 2014). Thus, as a response to the experience of boredom, individuals could engage in creative thinking about the material at hand

or attempt creative or novel solutions to questions or exercises. Furthermore, a number of studies have found that boredom promotes the reestablishment of a sense of meaningfulness (Van Tilburg & Igou, 2011, 2012). Such an attempt to find meaning could allow a student to engage with the material in a different way or to discover something that was not immediately evident to her. Lastly, it is important to emphasize that the fact that boredom promotes movement does not necessarily entail that boredom will promote movement *away* from the task at hand. Indeed, even though individuals high in locomotion have a preference for multi-tasking, they are capable of remaining focused on a given task (Pierro et al., 2011): They can secure sustained attention on a task by moving from one state of knowledge or understanding to another, while engaging in that task.

4.2.4. Lesson

What do the above limitations tell us about boredom and its value? They underline that boredom will not by itself solve our problems. It needs direction and a kind of know-how that allows us to use boredom in the right way. In other words, we need to have the ability to know how to read the situation and how to respond to it. Thus, listening to what boredom tells us when it arises, and being able to use its motivational power in order to promote movement, can help not only to reduce the duration of our current boring experience but also to increase the chances of later finding ourselves in situations that are congruent with our desires and in line with our interests. Such a conclusion might seem to suggest that what is beneficial for us is not boredom *itself* but knowledge about boredom and its uses. Such a reaction underestimates—severely, I believe—the motivational power of boredom. Boredom is a powerful emotional state that can at once disengage us from uninteresting or meaningless situations and move us away from them. It has been reported, for example, that individuals who are left alone in a room with their thoughts (a situation that is considered to be boring) are willing to shock themselves as a way to stimulate themselves and escape the monotony of their situation (Wilson et al., 2014). Clearly, on account of its motivational character, boredom differs from apathy and other states of disengagement. But it also differs from other related negative states like frustration. Whereas frustration (at least sometimes) can be understood as a call to persist in what we are doing (Amsel, 1992), boredom can be understood as a call to switch our activity. Boredom disengages us from our current situation, makes salient to us our alternative possibilities, and motivates us to do something else. As such, boredom plays a unique and useful role in our mental economy.

5. Boredom and well-being

So far, I have argued that an important part of boredom's function is to move us: on account of its character, boredom can move us out of uninteresting situations and into ones that are closer to our desires, goals, and projects. As such, it can

regulate our behavior. But if boredom has the capacity to promote motion and in doing so to bring us closer to what can be important, relevant, or exciting to us, doesn't it also, at least sometimes, have the capacity to promote well-being? In this section, I shall argue precisely for that claim. We do not want boredom to arise. We do not like it when it does arise. Still, its presence informs us that our current situation is not satisfactory to us. More importantly, boredom also offers us an affective force that can motivate us to pursue our goals. Hence, boredom can be valuable even if it is unpleasant.

5.1. Beyond happiness

There is more to living a good life than living a life that is mostly devoid of pain, distress, and physical and mental illnesses. Although this point has been acknowledged for decades now (Jahoda, 1958; Keyes, 2002; Ryff, 1989; Ryff & Singer, 1998), the precise nature of the good life still remains a matter of debate (e.g., Ryan & Deci, 2001). If the absence of pain, distress, and illnesses is not sufficient for well-being, then what is needed for an individual to achieve well-being? Current empirical psychology on well-being is divided into two broad camps. On the one hand, theorists who espouse a hedonic view of well-being (Kahneman, Diener, & Schwarz, 1999) hold that well-being consists in pleasure or happiness (e.g., Diener, 2000; Diener, Sapyta, & Suh, 1998). On the other hand, theorists committed to a eudaimonic account of well-being insist that well-being requires more than pleasure and happiness: to live well, an individual must be capable of realizing one's true potential, or, at the very least, an individual must be capable of exercising certain human capacities (e.g., Aristotle, 1925; Fromm, 1981; Ryan & Deci, 2000; Ryff, 1989; Ryff & Singer, 1998, 2000; Waterman, 1993).

Ryan and Deci (2001) note that there are findings that suggest that well-being is a multidimensional construct and as such includes aspects of both views of well-being (e.g., Compton, Smith, Cornish, & Qualls, 1996; King & Napa, 1998; McGregor & Little, 1998). For example, King and Napa (1998) surveyed lay people about the character of the good life and found that both happy and meaningful lives were desirable. McGregor and Little (1998) conducted factor analyses of a number of diverse well-being measures and found two distinct factors—one for happiness and one for meaningfulness—suggesting that happiness might be disconnected or independent from meaningfulness and that well-being is composed of both.

A conceptual investigation into the notion of well-being favors the eudaimonic view. That is to say, it supports the claim that even though happiness is an important—perhaps even a necessary—component of well-being, it is not sufficient. A vicious and immoral life that is nevertheless filled with pleasure and happiness is not a good life. The same goes for a simulated life such as a life in the matrix. Although such a life might be infused with positive affect and experiences, it is not a good life (Nozick, 1974). It lacks grounding in reality, and it is devoid of

autonomy—one's choices and decisions are not one's own. Whatever else a good life is, it must be a life that is our *own*.

Other theoretical articulations of mental health and well-being also support the conclusion that happiness is not the be-all and end-all of the good life (e.g., Allport, 1961; Fromm, 1981; Jahoda, 1958; Keyes, 1998; Rogers, 1961; Ryff, 1989; Ryff & Keyes, 1995). A good life is one that contains not just happiness or positive affects but also the determination and pursuit of goals. In living the good life, one discovers and exercises one's talents. One grows as a person. One builds his or her social and physical environment. There is no denying that happiness is good and beneficial to us (Lyubomirsky, King, & Diener, 2005; Lyubomirsky & Layous, 2013). But happiness is not equivalent to well-being: the latter requires the former (a good life is a happy life), but the former does not guarantee the latter (a happy life is not necessarily a good life).

5.2. Boredom and psychological well-being

In developing their eudaimonic account of well-being, Ryff and Singer articulate six dimensions of psychological well-being: positive relations with others, environmental mastery, autonomy, personal growth, self-acceptance, and purpose in life (Ryff, 1989; Ryff & Singer, 1998). Accordingly, individuals flourish in life when they have trusting and loving relationships with others, when they are in the position to shape their environment in order to satisfy their desires and accomplish their goals, when they can make their own independent decisions and are internally motivated, when they see themselves as developing and growing, when they are satisfied with most aspects of themselves, and when they perceive their lives to have meaning, coherence, and direction. What such an account makes clear is that living well is a multi-dimensional dynamic process. It involves movement and progress. It involves the taking up of interests. It requires the expression and exercise of a number of human capacities.

Reflecting on Ryff and Singer's (1998) psychological well-being account—specifically, on personal growth and purpose in life—allows us to see how boredom can contribute toward our well-being. According to Ryff and Singer, what it means to flourish is to continue to develop one's potential. A good life is one that is marked by a certain kind of progression: in living such a life one gets better (intellectually, socially, and even morally). One grows as a person by realizing one's opportunities and talents and by being open to new experiences and challenges (Ryff, 1989; Ryff & Singer, 1998).

The state of boredom can promote personal growth. By moving us out of uninteresting situations, boredom motivates us to pursue what we already find interesting (Elpidorou, 2014, forthcoming; Sansone et al., 1992; Smith et al., 2009; Van Tilburg & Igou, 2011, 2012). As such, it can help us to realize and practice our talents. By helping us to get unstuck and by promoting movement, boredom can also contribute to the development of our projects and to the achievement of our

pre-established goals. Furthermore, boredom promotes the pursuit of interest, and the experience of interest leads to openness to new situations and activities (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Fredrickson, 2013; cf. Bench & Lench, 2013). Being bored is not good in and of itself. It is an aversive experience that signifies lack of interest and engagement. Yet precisely because of its aversive nature, boredom can help us to get back on track by invigorating interest in one's projects (Elpidorou, 2014). Although boredom itself is a form of stagnation, it can promote movement if we know how, and are able, to utilize its potential.

In addition to contributing to personal growth, boredom can also help in the construction of a meaningful life. Individuals with personal projects that are consistent with elements of their self-identity report higher levels of meaning than those whose projects are not in line with their self-identity (McGregor & Little, 1998). Such coherence and meaningfulness in one's life has been shown to be associated with certain aspects of well-being such as self-actualization and vitality (Sheldon & Kasser, 1995; Sheldon, Ryan, & Reis, 1996). Furthermore, a meaningful life is not only a consistent or coherent life, but also one that possesses a sense of direction or purpose (Ryff, 1989).

If boredom signals a lack of meaning (Van Tilburg & Igou, 2012) and at the same time promotes the pursuit of meaningful activities (Barbalet, 1999; Elpidorou, 2014; Van Tilburg & Igou, 2011, 2012), then boredom can contribute to the buildup of personal meaning. It does that not by being *itself* a meaningful experience, but by providing the agent with information about her situation and by motiving her to pursue alternative projects when the current projects lose their meaning and significance. Boredom has the capacity to trigger certain self-regulatory processes and such processes are capable of causing a change in one's behavior (e.g., Elpidorou, forthcoming; Fahlman et al., 2013; Harris, 2000; Mikulas & Vodanovich, 1993; Sansone et al., 1992; Smith et al., 2009; cf. Csikszentmihalyi, 1975). Ultimately, the state of boredom can help one to establish or reestablish a sense of meaningfulness and coherence, when such a sense is missing (Barbalet, 1999; Van Tilburg & Igou, 2011, 2012).

6. Connections and further directions

Either in passing remarks or in sustained articulations of its nature, boredom figures in the works of authors such as Dante, Pascal, Novalis, Schopenhauer, Kierkegaard, Dostoevsky, Pessoa, Heidegger, Russell, and Brodsky. Indeed, discussions of boredom can be traced at least as far back as the writings of early Christian fathers who were concerned with a type of spiritual boredom (*acedia*) responsible for neglecting one's religious duties. Despite its long and intricate history, philosophical and literary discussions of boredom have tended to emphasize its negative character. Although not everyone would agree with Kierkegaard's pronouncement that "boredom is the root of all evil," many have argued that boredom is a problem (Kierkegaard 1843/1987, p. 285). Understood as a short-lived state, boredom is a

burdensome distraction, unbecoming of our goal-orientated lives. Understood as a prolonged condition, boredom is an existential malaise: a source of unhappiness and an obstacle to the development of one's capacities.[7]

By synthesizing recent work from the psychology of boredom, I have offered a complementary perspective to predominantly negative articulations of boredom's character. I have argued that through an investigation of the experiential profile of boredom we can begin to understand boredom's function. Specifically, I have suggested that boredom is a self-regulatory state capable both of informing us of the presence of an unsatisfactory situation and of pushing us out of such a situation and into one that is deemed to be more interesting, meaningful, or fulfilling. In this respect, the current article is in agreement with a recent trend in boredom literature that takes boredom to be an emotional or affective state that serves a purpose in our everyday lives. However, it differs from existing literature in at least two crucial ways. First, the present account articulates boredom's function by relating it to a specific aspect of self-regulation (namely, locomotion) and by emphasizing its capacity to move us. Second, it makes a novel case for boredom's value by describing the ways in which the state of boredom can promote aspects of eudaimonic well-being. As far as I know, no other work on boredom has suggested that boredom can play a role in our well-being.

Although research on boredom is witnessing a growing popularity, many issues regarding its nature, antecedents, and effects remain unresolved. For instance, the neurological and somatic correlates of boredom have not been isolated, boredom's connections to mind-wandering, attention, and perception of meaningfulness are currenlty being explored, and boredom's potential effects on morality is a topic that only very recently has received empirical attention (e.g., Elpidorou, 2017; Van Tilburg & Igou, 2016). There is even disagreement about the factor structure of the BPS (e.g., Melton & Schulenberg, 2009; Struk, Carriere, Cheyne, & Danckert, 2017; Vodanovich, Wallace, & Kass, 2005).

Perhaps the most pressing issue within the psychological literature on boredom is the question of how to alleviate the harms associated with boredom proneness. The relationship between locomotion and the function of boredom proposed in this article has the potential to help. A suggestion that naturally emerges from the present discussion is that the effects of repetitive induction of locomotion on boredom ought to be experimentally investigated (Struk et al., 2016). Specifically, it is expected that if boredom proneness is low when locomotion is high, then the repetitive induction of a locomotion orientation should reduce scores on BPS (Farmer & Sundberg, 1986). Such a suggestion is consistent with findings that show that high boredom prone individuals are unable to initiate action (e.g., Blunt & Pychyl, 1998; Farmer & Sundberg, 1986; McGiboney & Carter, 1988) and feel stuck in their situations (Fahlman et al., 2013; Fenichel, 1951; Todman, 2003). Given boredom's relationship to attentional difficulties (Eastwood et al., 2012), the suggestion is also in line with studies showing that high locomotors can stay focused and resist distractions (Pierro et al., 2011).

7. Conclusion: The value of negativity

There is much discussion about the benefits of positive states (e.g., Cohn et al., 2009; Fredrickson, 1998, 2000, 2001; Fredrickson & Joiner, 2002; Garland et al., 2010; Lyubomirsky et al., 2005; Lyubomirsky & Layous, 2013) but very little mention of how negative states have the capacity to *enhance* our lives and help us to flourish. This is unfortunate. To restrict our attention to positive states and feelings (e.g., pleasure, joy, interest, hope, trust) would be to miss out on the full potential that lies within our rich psychological worlds. States of discontent might be unpleasant, but they are powerful, moving, and instructive.

There is a place for negative emotions in well-being (e.g., Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Diener & Seligman, 2002). Such an assertion does not mean that we should pursue negative emotions. Well-being is not promoted by the chronic or frequent experience of those negative emotions. Still, the ability to have those emotions and the fact that we can react to them in the right way is valuable to us. Negative experiences and emotions are unavoidable. Yet, how we react to them depends to a certain extent on us. Articulating boredom's function allows us to discover what it can do for us. And knowing what boredom can do for us is the first step in being able to use boredom to our advantage.

Notes

1. Most emotions involve an affective component that amounts to the phenomenology or felt quality of the emotion, a cognitive component that consists of the effects of the emotional state on perceptual and cognitive processes and vice versa, a physiological or somatic component that includes the physiological and neurological correlates of the emotional state, an expressive component that consists of the associated facial and bodily expressions, and lastly a volitional component that is composed of the actions, thoughts, and desires prompted by the presence of the emotion.
2. In my presentation, I ignore the expressive component of boredom (see instead Elpidorou, forthcoming). This is a topic that has received very little attention. In one of the few investigations on this topic, Wallbott (1998) reported that bored individuals tend to lean their heads backwards (i.e., to raise their chins), to collapse their bodies, and to restrain from movement.
3. Attentional failures seem to be an important mechanism of boredom (Eastwood et al., 2012; cf. Leary, Rogers, Canfield, & Coe, 1986; Skowronski, 2012). Such a judgment is corroborated by findings that show that manipulation of attention can affect the experience of boredom (Damrad-Frye & Laird, 1989). Furthermore, it has also been reported that tasks that require sustained attention are often perceived as boring (Malkovsky et al., 2012; Pattyn, Neyt, Henderickx, & Soetens, 2008; Scerbo, Greenwald, & Sawin, 1992).
4. I thank an anonymous reviewer for suggesting that I discuss in more detail the volitional content of boredom.
5. To be clear, the claim that boredom proneness is the result of a dysfunction of the state of boredom does not mean that the mere disposition to experience boredom is dysfunctional. Sometimes the disposition to experience boredom can have salutary effects. For example, it can promote escape from an unsatisfactory situation (Bench

& Lench, 2013; Elpidorou, 2014), help to establish a sense of meaningfulness (Van Tilburg & Igou, 2012), or even bolster creativity (Gasper & Middlewood, 2014; Mann & Cadman, 2014). At the same time, however, if one is disposed to experience boredom often and in a wide range of situations, as is the case for individuals who score high on BPS, then such a disposition will be harmful. Understanding boredom as a functional emotional state that may malfunction allows us to make sense of how boredom can be both good and bad for us. I am grateful to an anonymous reviewer for helping me see the value of distinguishing between state boredom, boredom proneness, *and* the disposition to experience boredom.

6. Boredom does not seek merely to promote movement but to contribute to the realization of goal-directed movement. This aspect of the function of boredom is reflected, I suggested, in its volitional character: boredom motivates one to engage in a task that is more stimulating, interesting, or meaningful than the current one. Thus, boredom would not be alleviated unless one succeeds in finding and engaging with such a task.
7. The history of boredom does contain some dissenting voices. Most notably, these include Russell (1996), Heidegger (1983/2001), and Brodsky (1997). Brief and sometimes enigmatic remarks about the value of boredom can also be found in Nietzsche (2001, p. 57), Sontag (2012), Higgins (1981) and in novels by D. F. Wallace (*The Pale King)* and E. Levé (*Suicide*). Elpidorou (2015b) uses Sartre's theory of emotions to propose a function for boredom.

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References

Abdolahi, B., Damirchi, G. V., & Ganjeh, H. (2011). Surveying of job boredom proneness effect on job satisfaction and job involvement. *Interdisciplinary Journal of Contemporary Research in Business, 3*, 1332–1338.

Acee, T. W., Kim, H., Kim, H. J., Kim, J., Hsiang-Ning, R. C., Kim, M., … Wicker, F. W. (2010). Academic boredom in under-and over-challenging situations. *Contemporary Educational Psychology, 35*, 17–27.

Ahmed, S. M. S. (1990). Psychometric properties of the boredom proneness scale. *Perceptual and Motor Skills, 71*, 963–966.

Allport, G. W. (1961). *Pattern and growth in personality*. New York, NY: Holt, Rinehart & Winston.

Amsel, A. (1992). *Frustration theory: An analysis of dispositional learning and memory*. Cambridge: Cambridge University Press.

Anderson, J. S. (2007). Pleasant, pleasurable, and positive activities. In L. L'Abate (Ed.), *Low-cost approaches to promote physical and mental health* (pp. 201–217). New York, NY: Springer.

Aristotle. (1925). *The nicomachean ethics* (D. Ross, Trans.). New York, NY: Oxford University Press.

Avnet, T., & Higgins, E. T. (2003). Locomotion, assessment, and regulatory fit: Value transfer from "how" to "what". *Journal of Experimental Social Psychology, 39*, 525–530.

Barbalet, J. M. (1999). Boredom and social meaning. *British Journal of Sociology, 50*, 631–646.

Barmack, J. E. (1937). Boredom and other factors in the physiology of mental effort: An exploratory study. *Archives of Psychology, 31*, 9–10.

Bar-On, E., Weigl, D., Parvari, R., Katz, K., Weitz, R., & Steinberg, T. (2002). Congenital insensitivity to pain: Orthopaedic manifestations. *Journal of Bone & Joint Surgery, British Volume, 84*, 252–257.

Barwick, F., Arnett, P., & Slobounov, S. (2012). EEG correlates of fatigue during administration of a neuropsychological test battery. *Clinical Neurophysiology, 123*, 278–284.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology, 5*, 323.

Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation*. San Diego, CA: Academic Press.

Baumeister, R. F., & Vohs, K. D. (2003). Self-regulation and the executive function of the self. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 197–217). New York, NY: Guilford Press.

Baxter, D. W., & Olszewski, J. (1960). Congenital universal insensitivity to pain. *Brain, 83*, 381–393.

Belton, T., & Priyadharshini, E. (2007). Boredom and schooling: A cross-disciplinary exploration. *Cambridge Journal of Education, 37*, 579–595.

Bench, S. W., & Lench, H. C. (2013). On the function of boredom. *Behavioral Sciences, 3*, 459–472.

Berlyne, D. E. (1960). *Conflict, arousal, and curiosity*. New York, NY: McGraw-Hill.

Bernstein, H. E. (1975). Boredom and the ready-made life. *Social Research, 42*, 512–537.

Binnema, D. (2004). Interrelations of psychiatric patient experiences of boredom and mental health. *Issues in Mental Health Nursing, 25*, 833–842.

Blaszczynski, A., McConaghy, N., & Frankova, A. (1990). Boredom proneness in pathological gambling. *Psychological Reports, 67*, 35–42.

Blunt, A., & Pychyl, T. A. (1998). Volitional action and inaction in the lives of undergraduate students: State orientation, procrastination, and proneness to boredom. *Personality and Individual Differences, 24*, 837–846.

Braby, C. D., Harris, D., & Muir, H. C. (1993). A psychophysiological approach to the assessment of work underload. *Ergonomics, 36*, 1035–1042.

Brodsky, J. (1997). *On grief and reason: Essays*. New York, NY: Farrar, Straus and Giroux.

Carriere, J. S., Cheyne, J. A., & Smilek, D. (2008). Everyday attention lapses and memory failures: The affective consequences of mindlessness. *Consciousness and Cognition, 17*, 835–847.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge: Cambridge University Press.

Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A., & Conway, A. M. (2009). Happiness unpacked: Positive emotions increase life satisfaction by building resilience. *Emotion, 9*, 361.

Compton, W. C., Smith, M. L., Cornish, K. A., & Qualls, D. L. (1996). Factor structure of mental health measures. *Journal of Personality and Social Psychology, 71*, 406–413.

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco, CA: Jossey-Bass.

Dahlen, E. R., Martin, R. C., Ragan, K., & Kuhlman, M. M. (2004). Boredom proneness in anger and aggression: Effects of impulsiveness and sensation seeking. *Personality and Individual Differences, 37*, 1615–1627.

Dahlen, E. R., Martin, R. C., Ragan, K., & Kuhlman, M. M. (2005). Driving anger, sensation seeking, impulsiveness, and boredom proneness in the prediction of unsafe driving. *Accident Analysis & Prevention, 37*, 341–348.

Damrad-Frye, R., & Laird, J. D. (1989). The experience of boredom: The role of the self-perception of attention. *Journal of Personality and Social Psychology, 57*, 315–320.

Danckert, J. A., & Allman, A. A. A. (2005). Time flies when you're having fun: Temporal estimation and the experience of boredom. *Brain and Cognition, 59*, 236–245.

Danckert, J., & Merrifield, C. (2016). Boredom, sustained attention and the default mode network. *Experimental Brain Research,* 1–12.

Daschmann, E. C., Goetz, T., & Stupnisky, R. H. (2011). Testing the predictors of boredom at school: Development and validation of the precursors to boredom scales. *British Journal of Educational Psychology, 81*, 421–440.

De Chenne, T. (1988). Boredom as a clinical issue. *Psychotherapy, 25*, 71–81.

Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist, 55*, 34.

Diener, E., Sapyta, J. J., & Suh, E. (1998). Subjective well-being is essential to well-being. *Psychological Inquiry, 9*, 33–37.

Diener, E., & Seligman, M. E. (2002). Very happy people. *Psychological Science, 13*, 81–84.

Drory, A. (1982). Boredom proneness—The development and correlates of a new scale. *Journal of Personality Assessment, 50*, 4–17.

Eastwood, J. D., Cavaliere, C., Fahlman, S. A., & Eastwood, A. E. (2007). A desire for desires: Boredom and its relation to alexithymia. *Personality and Individual Differences, 42*, 1035–1045.

Eastwood, J. D., Frischen, A., Fenske, M. J., & Smilek, D. (2012). The unengaged mind defining boredom in terms of attention. *Perspectives on Psychological Science, 7*, 482–495.

Eccleston, C., & Crombez, G. (1999). Pain demands attention: A cognitive–affective model of the interruptive function of pain. *Psychological Bulletin, 125*, 356.

Elpidorou, A. (2014). The bright side of boredom. *Frontiers in Psychology, 5*, 1245.

Elpidorou, A. (2015a). The quiet alarm. *Aeon Magazine*. Retrieved from https://aeon.co/essays/life-without-boredom-would-be-a-nightmare

Elpidorou, A. (2015b). The significance of boredom: A Sartrean reading. In D. Dahlstrom, A. Elpidorou, & W. Hopp (Eds.), *Philosophy of mind and phenomenology: Conceptual and empirical approaches* (pp. 268–283). New York, NY: Routledge.

Elpidorou, A. (2017). The moral dimensions of boredom: A call for research. *Review of General Psychology, 21*, 30–48.

Elpidorou, A. (forthcoming). The bored mind is a guiding mind: Toward a regulatory theory of boredom. *Phenomenology and the Cognitive Sciences*. doi:10.1007/s11097-017-9515-1

Fahlman, S. A., Mercer, K. B., Gaskovski, P., Eastwood, A. E., & Eastwood, J. D. (2009). Does a lack of life meaning cause boredom? Results from psychometric, longitudinal, and experimental analyses. *Journal of Social and Clinical Psychology, 28*, 307–340.

Fahlman, S. A., Mercer-Lynn, K. B., Flora, D. B., & Eastwood, J. D. (2013). Development and validation of the multidimensional state boredom scale. *Assessment, 20*, 68–85.

Fan, X., Zhou, Q., Liu, Z., & Xie, F. (2015). Electroencephalogram assessment of mental fatigue in visual search. *Bio-Medical Materials and Engineering, 26*, S1455–S1463.

Farmer, R., & Sundberg, N. D. (1986). Boredom proneness—The development and correlates of a new scale. *Journal of Personality Assessment, 50*, 4–17.

Farrell, E., Peguero, G., Lindsey, R., & White, R. (1988). Giving voice to high school students: Pressure and boredom, ya know what I'm sayin'? *American Educational Research Journal, 25*, 489–502.

Fenichel, O. (1951). On the psychology of boredom. In D. Rapaport (Ed.), *Organization and pathology of thought: Selected sources* (pp. 349–361). New York, NY: Columbia University Press.

Fisher, C. D. (1993). Boredom at work: A neglected concept. *Human Relations, 46*, 395–417.

Fiske, D. W., & Maddi, S. R. (1961). *Functions of varied experience*. Homewood, IL: Dorsey Press.

Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300–319.

Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment, 3*(1), 1a.
Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218–226.
Fredrickson, B. L. (2013). Positive emotions broaden and build. *Advances in Experimental Social Psychology, 47*, 53.
Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Journal of Personality and Social Psychology, 65*, 45–55.
Fromm, E. (1981). Primary and secondary process in waking and in altered states of consciousness. *Academic Psychology Bulletin, 3*, 29–45.
Gabriel, M. (1988). Boredom: Exploration of a developmental perspective. *Clinical Social Work Journal, 16*, 156–164.
Game, A. M. (2007). Workplace boredom coping: Health, safety, and HR implications. *Personnel Review, 36*, 701–721.
Gana, K., & Akremi, M. (1998). L'échelle de Disposition à l'Ennui (EDE): Adaptation française et validation du Boredom Proneness Scale (BP) [French adaptation and validation of the Boredom Proneness Scale (BP)]. *L'année Psychologique, 98*, 429–450.
Ganley, R. M. (1989). Emotion and eating in obesity: A review of the literature. *International Journal of Eating Disorders, 8*, 343–361.
Garland, E. L., Fredrickson, B., Kring, A. M., Johnson, D. P., Meyer, P. S., & Penn, D. L. (2010). Upward spirals of positive emotions counter downward spirals of negativity: Insights from the broaden-and-build theory and affective neuroscience on the treatment of emotion dysfunctions and deficits in psychopathology. *Clinical Psychology Review, 30*, 849–864.
Gasper, K., & Middlewood, B. L. (2014). Approaching novel thoughts: Understanding why elation and boredom promote associative thought more than distress and relaxation. *Journal of Experimental Social Psychology, 52*, 50–57.
Geiwitz, P. J. (1966). Structure of boredom. *Journal of Personality and Social Psychology, 3*, 592–600.
Goetz, T., & Frenzel, A. C. (2006). Phänomenologie schulischer Langeweile. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie, 38*, 149–153.
Goetz, T., Pekrun, R., Hall, N., & Haag, L. (2006). Academic emotions from a social-cognitive perspective: Antecedents and domain specificity of students' affect in the context of Latin instruction. *British Journal of Educational Psychology, 76*, 289–308.
Goldberg, Y. K., Eastwood, J. D., LaGuardia, J., & Danckert, J. (2011). Boredom: An emotional experience distinct from apathy, anhedonia, or depression. *Journal of Social and Clinical Psychology, 30*, 647.
Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 53–92). New York, NY: Guilford Press.
Gordon, A., Wilkinson, R., McGown, A., & Jovanoska, A. (1997). The psychometric properties of the Boredom Proneness Scale: An examination of its validity. *Psychological Studies, 42*, 85–97.
Grassian, S. (2006). Psychiatric effects of solitary confinement. *Washington University Journal of Law & Policy, 22*, 325.
Greenson, R. R. (1953). On boredom. *Journal of the American Psychoanalytic Association, 1*, 7–21.
Grubb, E. A. (1975). Assembly line boredom and individual differences in recreation participation. *Journal of Leisure Research, 7*, 256–269.
Hamilton, J. A. (1981). Attention, personality, and the self-regulation of mood: Absorbing interest and boredom. *Progress in Experimental Personality Research, 10*, 281315.

Hamilton, J. A., Haier, R. J., & Buchsbaum, M. S. (1984). Intrinsic enjoyment and boredom coping scales: Validation with personality, evoked potential, and attention measures. *Personality and Individual Differences, 5*, 183–193.
Harris, M. B. (2000). Correlates and characteristics of boredom proneness and boredom. *Journal of Applied Social Psychology, 30*, 576–598.
Hartocollis, P. (1972). Time as a dimension of affects. *Journal of the American Psychoanalytic Association, 20*, 92–108.
Hebb, D. O. (1955). Drives and the CNS (conceptual nervous system). *Psychological Review, 62*, 243–254.
Hebb, D. O. (1966). *A textbook of psychology*. Philadelphia, PA: W.B. Saunders.
Heidegger, M. (1983/2001). *Die Grundbegriffe der Metaphysik. Welt-Endlichkeit-Einsamkeit* [The fundamental concepts of metaphysics: World, finitude, solitude]. Frankfurt am Main: Vittorio Klostermann/Indiana University Press.
Higgins, D. (1981). Boredom and danger. In G. Battcock (Ed.), *Breaking the sound barrier: A critical anthology of the new music* (pp. 20–27). New York, NY: E. P. Dutton.
Higgins, E. T. (2012). *Beyond pleasure and pain: How motivation works*. New York, NY: Oxford University Press.
Higgins, E. T., Kruglanski, A. W., & Pierro, A. (2003). Regulatory mode: Locomotion and assessment as distinct orientations. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 35, pp. 293–344). New York, NY: Academic Press.
Hill, A. B., & Perkins, R. E. (1985). Towards a model of boredom. *British Journal of Psychology, 76*, 235–240.
Iso-Ahola, S. E., & Weissinger, E. (1987). Leisure and boredom. *Journal of Social and Clinical Psychology, 5*, 356–364.
Jahoda, M. (1958). *Current concepts of positive mental health*. New York, NY: Basic Books.
Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being: The foundations of hedonic psychology*. New York, NY: Russell Sage Found.
Kass, S. J., Beede, K. E., & Vodanovich, S. J. (2010). Self-report measures of distractibility as correlates of simulated driving performance. *Accident Analysis & Prevention, 42*, 874–880.
Kass, S. J., Vodanovich, S. J., Stanny, C. J., & Taylor, T. M. (2001). Watching the clock: Boredom and vigilance performance. *Perceptual and Motor Skills, 92*, 969–976.
Keltner, D., & Gross, J. J. (1999). Functional accounts of emotions. *Cognition & Emotion, 13*, 467–480.
Keltner, D., Haidt, J., & Shiota, M. N. (2006). Social functionalism and the evolution of emotions. In M. Schaller, J. A. Simpson, & D. T. Kenrick (Eds.), *Evolution and social psychology* (pp. 115–142). New York, NY: Psychology Press.
Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior, 43*, 207–222.
Keyes, C. L. (1998). Social well-being. *Social Psychology Quarterly, 61*, 121–140.
Kierkegaard, S. (1843/1987). *Enten-Eller. Et Livs-Fragment*, udgivet af Victor Eremita. Kjobenhavn. (Either/or Part I. Tr. Howard V. Hong and Edna H. Hong). Princeton, NJ: Princeton University Press.
King, L. A., & Napa, C. N. (1998). What makes a life good? *Journal of Personality and Social Psychology, 75*, 156–165.
Kleinginna, P. R., & Kleinginna, A. M. (1981). A categorized list of emotion definitions, with suggestions for a consensual definition. *Motivation and Emotion, 5*, 345–379.
Koster, E. H., Crombez, G., Van Damme, S., Verschuere, B., & De Houwer, J. (2004). Does imminent threat capture and hold attention? *Emotions, 4*, 312–317.

Kruglanski, A. W., Pierro, A., Mannetti, L., & Higgins, T. E. (2013). The distinct psychologies of "looking" and "leaping": Assessment and locomotion as the springs of action. *Social and Personality Psychology Compass, 7*, 79–92.

Kruglanski, A. W., Thompson, E. P., Higgins, E. T., Atash, M., Pierro, A., Shah, J. Y., & Spiegel, S. (2000). To "do the right thing" or to "just do it": Locomotion and assessment as distinct self-regulatory imperatives. *Journal of Personality and Social Psychology, 79*, 793–815.

Kuhl, J. (1985). Volitional mediation of cognition-behavior consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 101–128). Berlin: Springer-Verlag.

Lal, S. K., & Craig, A. (2002). Driver fatigue: Electroencephalography and psychological assessment. *Psychophysiology, 39*, 313–321.

Larson, R. W., & Richards, M. H. (1991). Boredom in the middle school years: Blaming schools versus blaming students. *American Journal of Education, 99*, 418–443.

Leary, M. R., Rogers, P. A., Canfield, R. W., & Coe, C. (1986). Boredom in interpersonal encounters: Antecedents and social implications. *Journal of Personality and Social Psychology, 51*, 968–975.

Lee, C. M., Neighbors, C., & Woods, B. A. (2007). Marijuana motives: Young adults' reasons for using marijuana. *Addictive Behaviors, 32*, 1384–1394.

Lee, T. W. (1986). Toward the development and validation of a measure of job measurement. *Manhattan College Journal of Business, 15*, 22–28.

Leong, F. T., & Schneller, G. R. (1993). Boredom proneness: Temperamental and cognitive components. *Personality and Individual Differences, 14*, 233–239. doi:10.1016/0191-8869(93)90193-7

LePera, N. (2011). Relationships between boredom proneness, mindfulness, anxiety, depression, and substance use. *New School Psychology Bulletin, 8*, 15–25.

London, H., & Monello, L. (1974). Cognitive manipulation of boredom. In H. London & R. Nisbett (Eds.), *Thought and feeling* (pp. 44–59). Chicago, IL: Aldine.

London, H., Schubert, D. S., & Washburn, D. (1972). Increase of autonomic arousal by boredom. *Journal of Abnormal Psychology, 80*, 29–36.

Lundberg, U., Melin, B., Evans, G. W., & Holmberg, L. (1993). Physiological deactivation after two contrasting tasks at a video display terminal: Learning vs. repetitive data entry. *Ergonomics, 36*, 601–611.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin, 131*, 803–855.

Lyubomirsky, S., & Layous, K. (2013). How do simple positive activities increase well-being? *Current Directions in Psychological Science, 22*, 57–62.

Malkovsky, E., Merrifield, C., Goldberg, Y., & Danckert, J. (2012). Exploring the relationship between boredom and sustained attention. *Experimental Brain Research, 221*, 59–67.

Mann, S., & Cadman, R. (2014). Does being bored make us more creative? *Creativity Research Journal, 26*, 165–173.

Mann, S., & Robinson, A. (2009). Boredom in the lecture theatre: An investigation into the contributors, moderators and outcomes of boredom amongst university students. *British Educational Research Journal, 35*, 243–258.

Martin, M., Sadlo, G., & Stew, G. (2006). The phenomenon of boredom. *Qualitative Research in Psychology, 3*, 193–211.

Mauro, R., Pierro, A., Mannetti, L., Higgins, E. T., & Kruglanski, A. W. (2009). The perfect mix: Regulatory complementarity and the speed accuracy balance in group performance. *Psychological Science, 20*, 681–685.

McGiboney, G. W., & Carter, C. (1988). Boredom proneness and adolescents' personalities. *Psychological Reports, 63*, 395–398.

McGregor, I., & Little, B. R. (1998). Personal projects, happiness, and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology, 74*, 494–512.
Melton, A. M., & Schulenberg, S. E. (2009). A confirmatory factor analysis of the boredom proneness scale. *The Journal of Psychology, 143*, 493–508.
Mercer, K. B., & Eastwood, J. D. (2010). Is boredom associated with problem gambling behaviour? It depends on what you mean by 'boredom'. *International Gambling Studies, 10*, 91–104.
Mercer-Lynn, K. B., Flora, D. B., Fahlman, S. A., & Eastwood, J. D. (2011). The measurement of boredom differences between existing self-report scales. *Assessment, 20*, 585–596.
Merrifield, C., & Danckert, J. (2014). Characterizing the psychophysiological signature of boredom. *Experimental Brain Research, 232*, 481–491.
Mikulas, W. L., & Vodanovich, S. J. (1993). The essence of boredom. *Psychological Record, 43*, 3–12.
Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., … Caspi, A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *PNAS, 108*, 2693–2698.
Musharbash, Y. (2007). Boredom, time, and modernity: An example from Aboriginal Australia. *American Anthropologist, 109*, 307–317.
Nagasako, E. M., Oaklander, A. L., & Dworkin, R. H. (2003). Congenital insensitivity to pain: An update. *Pain, 101*, 213–219.
Newell, S. E., Harries, P., & Ayres, S. (2011). Boredom proneness in a psychiatric inpatient population. *International Journal of Social Psychiatry, 58*, 488–495.
Nietzsche, F. (2001). *The gay science: With a prelude of rhymes and an appendix of songs*. (J. Nauckhoff & A. Del Caro, Trans. and B. Williams, Eds.). Cambridge: Cambridge University Press.
Ng, A. H., Liu, Y., Chen, J. Z., & Eastwood, J. D. (2015). Culture and state boredom: A comparison between European Canadians and Chinese. *Personality and Individual Differences, 75*, 13–18.
Nozick, R. (1974). *Anarchy, state and utopia*. New York, NY: Basic books.
O'Brien, W. (2014). Boredom. *Analysis, 74*, 236–244.
O'Hanlon, J. F. (1981). Boredom: Practical consequences and a theory. *Acta Psychologica, 49*, 161–173.
Oswald, I. (1962). The EEG of sleep. In I. Oswald (Ed.), *Sleeping and waking: Physiology and psychology* (pp. 35–41). Amsterdam: Elsevier.
Passik, S. D., Inman, A., Kirsch, K., Theobald, D., & Dickerson, P. (2003). Initial validation of a scale to measure purposelessness, understimulation, and boredom in cancer patients: Toward a redefinition of depression in advanced disease. *Palliative and Supportive Care, 1*, 41–50.
Pattyn, N., Neyt, X., Henderickx, D., & Soetens, E. (2008). Psychophysiological investigation of vigilance decrement: Boredom or cognitive fatigue? *Physiology & Behavior, 93*, 369–378.
Paulson, M. J., Coombs, R. H., & Richardson, M. A. (1990). School performance, academic aspirations, and drug use among children and adolescents. *Journal of Drug Education, 20*, 289–303.
Pekrun, R., Goetz, T., Daniels, L. M., Stupnisky, R. H., & Perry, R. P. (2010). Boredom in achievement settings: Exploring control-value antecedents and performance outcomes of a neglected emotion. *Journal of Educational Psychology, 102*, 531–549.
Perkins, R. E., & Hill, A. B. (1985). Cognitive and affective aspects of boredom. *The British Psychological Society, 76*, 221–234.
Phipps-Nelson, J., Redman, J. R., & Rajaratnam, S. M. (2011). Temporal profile of prolonged, night-time driving performance: Breaks from driving temporarily reduce time-on-task fatigue but not sleepiness. *Journal of Sleep Research, 20*, 404–415.

Pierro, A., Giacomantonio, M., Pica, G., Kruglanski, A. W., & Higgins, E. T. (2011). On the psychology of time in action: Regulatory mode orientations and procrastination. *Journal of Personality and Social Psychology, 101*, 1317–1331.

Pierro, A., Kruglanski, A. W., & Higgins, E. T. (2006). Progress takes work: Effects of the locomotion dimension on job involvement, effort investment, and task performance in organizations. *Journal of Applied Social Psychology, 36*, 1723–1743.

Ragheb, M. G., & Merydith, S. P. (2001). Development and validation of a unidimensional scale measuring free time boredom. *Leisure Studies, 20*, 41–59.

Rogers, C. R. (1961). *On becoming a person*. Boston, MA: Houghton Muffin.

Rupp, D. E., & Vodanovich, S. J. (1997). The role of boredom proneness in self-reported anger and aggression. *Journal of Social Behavior and Personality, 20*, 41–59.

Russell, B. (1996). *The conquest of happiness*. New York, NY: Norton.

Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology, 39*, 1161–1178.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*, 1069–1081.

Ryff, C. D., & Keyes, C. L. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*, 719–727.

Ryff, C. D., & Singer, B. (1998). The contours of positive human health. *Psychological Inquiry, 9*(1), 1–28.

Ryff, C. D., & Singer, B. (2000). Interpersonal flourishing: A positive health agenda for the new millennium. *Personality and Social Psychology Review, 4*, 30–44.

Sangal, R. B., & Sangal, J. M. (2015). Use of EEG beta-1 power and theta/beta ratio over Broca's area to confirm diagnosis of attention deficit/hyperactivity disorder in children. *Clinical EEG and Neuroscience, 46*, 177–182.

Sansone, C., Weir, C., Harpster, L., & Morgan, C. (1992). Once a boring task always a boring task? Interest as a self-regulatory mechanism. *Journal of Personality and Social Psychology, 63*, 370–390.

Scherer, K. R. (1984). On the nature and function of emotion: A component process approach. In K. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 293–318). Hillsdale, NJ: Erlbaum.

Schier, M. A. (2000). Changes in EEG alpha power during simulated driving: A demonstration. *International Journal of Psychophysiology, 37*, 155–162.

Scerbo, M. W., Greenwald, C. Q., & Sawin, D. A. (1992). Vigilance: It's boring, it's difficult, and I can't do anything about it. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 36*, 1508–1512.

Scholer, A. A., & Higgins, E. T. (2012). Commitment to change from locomotion motivation during deliberation. *Motivation and Emotion, 36*, 114–129.

Seel, R. T., & Kreutzer, J. S. (2003). Depression assessment after traumatic brain injury: An empirically based classification method. *Archives of Physical Medicine and Rehabilitation, 84*, 1621–1628.

Seib, H. M., & Vodanovich, S. J. (1998). Boredom proneness and psychosocial development. *The Journal of Psychology, 132*, 642–652.

Sheldon, K. M., & Kasser, T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology, 68*, 531–543.

Sheldon, K. M., Ryan, R., & Reis, H. T. (1996). What makes for a good day? Competence and autonomy in the day and in the person. *Personality and Social Psychology Bulletin, 22*, 1270–1279.

Skowronski, M. (2012). When the bored behave badly (or exceptionally). *Personnel Review, 41*, 143–159.

Smith, J. L., Wagaman, J., & Handley, I. M. (2009). Keeping it dull or making it fun: Task variation as a function of promotion versus prevention focus. *Motivation and Emotion, 33*, 150–160.

Sontag, S. (2012). *As consciousness is harnessed to flesh: Journals and notebooks, 1964–1980*. (D. Rieff, Eds.). New York, NY: Farrar Straus Giroux.

Struk, A. A., Carriere, J. S. A., Cheyne, J. A., & Danckert, J. (2017). A short boredom proneness scale: Development and psychometric properties. *Assessment, 24*, 346–359.

Struk, A. A., Scholer, A. A., & Danckert, J. (2016). A self-regulatory approach to understanding boredom proneness. *Cognition and Emotion, 30*, 1388–1401.

Stickney, M. I., & Miltenberger, R. G. (1999). Evaluating direct and indirect measures for the functional assessment of binge eating. *International Journal of Eating Disorders, 26*, 195–204.

Sundberg, N. D., Latkin, C. A., Farmer, R. F., & Saoud, J. (1991). Boredom in young adults: Gender and cultural comparisons. *Journal of Cross-Cultural Psychology, 22*, 209–223.

Swanson, A. G. (1963). Congenital insensitivity to pain with anhydrosis: A unique syndrome in two male siblings. *Archives of Neurology, 8*, 299.

Tabatabaie, A. F., Azadehfar, M. R., Mirian, N., Noroozian, M., Yoonessi, A., & Yoonessi, A. (2014). Neural correlates of boredom in music perception. *Basic and Clinical Neuroscience, 5*, 259–266.

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality, 72*, 271–324.

Thrush, D. C. (1973). Congenital insensitivity to pain: A clinical, genetic and neurophysiological study of four children from the same family. *Brain, 96*, 369–386.

Todman, M. (2003). Boredom and psychotic disorders: Cognitive and motivational issues. *Psychiatry, 66*, 146–167.

Todman, M. (2013). The dimensions of state boredom: Frequency, duration, unpleasantness, consequences and causal attributions. *Educational Research International, 1*, 32–40.

Tolor, A. (1989). Boredom as related to alienation, assertiveness, internal-external expectancy, and sleep patterns. *Journal of Clinical Psychology, 45*, 260–265.

Tooby, J., & Cosmides, L. (2008). The evolutionary psychology of the emotions and their relationship to internal regulatory variables. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (3rd ed., pp. 103–129). New York, NY: Guilford Press.

Tze, V. M. C., Daniels, L. M., Klassen, R. M., & Johnson, C. H. L. (2013). Canadian and Chinese university students' approaches to coping with academic boredom. *Learning and Individual Differences, 23*, 32–43.

Van Damme, S., Crombez, G., & Lorenz, J. (2007). Pain draws visual attention to its location: Experimental evidence for a threat-related bias. *Journal of Pain, 8*, 976–982.

Van Tilburg, W. A., & Igou, E. R. (2011). On boredom and social identity: A pragmatic meaning-regulation approach. *Personality and Social Psychology Bulletin, 37*, 1679–1691.

Van Tilburg, W. A., & Igou, E. R. (2012). On boredom: Lack of challenge and meaning as distinct boredom experiences. *Motivation and Emotion, 36*, 181–194.

Van Tilburg, W. A., & Igou, E. R. (2016). Can boredom help? Increased prosocial intentions in response to boredom. *Self and Identity, 16*, 82–96.

Vodanovich, S. J., & Kass, S. J. (1990). A factor analytic study of the boredom proneness scale. *Journal of Personality Assessment, 55*, 115–123.

Vodanovich, S. J., Verner, K. M., & Gilbride, T. V. (1991). Boredom proneness: Its relationship to positive and negative affect. *Psychological Reports, 69*, 1139–1146.
Vodanovich, S. J., Wallace, J. C., & Kass, S. J. (2005). A confirmatory approach to the factor structure of the boredom proneness scale: Evidence for a two-factor short form. *Journal of Personality Assessment, 85*, 295–303.
Vodanovich, S. J., & Watt, J. D. (1999). The relationship between time structure and boredom proneness: An investigation within two cultures. *The Journal of Social Psychology, 139*, 143–152.
Vodanovich, S. J., & Watt, J. D. (2015). Self-report measures of boredom: An updated review of the literature. *The Journal of Psychology, 150*, 196–228.
Vodanovich, S. J., Watt, J. D., & Piotrowski, C. (1997). Boredom proneness in African-American college students: A factor analytic perspective. *Education, 118*, 229–236.
Vodanovich, S. J. (2003). Psychometric measures of boredom: A review of the literature. *The Journal of Psychology, 137*, 569–595.
Wallbott, H. G. (1998). Bodily expression of emotion. *European Journal of Psychology, 28*, 879–896.
Wan, H. C., Downey, L. A., & Stough, C. (2014). Understanding non-work presenteeism: Relationships between emotional intelligence, boredom, procrastination and job stress. *Personality and Individual Differences, 65*, 86–90.
Wangh, M. (1975). Boredom in psychoanalytic perspective. *Sociological Research, 42*, 538–550.
Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology, 64*, 678–691.
Watt, J. D. (1991). Effect of boredom proneness on time perception. *Psychological Reports, 69*, 323–327.
Watt, J. D., & Blanchard, M. J. (1994). Boredom proneness and the need for cognition. *Journal of Research in Personality, 28*, 44–51.
Watt, J. D., & Ewing, J. E. (1996). Toward the development and validation of a measure of sexual boredom. *Journal of Sex Research, 33*, 57–66.
Watt, J. D., & Vodanovich, S. J. (1999). Boredom proneness and psychosocial development. *The Journal of Psychology, 133*, 303–314.
Weinger, M. B. (1999). Vigilance, boredom, and sleepiness. *Journal of the Society for Existential Analysis, 9*, 69–91.
Weinstein, L., Xie, X., & Cleanthous, C. C. (1995). Purpose in life, boredom, and volunteerism in a group of retirees. *Psychological Reports, 76*, 482.
Wilson, T. D., Reinhard, D. A., Westgate, E. C., Gilbert, D. T., Ellerbeck, N., Hahn, C., … Shaked, A. (2014). Just think: The challenges of the disengaged mind. *Science, 345*, 75–77.
Zhao, C., Zhao, M., Liu, J., & Zheng, C. (2012). Electroencephalogram and electrocardiograph assessment of mental fatigue in a driving simulator. *Accident Analysis & Prevention, 45*, 83–90.
Zuckerman, M. (1979). *Sensation seeking: Beyond the optimal level of arousal*. Hillsdale, NJ: Erlbaum.
Zuckerman, M., Eysenck, S., & Eysenck, H. J. (1978). Sensation seeking in England and America: Cross-cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology, 46*, 139–149.