

MINDFULNESS AND GOAL ORIENTATION

Mindfulness and Goal Orientation as Predictors of
Motivation for Physical Activity in College Students

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Abstract

Achievement goal theory (Nicholls et al., 2009) has been extensively employed to study motivation in sport and exercise. The central components of this theory are an individual's tendency to approach achievement situations with either a task- or ego-orientation; that is, to measure their own success in terms of personal improvement or competitive performance. Mindfulness reflects an individual's tendency to attend to momentary details in a nonjudgmental manner, and is characterized by emphasis on self-improvement and reduced anxiety (Bodner, 2000; Goldin et al., 2009). The current study aims to uniquely integrate these concepts experimentally to examine how motivation to exercise may be better promoted.

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Motivation in sports and exercise has been the topic of extensive research, much of which has centered around two theories: self-determination theory (Deci & Ryan, 1985) and achievement goal theory (Nicholls et al., 1989). Research involving both theories has consistently shown that intrinsic motivation, characterized by an emphasis on self-improvement and enjoyment of a given task, results in better behavioral outcomes than extrinsic motivation, which is imposed upon the individual from a variety of external sources (Spray et al., 2006). Self-determination theorists generally posit that perceived autonomy is conducive to intrinsic motivation, while activities presented in a controlling manner tend to elicit motivation extrinsically, leading to reduced task involvement and inferior performance (Vansteenkiste et al., 2004). Achievement goal theory posits that an individual's approach to an achievement situation has significant influence on their level of motivation. The type of approach is based upon both the individual's goal orientation (the way in which they tend to measure their own success) and the motivational climate (the way in which they perceive their success to be measured within a given situation) (Ames, 1992).

Mindfulness, generally defined as an enhanced attention to and awareness of present experience, has received considerable attention within the literature (Shao, 2009). A variety of mechanisms for measuring trait mindfulness have been developed (Kee, 2008; Weinstein, 2009). Programs for developing mindfulness through training in meditation and awareness have also been studied for many applications, most notably Mindfulness Based Stress Reduction developed by Kabat-Zinn (1984). State mindfulness, brought about over time through extensive training programs, has been shown to be effective in managing pain (Plews-Ogan et al., 2005; Zeidan,

2010) and increasing individuals' ability to cope with social stress as well as overall emotional well-being (Goldin, 2009). Trait mindfulness has been linked to adaptive responses to challenging situations (Weinstein, 2009), and has been weakly correlated with individual performance in academic situations (Shao, 2009).

The research on mindfulness is generally limited, especially since it has primarily focused on the efficacy of mindfulness-based intervention programs. In terms of sport and exercise, studies of mindfulness have focused on increasing performance of skilled athletes in precision situations (Kee, 2008; Reeves et al., 2007). This also appears to be the general limitation of studies of motivation in sport. The present study seeks to combine these two fields in order to examine how motivation relates to individuals' willingness to participate in regular exercise for their own benefit. Mindfulness as an individual trait has a fair degree of overlap with the concept of individual goal orientation maintained within achievement goal theory. For this reason, the present study will focus on achievement goal theory and its relation to mindfulness in individuals, and how these two concepts may be combined for a better understanding of motivation toward physical activity.

Achievement Goal Theory

Achievement goal theory, introduced by Nicholls et al. (1989), has been applied to the study of motivation in a variety of fields, most notably sport and academic situations. A broad distinction is made between 'task' and 'ego' goals, and these terms may be applied to both the orientation of the individual and the perceived climate of the achievement situation (Spray et al., 2006). Task orientation is characterized by an emphasis on mastery, perceived improvement, and effort, while ego orientation is primarily focused on normative ability. Goal orientation refers to

the way in which an individual tends to evaluate success at a given task, while the perceived motivational climate reflects how an individual believes their success will be evaluated.

Mindfulness

A two-component model of mindfulness (Bishop et al., 2004) incorporates both mental skills that may be developed through training and inherent personality characteristics that pertain to an individual's approach to experiences. The mental skill central to mindfulness is the ability to direct one's attention to the moment-to-moment experiences associated with a given situation, while maintaining a non-judgmental perspective on any internal feelings (Bishop et al., 2004). In this way, one may significantly increase their self-esteem, positive self-endorsement, and attention regulation, while decreasing anxiety and negative self-endorsement (Goldin et al., 2009). Trait mindfulness, which reflects an individual's attitudes toward self-evaluation, may be operationally divided into four categories. Novelty seeking reflects the willingness to learn from situations, while novelty producing reflects the ability to use environmental and internal cues to produce useful information. Flexibility is an individual's tendency to take multiple perspectives, and engagement is the ability to attend to the details of a situation (Bodner, 2000). These four aspects of trait mindfulness reflect the beneficial effect of developing mindfulness on situations involving attention to a given task and reduction of anxiety and stress associated with said task.

Combining Goal Orientations and Mindfulness for the Purpose of Increased Motivation

An individual's goal orientation may accurately predict their performance in a given task. Specifically, individuals with task orientation are likely to exhibit high motivation in most climates, while those with ego orientation may have worse outcomes in a task-oriented climate, especially when they have low perceived competence (Spray et al., 2006). Trait mindfulness has a high degree of overlap with individual goal orientation, yet the two theories have not been

studied in conjunction in terms of exercise motivation. It may be reasonably hypothesized that individuals exhibiting high task orientation may also report greater mindfulness, to the extent that both measures reflect an individual's tendency to approach situations with a high degree of openness and willingness to learn and improve. Individuals low in mindfulness tend to be less attentive to the present moment and overly focused on anxieties about the future. This may reflect ego-oriented individuals' tendency to approach situations in a competitive way, focusing more on the goal of outperforming others than on completing the task for their own benefit.

The present study will integrate measures of trait mindfulness and individual goal orientation. One prediction is that high mindfulness and task-orientation will be closely related, with low mindfulness being related to ego-orientation. An experimental manipulation will place individuals into either task- or ego-oriented motivational climates. Also, individuals will be asked to perform the task either in a mindful way or without regards to mindfulness. This structure lends itself to a number of predictions. First, research has shown that matching individuals' goal orientation to the task climate is most beneficial, so task-oriented individuals should perform best in the task-oriented climate, with ego-oriented individuals performing better in the ego-oriented task climate. Also, mindfulness has been shown to improve attention, so those participants attending to the more beneficial goals of the task-group should show greater improvement due to the mindfulness exercise. Individuals higher in mindfulness should show a similar benefit in both task-oriented groups, relative to those high in mindfulness in the ego-oriented groups. Individuals high in both mindfulness and task-orientation should show the best outcomes in all groups, with the absolute highest within the mindfulness/task-oriented motivational climate.

Method

Participants

Participants in the study are to be college-aged students, recruited through a variety of sources in order to provide a more representative cross-section of the university population. Based on responses to a preliminary demographic questionnaire, students will be excluded from participation if they have an existing gym membership, or if they indicate involvement in a formal exercise routine or varsity or intramural sports. As compensation, participants will receive a complimentary gym membership for the month during which the study will be completed, and possibly offered a discounted gym membership that may also be used as a measure of intended persistence.

Materials

A demographic questionnaire will include standard measures, such as age, sex, race, year in school, and GPA. Questions relevant to the study, including involvement in exercise and sports programs, will also be included and used to determine inclusion in the study.

The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) will be used to assess trait mindfulness. Fifteen items ask individuals to report the frequency of experiencing mindless states on a 6-point Likert-type scale, with 6 indicating almost never. High scores on this scale represent high a high degree of mindfulness. The scale has been shown to have a high degree of reliability in empirical research, with a reported Cronbach alpha of 0.87 (Weinstein et al., 2009).

The Perception of Success Questionnaire (POSQ; Roberts et al., 1998) will be used to assess individuals' goal orientation. Cronbach alphas indicated high reliability for both the task and ego subscales, reported as 0.86 and 0.87, respectively (Spray et al., 2006). This scale

employs a 5-point Likert-type scale, with 5 indicating strong agreement with the statement. The POSQ will be used to determine individuals' trait goal-orientation, as well as to check their goal involvement in the task- and ego-orientation conditions.

A questionnaire assessing task involvement will also be employed. One item assesses enjoyment of the exercise activity on a Likert-type scale, similar to the used in Spray et al. (2006). This will also include a measure of perceived stress related to the activity, similar to that in Weinstein et al. (2009). These questions will be adapted to measure expected enjoyment and stress prior to exercise, as well as enjoyment and stress experienced during and after the exercise activity.

Throughout the study period (one month), participants will be asked to complete a daily journal of general physical activity. Each participant's number of gym visits separate from the experimental sessions, as well as time spent at the gym, will be monitored using the computerized sign-in mechanism at the gym. During the experimental sessions, effort will be measured by tracking the speed setting used and time spent using the treadmill.

Procedure

At the initial session, participants will be briefed on the extent of the experiment (one initial session, three experimental sessions involving time spent in the work-out facility) and will provide informed consent based on the IRB approved procedure. Participants will complete a demographic questionnaire, followed by the MAAS and POSQ to assess initial levels of trait mindfulness and goal-orientation. They will be brought into the workout room and instructed in basic use of the treadmill, namely how to turn it on and off and to set it to specific speed settings. They will also be taught to sign in and out of the cardio room of the gym facility using a personalized PIN number, as this will be used to monitor time spent at the gym during the weeks

in between experimental sessions. Participants will be informed that they are free to leave, and will be given a time to return for the first experimental session one week later.

Participants who report involvement in any exercise program (working out, yoga, etc.) or intramural or varsity sports will be excluded from subsequent sessions. They will be informed of this and not required to return for the experimental sessions. Those participants included in the study will be randomized to one of four experimental groups: mindfulness/task climate, mindfulness/ego climate, control/task climate, control/ego climate.

Upon arrival to the first experimental session, participants will be given the initial task- or ego-oriented motivational climate manipulation. Specifically, those in the task-oriented climate will be told that regular exercise, specifically cardiovascular exercise using equipment such as a treadmill, is essential to maintaining health and overall well-being. They will also be informed that their physical fitness will be monitored over the three-week session with the intention of providing them individual feedback regarding personal performance and improvement. Participants in the ego-oriented task climate will be told that exercise is essential to maintaining high social status, with an emphasis on being more fit than their peers. They will be informed that their performance will be monitored with the intention of comparing them to other individuals within the group in order to determine who is in the best shape.

Participants will then be asked to walk on the treadmill for five minutes, after which they are free to stay and use the treadmill for as long as they wish. Those in the mindfulness group will be told to focus their attention to the soles of their feet while walking, paying particular attention to the contact of each foot with the treadmill surface and counting steps from 1 to 10. Participants in the control group will be asked to simply walk on the treadmill for five minutes in a calm, relaxed manner.

A separate observer, blind to the experimental conditions, will monitor the participants based on the time spent on the treadmill after the five minutes of walking, as well as the speed of the treadmill. As the participants leave, they will be asked to complete a short questionnaire. The goal-orientation manipulations will be checked using a form of the POSQ designed to assess task involvement, or the degree to which the individual believes they are performing the task either for their own benefit or for the competitive benefit of comparison to others. The questionnaire will also include measures of enjoyment and stress related to the treadmill exercise.

This experimental structure will be repeated two more times, for a total of three sessions. Each session will involve the instructor giving the task- or ego- goal manipulation, which will be very brief. They will then be asked to walk on the treadmill for five minutes, followed by a free-choice period during which they may continue to walk, run on the treadmill at a chosen speed, or simply leave. Before leaving the workout room, each participant will complete a brief assessment including a manipulation check, as well as a measure of enjoyment and stress experienced while using the treadmill.

Voluntary time spent at the gym as well as basic measures of physical activity via the exercise journal will be used to assess each individual's willingness to participate in exercise outside of the experimental sessions. At the third and final session, participants will complete a questionnaire similar to that completed during the initial, non-experimental session. It will include the MAAS and POSQ, in order to provide a measure of trait mindfulness and goal-orientation at time 2, one month after the initial assessment.

Statistical Analysis

A MANCOVA will be calculated to assess the success of the task/ego-orientation manipulation, which serves as one of the main independent variables of the study. Trait

mindfulness and individual goal-orientation are the other independent variables. The main dependent variables include time spent using the treadmill during the free period (following the walking exercise), speed setting of the treadmill, enjoyment of the treadmill exercise, and stress experienced during the treadmill exercise. Each of these variables will be used to calculate separate MANCOVAs, both within each experimental group as well as between each experimental group. Analyses will also be performed using generalized data regarding physical activity between experimental sessions, although the variability of this data may cause these analyses to be particularly difficult. ANOVAs will also be calculated both within groups and between groups for mindfulness at times 1 and 2, as well as goal-orientation at times 1 and 2.

Discussion

The central purpose of this study is to examine the relationship between trait mindfulness and goal orientation, and how these individual characteristics relate to motivation to participate in exercise activities. Although these are relatively interrelated concepts, they have not been explicitly examined together within the literature, especially in terms of sport and exercise. A specific aim of the current study is to examine the way in which trait mindfulness relates to an individual's tendency to approach situations in a task-oriented manner, rather than with an ego-orientation. It has been shown that mindfulness may be reasonably developed through training (Goldin et al., 2009) and can have diverse benefits in areas of mental well-being and attention control. These benefits, especially well-being, are also generally considered to be effects of consistent physical activity, but may also relate to an individual's motivation toward partaking in exercise in the first place. As such, a study of how goal orientation and mindfulness both relate to each other and impact each other is relatively important.

In terms of the current research design, many significant limitations are apparent. First, the experimental manipulation of task- and ego-oriented motivational climates may interfere with the study of the trait-based measurements, and may not be necessary in the design at all. Since mindfulness and goal-orientation are being measured prior to any experimental situation, participants are randomized to each of the four conditions. This may smooth out any individual differences, and the within-subjects analyses should have favorable results in terms of the hypotheses. It is altogether possible that mindful individuals, with or without previous experience with mindfulness, may show exaggerated benefits to either the task or mindfulness conditions, or both. The same possibility exists for task-oriented individuals, who may benefit more from the mindfulness exercise. The idea is that these interactions will result in apparent trends both within each group as well as in an overall trend between each of the groups. In other words, those individuals exhibiting the least stress and greatest enjoyment of the task should in turn have the greatest motivation toward subsequent exercise. Within each group, these individuals should be those reporting the highest trait mindfulness and task-orientation, which may be highly correlated to begin with. Furthermore, those with the absolute best performance between all of the groups should be those individuals with high mindfulness and task-orientation placed within the mindfulness/task experimental group. The major limitation of this design is that there are a lot of conflicting variables, and many possible outcomes that do not necessarily align with the proposed hypotheses.

However, there is an important strength, and that is that validated measures of trait mindfulness and goal-orientation in individuals are employed within the same design. This has not previously been done, and may act to elucidate a significant relationship between these factors. As stated before, mindfulness is something that may be able to be developed over time.

Furthermore, goal orientation is a largely cultural phenomenon, instilled in individuals throughout development. Since research has shown that task-orientation often results in better outcomes in a variety of situations (Spray et al., 2006), recognition of these two characteristics as a means to increasing overall motivation and well-being may be important in increasing motivation. Again, it is entirely possible that this research will indicate that high mindfulness and task-orientation are essentially inseparable. Since these measurements have not been empirically combined, this measurement may have initial significance regardless of the possibly numerous limitations of the specific design.

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