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### **Introduction**

Full-time students often consider their studies to be their job. However, some take on additional responsibilities such as extra-curricular activities and part-time jobs. This can also be seen in the workplace, where employees take on various work roles in addition to their family and life roles. Because of the intensity and prevalence of these stressors, college students and employees may often report high levels of stress. In some cases, stress may hinder academic and work performance. In fact, according to the MtvU AP 2009 Economy, College Stress and Mental Health Poll (2011), 60% of college students reported that on more than one occasion, they were not able to complete their work because of the abundance of stress they were experiencing. This effect of stress is also likely to occur in the workplace.

Performance is one of the most studied dependent variables in industrial-organizational psychology, as companies and universities desire for their employees and students to be as productive as possible (Jex & Britt, 2014). Unfortunately, the pressure to produce and perform, along with other factors, can result in high-stress outcomes and situations. Organizations and universities should strive to leverage their resources so that employees and students are able to perform at their highest capacity. Additionally, reducing stress is likely to influence workplace efficiency, especially if reducing stress can play a role in increasing performance. Because of this, companies may consider implementing interventions which target the reduction of stress, especially if they may also improve performance (Dane, 2010). Mindfulness-Based Stress Reduction, a valid and well-studied intervention, is a program with multiple components that has been shown to have many positive outcomes such as reducing stress, improving psychological

and physical health, and enhancing overall well-being (Creswell, 2016; Grossman, Niemann, Schmidt, & Walach, 2004; Carmody, & Baer, 2008).

### **Problem Statement**

Mindfulness-based stress reduction (MBSR) has been shown to reduce stress across populations; however, the literature lacks both studies of the effects of mindfulness and individual performance, and a comparison between the different internal components of MBSR in terms of effectiveness (Brown & Ryan, 2003; Creswell, 2016; Dane, 2010). The traditional MBSR program is intensive in nature with multiple components and may require more time than students and employees can afford to give up (Creswell, 2016). For those who work or study full time and have numerous additional responsibilities, time is limited and valuable. Additionally, universities and companies may be hesitant to devote an extensive amount of company time and resources to such an intervention. For instance, they may first require extensive evidence of the intervention's effectiveness before they implement it since it can be so time-consuming and costly. As such, most universities and companies would prefer an intervention option which both maximizes benefits and minimizes cost. In summary, there is a need for a condensed but comprehensive mindfulness-based stress reduction training, since students and employees interested in participating in the intervention may be unable to participate in all facets of the training due to the intensity of their workload.

Because organizations must be cautious about potentially increasing the workload of already overwhelmed students and employees, it is necessary break down traditional MBSR into its three parts—individual home practice, group classes, and a retreat—and examine which component is most effective (Creswell, 2016). The research questions this study addresses are:

1. Which facet(s) of MBSR are effective in increasing mindfulness on their own?

2. Which facet(s) of MBSR reduce perceived stress on their own?
3. Which facet(s) of MBSR increase performance on their own?
4. Does stress moderate the MBSR-performance relationship?
5. Which facet is most effective overall in increasing mindfulness, and performance, while reducing stress when considering amount of time invested?

### **Objectives**

This study will compare MBSR components through the implementation of each at a Christian University. If one or more aspects of MBSR are found to be highly successful in both reducing stress and increasing performance in students at Liberty University, these components could be utilized individually at other universities and in high-stress jobs where people are limited in the amount of time and cognitive resources available to dedicate to mindfulness training. One must be cautious when generalizing results from this study to organizational settings; however, replication studies could be conducted within different populations to increase generalizability. Ideally, a subsequent study would be conducted within an organization to directly examine the effectiveness of the most successful facet(s) of MBSR in reducing stress and increasing performance in employees.

The long-term goal of this study is to aid in the development of a concise version of mindfulness-based stress reduction training. The main objective is to evaluate and develop a method of mindfulness-based intervention which is brief but still highly effective and comprehensive in nature. This specific study will allow for examination of the effectiveness of already existing components of traditional MBSR. Once the most effective facet is identified, universities and companies can begin to opt for the utilization of this sole component over the more expansive, traditional intervention. Implementing only the most effective of the three facets

of MBSR training will ideally allow universities and organizations to offer an intervention which successfully increases mindfulness, decreases perceived stress, and increases performance, all while having the least impact on the students' and employees' workload.

### **Mindfulness**

The psychological construct *mindfulness* has received increased attention in recent decades (Shapiro, Carlson, Astin, & Freedman, 2006; Brown & Ryan, 2003; Creswell, 2016). The concept of mindfulness is derived from Eastern tradition, specifically Buddhist psychology, which is contemplative in nature (Shapiro et al., 2006; Brown & Ryan, 2003; Walach, Buchheld, Büttenmüller, Kleinknecht, & Schmidt, 2006). However, a clear-cut and agreed upon definition of mindfulness has been elusive. While a vast array of explicatory definitions exists, most believe mindfulness to generally be an attentiveness and awareness regarding the present (Baer, 2011; Creswell, 2016). Mindfulness is broadly conceptualized as a “non-elaborative, non-judgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is” (Lau et al., 2006, p. 1447).

### **The IAA Model of Mindfulness**

Shapiro et al. (2006) posits that there are three axioms which are fundamental to mindfulness: intention, attention, and attitude. They argue for this IAA model, asserting that these three axioms account for variance in outcomes of mindfulness and mindfulness itself. Additionally, *reperceiving* is their designated term to describe the shift in perspective, which others term decentering, that follows an increase in these three axioms.

**Intention.** Shapiro et al. (2006) asserts that when Western psychology derived mindfulness from Eastern religion roots, the aspect of intention was overlooked and should be returned to the mindfulness model. For Buddhists, this concept of intention entails,

enlightenment and increased compassion for all. Intention requires a personal vision, but is dynamic and often evolves. In fact, Shapiro (2006) states that as mindfulness meditation continues, participants shift from regulation, exploration, and liberation of self.

**Attention.** Attention and awareness are routine in normal functioning (Brown & Ryan, 2003). However, within mindfulness, attention is considered a fundamental facet which involves enhanced openness and heightened sensitivity to one's present and contemporaneous internal and external reality (Brown & Ryan, 2003; Shapiro et al., 2006). In essence, attention in mindfulness involves attending to one's present conscious experiences through suspending normal methods of experience interpretation, which is said to enhance cognitive aspects such as long-term attention, attention switching, and distraction inhibition (Shapiro et al., 2006).

**Attitude.** In attention, the qualities one brings when it comes to paying attention and being aware is considered to be their attitude (Shapiro et al., 2006). Shapiro et al. (2006) posit that the axiom of attitude must be explicit. A person consciously commits to hold the attitude of openness, compassion, and acceptance even when circumstances or experiences are opposite to what was hoped for or expected (Shapiro et al., 2006; Creswell, 2016). This attitudinal axiom of mindfulness involves "curiosity, non-striving, and acceptance" (Shapiro et al., p. 377).

**Reperceiving/Decentering.** Through mindfulness, people can separate themselves from their consciousness or internal thoughts and narratives to view the present experience, moment-by-moment, objectively and with clarity. Instead of being completely immersed in one's activities and personal life, one takes a step back to thoughtfully witness life (Shapiro et al., 2006). This process of shifting perspective through mindfulness is referred to as reperceiving or decentering, which is considered a "meta-mechanism of action" that aids each mindfulness mechanisms to facilitate positive change (Creswell, 2016; Shapiro et al. 2006, p. 374).

## **Occupational Stress**

Occupational stress has become a popular topic of recent research, with most research examining the physical and psychological impact of stress. In a stimulus-response definition of stress, the stimulus is a considered a force which acts upon a person. The response, then, is the reaction an employee has to the stimulus, or stressor. Occupational stress along with occupational health psychology, a newly-formed field which examines occupational stress and its influence on health outcomes, have brief histories and require further study and exploration; however, various researchers have proposed empirically-supported models depicting the process of how occupational stress emerges and impacts employees (Jex & Britt, 2014).

### **Beehr and Newman's Facet Model of Occupational Stress**

Beehr and Newman propose a model of occupational stress, based on previous research, which breaks stress down into variables to be studied. The model suggests that a personal facet and environmental facet influence the process facet, thereby influencing human and organizational consequences and potentially resulting in adaptive responses. The personal facet mainly deals with stable characteristics of an individual, such as age, gender, and personality. On the other hand, the environmental facet is considered to be the characteristics of the environment, whether it be work or school, which people are impacted by and must confront. These two facets interact to influence the process facet, where an individual perceives environmental stressors as either harmful or not, which can create feelings of stress (Jex & Britt, 2014).

### **Linking Mindfulness and Occupational Stress**

Research proposes that mindfulness is a state of mind, thinking, and consciousness; therefore, one may consider mindfulness a personal characteristic which falls under the personal facet in Beehr and Newman's model (Lau et al., 2006; Jex & Britt, 2014). Mental training is



utilized to enhance and achieve skill in mindfulness and can lead to many positive outcomes related to well-being (Lau et al., 2006; Shapiro et al., 2006; Brown & Ryan, 2003). There has been increased interest recently regarding mindfulness training interventions, specifically in examining their efficacy in creating positive outcomes such as treating depression and drug addiction, improving relationship functioning, and reducing stress (Shapiro et al., 2006; Creswell, 2016;). A well-studied and validated mindfulness intervention is Mindfulness-Based Stress Reduction (MBSR), which has been promising in treating both physical and psychological symptoms (Shapiro et al. 2006; Creswell, 2016).

### **Mindfulness-Based Stress Reduction Training**

MBSR is perhaps the most well-known mindfulness intervention, developed by Jon Kabat-Zinn of the University of Massachusetts Medical School, as an intensive 8-week program. MBSR began to aid in treating patients with chronic pain conditions, but has now sparingly been applied in other fields, disciplines, and populations (Creswell, 2016). For instance, researchers have studied MBSR in regards to its impact on workplace variables such as emotion regulation, emotional exhaustion, and job satisfaction (Hülshager, Alberts, Feinholdt, & Lang, 2013).

Mindfulness interventions foster decentering and re-perceiving, which involves objectively evaluating present experiences from a shifted point of view. This decentering is a mechanism for change because it can affect how one behaves, thinks, and emotes (Creswell, 2010). Conceptualizing the exact mechanisms of change have been difficult because mindfulness is such an abstract concept (Carmody, Baer, Lykins, & Olendzki, 2009). Regardless, MBSR programs have been shown to engender positive outcomes, especially reduction of occupational stress (Hülshager, Alberts, Feinholdt, & Lang, 2013; Grossman et al., 2004; Baer, Carmody, & Hunsinger, 2010).

## Components of MBSR Training

MBSR utilizes body scans to learn to become aware of and attend to bodily sensations, physical activities such as gentle stretching and yoga, and discussion geared toward coping with stress and becoming mindful of present life experiences. MBSR includes “weekly classes, daily audio-guided home practice, and a day long retreat” (Creswell, 2016, p. 3).

***Daily Audio-Guided Home Practice.*** MBSR includes the facet of daily individual practice sessions, lastly approximately 45 minutes per day, which one can do at home through the guidance of audio recordings (Creswell, 2016).

*Hypothesis 1: Daily audio-guided individual practice will be the most effective aspect of MBSR in reducing stress when compared to the weekly group classes and mindfulness retreat.*

***Weekly Group Classes.*** MBSR includes the component of group-based classes taught by a trained professional, typically lasting 2-2.5 hours (Creswell, 2016).

*Hypothesis 2: Weekly group classes will be less effective in reducing stress than individual mindfulness training, but more effective than the day-long mindfulness training retreat.*

***Day-Long Mindfulness Training Retreat.*** MBSR includes a day-long mindfulness retreat, which typically occurs during the sixth week of the traditional eight-week mindfulness training program (Creswell, 2016).

*Hypothesis 3: The mindfulness retreat will be the least effective aspect of MBSR in reducing stress when compared to the daily audio-guided home practice and the weekly group classes.*

## Linking Mindfulness and Performance

The literature on high-quality random control studies on the relationship between mindfulness and performance in settings such as the workplace and in college is scarce (Dane,

2010). MBSR has been shown to decrease stress, which is theorized to indirectly improve performance (Jon Kabat-Zinn, 2003) Additionally, MBSR and other mindfulness interventions have been shown to influence performance, mainly through enhanced attention (Dane, 2010).

### **Attention and Performance**

Research suggests that mindfulness interventions can cultivate enhanced performance in regards to sustained attention, working memory, and problem-solving (Creswell, 2016). Dane (2010) argues that mindfulness can impact task performance the facet of attention. When one is mindful, he or she has a vast field of attention and observes a large amount of information. Commonsensically, this could lead to increased task performance through the acquisition of a large, rich body of information, which has been shown to facilitate high performance in general. Additionally, this absorption of a wide breadth of information via increased attention has been shown to result in less errors due to missed information of environmental cues. In fact, it is believed that mindfulness and a wide expanse of attention is most helpful in dynamic task environments—an environment characterized by the necessity for rapid decision making and problem solving, as well as competition—such as with lawyers in trials (Dane, 2010).

On the other hand, one could reason that mindfulness, in some instances, has a contrary effect and decreases task performance. This may be especially the case when a task requires narrow attention and absorption (Dane, 2010). In a mindful state, one could divert attention to trivial, unimportant stimuli whereas focusing on fewer stimuli would aid in quick and adequate completion of the task. In fact, it is theorized that the benefits of mindfulness and enhanced attention may detract from performance in non-dynamic task environments since these may require focusing solely on the task one is to complete.

Dane (2010) also posits that from the examination of previous research, mindfulness may attune individuals to their intuitions, or nonconscious, immediate reasoning. Intuitions are more likely to be accurate when one is well-informed or an expert in regards to the topic of the task, but less accurate when one is an amateur or novice. Expert's intuitions are typically rooted in immense knowledge field-relevant schemas and more objective logic, while those who are not experts rely on simple heuristics and may be biased in their knowledge and attitudes. If intuitions are correct, this can enhance task performance (Dane, 2010).

### **Influencing Performance by Reducing Stress**

Jon Kabat-Zinn (2003) posits that when outcome-based pressures and extrinsic aspects of a task can elicit anxiety and depression, the quality of one's work suffers. This can be attributed to the effects of negative emotion on performance. Contrarily, when the focus is on the process and intrinsic qualities of an activity, there is a reduced probability of anxious and depressive emotions, thereby reducing the negative impact on performance. In essence, if there is external pressure for productivity and performance for an activity, performance is negatively affected (Jon Kabat-Zinn, 2003). Mindfulness can assist in treating anxiety and depression and help individuals learn to cope with external pressures, as well as increase performance and satisfaction with one's life (Jon Kabat-Zinn, 2003; Creswell, 2016; Dane, 2010). It is argued, however, that achieving mindfulness and its outcomes, such as increased performance, is not immediate; rather, it involves a process of development which requires practice (Jon Kabat-Zinn, 2003).

*Hypothesis 4: In some instances, stress moderates the MBSR-performance relationship (See Appendix A, Figure 1)*

Past studies on mindfulness interventions have mainly focused on utilizing it as a treatment in clinical settings. However, in the last decade, researchers have shifted their focus to introduce mindfulness training into other populations and settings such as within the workplace to reduce stress and increase satisfaction and performance. Well-designed, high quality studies are now needed to examine the efficacy of mindfulness training within an array of contexts (Creswell, 2016). It is also necessary to examine the effectiveness of each component of MBSR in and of themselves. For those who are limited in time or organizations worried about costs, it would be ideal to use only one of the components used in traditional MBSR. Doing so is a step toward developing a shorter, condensed version of MBSR to maximize benefits and minimize potential costs.

### **Methodology**

An interrupted time series design will be utilized in this study, which will take place over the course of 120 days (Refer to Table 1 in Appendix B for a project schedule table). Students who sign up for an Introduction to Research psychology course will be randomly assigned into four sections instructed by the same professor. On the first day of class, students will access a link on Blackboard to an online Qualtrics survey. The students first must answer demographic questions, and subsequently complete the following measures: the Toronto Mindfulness Scale and the Brief Stress and Coping Inventory. Both the individual questions within each scale and order of the scales will be randomized. A measure of mindfulness will be included as a manipulation check, while the control group will be utilized as a comparison to rule out threats to internal validity, specifically history and maturation effects. The students will complete the same survey, randomized every time, on Blackboard at the end of each 30-day period. The professor has agreed to provide course assignment grades for every student at the end of each 30-day

interval, which is the date that will serve to evaluate performance. At 45 days, each condition will receive or begin their own type of mindfulness training intervention. Section one will act as a control group to which comparisons of stress and performance outcomes can be made. The remaining three sections will receive one of the three components of the MBSR program detailed earlier. The second section will begin individual audio-guided home mindfulness training, while the third section will begin weekly group mindfulness training through classes. Section four will go on a day-long mindfulness training retreat as their intervention. The data collected will be analyzed using a repeated measures ANOVA. Ideally, each method of the mindfulness training will increase mindfulness, resulting in less perceived stress, which will result in students earning higher grades on their assignments over time. This research design enables the researcher to examine which aspect of the MBSR program is most effective in regards to minimizing stress and maximizing performance.

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**Appendix A.**

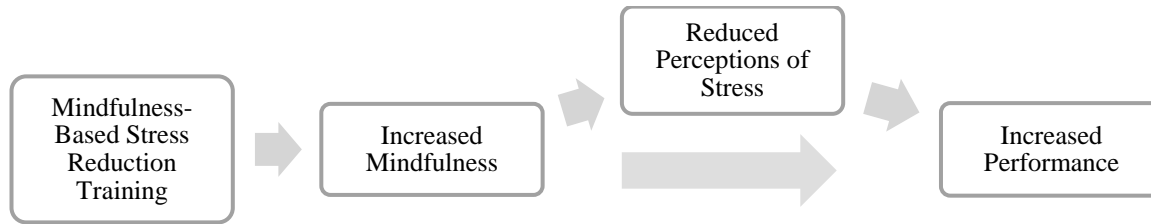


Figure 1. Conceptual model of impact of MBSR on performance

**Appendix B.**

Table 1  
Quasi-Experimental Project Schedule Table

Day	1	30	45	60	90	120
Control	O <sub>1AB</sub>	O <sub>2ABC</sub>		O <sub>3ABC</sub>	O <sub>4ABC</sub>	O <sub>5ABC</sub>
Individual MT	O <sub>1AB</sub>	O <sub>2ABC</sub>	X <sub>A</sub>	O <sub>3ABC</sub>	O <sub>4ABC</sub>	O <sub>5ABC</sub>
Group MT	O <sub>1AB</sub>	O <sub>2ABC</sub>	X <sub>A</sub>	O <sub>3ABC</sub>	O <sub>4ABC</sub>	O <sub>5ABC</sub>
MT Retreat	O <sub>1AB</sub>	O <sub>2ABC</sub>	X <sub>A</sub>	O <sub>3ABC</sub>	O <sub>4ABC</sub>	O <sub>5ABC</sub>

A= Mindfulness

B= Perceived Job Stress

C= Performance