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**THE IMPACT OF ONLINE MINDFULNESS BASED INTERVENTIONS
ON EMPLOYEE ATTENTION AND MINDFULNESS
LEVELS IN THE WORKPLACE**

A Research Project

**Presented to the Faculty of
The Graziadio Business School
Pepperdine University**

**In Partial Fulfillment
of the Requirements for the Degree
Master of Science**

**In
Organization Development**

by

Isabelle D. Hertz

July 2018

This research project, completed by

Isabelle D. Hertz

under the guidance of the Faculty Committee and approved by its members, has been submitted to and accepted by the faculty of The Graziadio Business School in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE
IN ORGANIZATION DEVELOPMENT

Date: July 2018

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Abstract

This mixed methods study examined the impact of an online mindfulness-training program on mindfulness and the attention levels of eight employees working in an organization. All participants showed increased levels of mindfulness at the end of the intervention. The attention levels for participants increased for two of the three attention scales used to measure attention levels. The two attention scales that showed increases were mind wandering and attention, whereas distraction showed no significant increase comparing baseline to post-levels. The qualitative information gathered emphasized learning and greater levels of awareness around mental states and emotional states. This study showed preliminary support for the value of online mindfulness programs in organizations and future research should continue to examine how mindfulness can support employees.

Keywords: Mindfulness, Meditation, Attention, Wellness in the Workplace

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Chapter 1: Introduction

Research Problem

Maintaining focus at work is a challenge due to the demands organizations can place on individuals. “Modern workplaces are commonly full of interruptions and distractions that can challenge attentional control and harm occupational functioning” (Good et al., 2016, p. 11). Mindfulness practices are progressively showing support for employee wellness and attention related initiatives within organizational settings. The research that exists looking at online mindfulness programs shows support for positive outcomes for employees and organizations regardless of the fact that mindfulness research in the workplace is still limited (e.g., Aikens et al., 2014).

Mindfulness has traditionally been associated with Buddhist traditions, however over the last 40 years there has been a shift as these practices are combined with more modern, secular psychological theories and trainings (Adams et al., 2016). The launch of Kabat-Zinn’s (1994) stress reduction clinic and the Mindfulness Based Stress Reduction (MBSR) training program at the University of Massachusetts was a catalyst for investigation of mindfulness.

“Mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994, p. 4). Mindfulness can be practiced in many forms, including meditation, with most forms strengthening the intention to stay present and cultivate an open quality of mind (Adams et al., 2016, p. 7). Mindfulness is a concept that has been shown to support individual’s wellbeing, cultivating appreciation for the fullness of every moment we are alive (Kabat-Zinn, 1994), as well as enhancing how employees show up at work in areas such as increased

attention. There is growing interest and scholarship exploring how mindfulness supports employee attention as well as its relationship to stress, productivity, and other work-related issues. While there is much evidence that exists showing the benefits mindfulness practices bring to individuals' mental well-being, the role these practices play in supporting employee attention in an organizational context is less clear. At present, the body of knowledge that exists on mindfulness research as it relates to workplace outcomes shows some connection to employee behaviour, including the relationship between mindfulness and attention (Good et al., 2016). "A small but growing body of work in the management area also suggests that mindfulness is linked to better workplace functioning...the framework identifies how mindfulness influences attention...ultimately, these domains impact key workplace outcomes..." (Good et al., 2016, p. 2).

Interest in mindfulness is increasing, primarily around the central role of attention in organizations and mindfulness' potential to alter attentional qualities. While mindfulness is linked to improvements in attention, mindfulness practices don't always fit within organizational life. A commonly used delivery mechanism of mindfulness interventions is through the use of online platforms such as phone applications. Some research supports this delivery modality. The purpose of this study was to look at the impact of an online mindfulness program on employee attention and mindfulness levels in the workplace.

Employee Attention in the Workplace

To explore the research problem, it is first important to look at the current literature on employee attention as an issue in the workplace. Attention has become an all-encompassing term to describe how the brain controls its own information processing

and to look at what an individual is focused on (Chun et al., 2011). We have seen attention challenged as there is an increase in distractions within organizations. Most organizations tend to focus on the doing and shallow work, which favors distractibility. As Good et al. (2016) note, it is more common to see organizations support employees who adopt a cognitive mode that supports doing and getting things done mindfully or not, including activities such as planning for the future, interpreting complex environments, and setting goals. Furthermore, some prominent features of most organizations are the promotion of tasks, the emphasis of doing over being. Newport (2016) coined the term shallow work, or the inability to perform deep work. Newport (2016) describes the impact the age of network tools has on knowledge workers, showing increasing support for the replacement of deep work with the shallow alternatives, “constantly sending and receiving email messages like human network routers, with frequent breaks for quick hits of distraction” (p. 6). Although there is a place for the shallow work, that is what promotes the doing state and task accomplishment, with less of the deep work available to employees in an organization, it creates less opportunity for attentional focus. “Attention is central to many higher order cognitive operations, susceptible to dysfunction during normal aging and impaired in many disease states (e.g., attention deficit disorder). As such, the ability to improve attention with training methods has the potential to be beneficial in many domains” (Jha et al., 2007, p. 117).

Research to Date

There is some current research that exists on mindfulness and mindfulness-based interventions and their impact on attention. Jha and colleagues (2007) hypothesized that mindfulness training may alter or enhance specific aspects of attention, specifically

through the examination of three attentional subsystems: alerting, orienting, and conflict monitoring. “Alerting consists of achieving and maintain a vigilant or alert state of preparedness, orienting directs and limits attention to a subset of possible inputs, and conflict monitoring prioritizes among competing tasks and responses” (Jha et al., 2007, p. 110). The results of the study suggest that mindfulness training may improve attention-related behavioral responses by enhancing functioning of specific subcomponents of attention, which is important because it shows the value mindfulness training plays in supporting enduring attentional abilities.

There is limited research exploring the impact of mindfulness on attention within organizational studies. Most of the organizational work focuses on either the benefits of mindfulness or the role mindfulness plays on productivity and other common measures of organizational performance. There are two common reasons this happens. The first is because of the implicit measures of attention that are typically better designed for the lab and the second is because mindfulness is defined with a certain quality of attention so there is an assumption that attention is woven in. Advancing understanding of mindfulness’ role on attention in organizations will contribute to a growing body of literature that explores mindfulness programs in the workplace.

Purpose Statement

The purpose of this study was to look at the impact of an online mindfulness program on employee attention and mindfulness levels in the workplace.

There is one research question this study sought to examine around mindfulness levels:

1. Hypothesis 1 was seeking to determine if mindfulness levels will increase

There are three research questions this study sought to examine around attention levels:

1. Hypothesis 2 was seeking to determine if mind wandering will increase
2. Hypothesis 3 was seeking to determine if attention levels will increase
3. Hypothesis 4 was seeking to determine if distraction levels will decrease

Thesis Outline

Chapter 1 provided an introduction to mindfulness, current literature, and employee attention in the workplace. Chapter 2 focuses on a deeper review of the existing literature relevant to mindfulness and employee attention in the workplace. Chapter 3 outlines the methodology and design used to implement an organizational mindfulness program. Chapter 4 details the findings and conclusions based on the data gathered from the study. Chapter 5 is a summary of the conclusions, insights, and recommendations for future research.

Chapter 2: Literature Review

Although mindfulness has been in existence since originating in the context of Buddhism around 500 B.C.E., recently we have seen a growing interest in mindfulness in western societies throughout clinical practices and academia (Lomas et al., 2017). Kabat-Zinn's (1994) mindfulness-based stress reduction (MBSR) program allowed mindfulness to grow in prominence in the West. As Kabat-Zinn (1994) notes, "mindfulness provides a simple but powerful route for getting ourselves unstuck, back in touch with our own wisdom and vitality," (p. 5). Many scholars have defined what mindfulness is at the construct level. For this study, mindfulness will be described as "a state of consciousness in which attention is focused on present-moment phenomena occurring both externally and internally," (Dane, 2011, p. 1000). This chapter summarizes how mindfulness awareness programs may support attention in the workplace.

Mindfulness and Attention

Although mindfulness and attention are considered unique capacities, mindfulness is often associated with attentional control and concentrative capacity (Brown, 2007). "Both Western scientists and Buddhist scholars recognize that the ability to focus and sustain attention on an intended object requires skills involved in monitoring the focus of attention and detecting distraction, disengaging attention from the source of distraction, and (re)directing and engaging attention to the intended object" (Lutz et al., 2008, p. 163). In other words, although mindfulness, as defined above, includes the very act of 'paying attention', mindfulness is not the same as attention and rather has its own unique definition. Research provides much evidence that mindfulness affects attention (Good et al., 2016). One specific mindfulness practice that supports attention is meditation.

Meditation is the act of training attention, often through a focus on breath and studies show that meditation supports brain function, particularly with respect to attention (Kozasa et al., 2012).

Good and colleagues (2016) noted that mindfulness is hypothesized to affect human functioning largely through attention. Furthermore, Brown (2007) argued that “mindfulness is considered an inherent capacity of the human organism but it nevertheless varies in strength” (p. 214). As the attentional mind muscle is strengthened, we are better able to stop our automatic reactions and notice present moment-to-moment experiences.

This section presents the existing literature connecting attentional qualities to mindfulness practices. In current literature on mindfulness and attention, three main attentional qualities have been reviewed: stability, control, and attentional efficiency (Good et al., 2016).

Stability

The first area through which mindfulness positively supports attention is stability, which is defined as sustained attention on a current task (Good et al., 2016). As referenced in the study conducted by Jha et al. (2007), the attentional subsystem of alerting is used to describe the same attentional quality as stability. “An improvement in ‘alerting’ (achieving and maintaining a vigilant state of preparedness) was found in experienced meditators following a 1-month mindfulness retreat. Attention regulation seems to be an important mechanism that is often developed early in mindfulness practice” (Holzen, 2011, p. 541). Regardless of how this attentional quality is labelled,

mindfulness meditation appears to support improvements in this quality, which is an important element of the research connecting mindfulness and attention.

“The human mind is estimated to wander roughly half of our waking hours, but mindfulness can stabilize attention in the present and mindfulness training has been associated with reduced mind wandering” (Good et al., 2016, p. 5). The ability of sustained attention gained in meditation practice can be generalized for attention tasks outside formal meditation practice and “may support reports that meditation training develops the ability of keeping attention to execute an attention task” (Kozasa, 2012, p. 749). This is extremely important for organizations today because mindfulness has been found to positively improve sustained attention through overall reaction times in respect to a decrease in switching task (Chiesa et al., 2011). Decreases in switching task are connected to an individual’s ability to hold mental capacity while also showing speed and accuracy in the response. For instance, if someone is able to change their focus in a flexible way they have higher switching task ability. Within an organization this is valuable because employees often have to keep information in their head, such as deliverables, while attending an unrelated fast paced meeting where accurate information has to be presented.

Control

The second area through which mindfulness promotes attention is control, the ability to direct attention to the appropriate task when multiple priorities exist. “Brain wave activity suggests more effective identification of and disengagement from distractions among long-term meditators” (Good et al., 2016, p. 6). Kuo’s (2015) research is consistent with this as mindfulness training has been shown to benefit attentional

control functions such as voluntary attentional control, conflict monitoring, mental set shifting, flexibility in re-directing attention to new information, and the inhibition of non-relevant proponent responses. In many research streams, control is defined as orienting (e.g., Chiesa et al., 2011; Jha et al., 2007; van den Hurk et al., 2010). However, Chiesa and colleagues (2011) provide a different perspective. In this research, mindfulness training was found to significantly improve selective attention, enhance the ability to exclude unwanted stimuli, support faster disengagement from incorrectly cued visual information, and promote more flexible redirection of attention to new information. The findings of a study conducted by Kozasa and colleagues (2012) pointed to the impact meditation could have on reducing the necessity of impulse control. “Regular meditators activated fewer brain regions than non-meditators in order to achieve the same performance during an attentional task. This is evidence that meditation training can increase brain efficiency in attention and impulse control” (Kozasa et al., 2012, p. 749).

Attentional Resources

The third way mindfulness promotes attention is by allocating attentional resources efficiently and maintaining alertness. “Research shows that meditators spend fewer attentional resources processing distractions” (Good et al., 2016, p. 6). Not only are individuals better able to filter distractions, but they are also more attentive. As referenced in the study conducted by Jha and colleagues (2007), the attentional subsystem of conflict monitoring (prioritizing among competing tasks and responses) is used to describe the same attentional quality as attentional resources. Attentional resources has been linked to the process of prioritizing among competing thoughts, feelings, and responses (Chiesa et al., 2011). According to Chiesa and colleagues (2011),

several studies reported significant improvements with respect to attention measures in mindfulness groups compared to control groups.

In non-clinical populations, mindfulness interventions have been shown to enhance cognitive abilities, including attention (Kuo, 2015). “As you learn to practice mindfulness and focus on breathing, you can improve the quality of your concentration” (Trunnell, 1995, p. 289). As research points to positive impacts of mindfulness on attention and the ability it has to train stability, control, and efficiency, ideally, mindfulness training will be available to more people, especially to support workplace outcomes.

Mindfulness in the Workplace

From a workplace standpoint, the research around whether mindfulness matters is growing rapidly. In recent years there has been growing research exploring the workplace benefits of mindfulness, resulting in many organizations and corporations starting to offer mindfulness programs to their workforce (Hyland, 2015).

The growing information that is available about mindfulness in the workplace shows some links between mindfulness and workplace functioning, as Good et al. (2016) note, “Emerging evidence across multiple fields suggests that mindfulness is fundamentally connected to many aspects of workplace functioning” (p. 1). Specifically, functioning such as (task) performance, interpersonal relationships, communication, and wellbeing & stress.

Mindfulness and Performance

Mindfulness supports well-being through an increase in performance (e.g., Good et al., 2016; Shonin et al., 2014). Mindfulness based interventions have been shown to support well-being factors such as work-related stress and job satisfaction and have been shown to facilitate significant improvements in performance indicators such as task performance, psychological distress, and employer-rated job performance (Shonin et al., 2014). The individual level performance outcomes that tend to result when someone is more mindful include things such as reduced levels of reported burnout, perceived stress and work-family conflict as well as increased levels of attentional breadth (Good et al., 2016). For instance, performance has been linked to attentional breadth to support a reduction in attentional costs in situations such as those where more stable and controlled attention in routine contexts is required within organizations. “A growing body of evidence indicates that employee well-being is associated with significant benefits to employee and organizational performance via its effects on employee physical and psychological health, absenteeism, turnover, and in-role performance” (Good et al., 2016, p. 16). Good and colleagues (2016) also note that mindfulness is showing an influence on a range of performance categories, including job, task, citizenship behaviors, deviance, and safety performance. Research focusing on task performance will be expanded upon due to its connectivity to mindfulness and deliberate attention.

Mindfulness and Task Performance

Business studies have found mindfulness to be helpful in improving task performance (Aikens et al., 2014). However, it appears to support task performance more effectively depending on the situational context. For instance, Dane (2011) theorized a

positive relationship between mindfulness and task performance among individuals in dynamic task environments such as those in which individuals make a series of interdependent decisions in real time and with a high level of task expertise. This effect dissipated in low dynamic environments or when the individual had a lower task expertise.

Mindfulness has also been shown to support task performance in the context of switching from one activity to the next (Kuo, 2015). As mindfulness is concerned with staying in the present moment and requires self-regulating the focus of attention, it is suggested that mindfulness can address changing situations in an adaptive way to focus on the present moment and support performance (Kuo, 2015). “Mindfulness, as a promising strategy for improving task focus and performance, has been shown to reduce mind wandering in a vigilance task” (Kuo, 2015, p. 99).

Mindfulness and Interpersonal Relationships & Communication

Mindfulness also appears to play a role in interpersonal relationships in the workplace. “Although mindfulness is an individual quality, initial evidence suggests that it affects interpersonal behavior and quality of dyadic and workgroup relationships” (Good et al., 2016, p. 13). Specifically, Good and colleagues (2016) review shows findings in improved communication quality, relationship quality and, empathy and compassion. As Trunnell (1995) notes, “While much work still needs to be done on understanding the effects of mindfulness in the workplace, preliminary studies already have shown mindfulness to impact a variety of elements found there such as written and interpersonal communication” (p. 288). As studies continue to uncover the impact of mindfulness on interpersonal communication and relationships, more will be learned on

the impact in workplaces that may cause shifts in the environment of workplaces. As individuals become more mindful the entire work team can be positively affected (Trunnell, 1995).

Mindfulness and Workplace Wellbeing

Mindfulness training has been found to increase psychological wellbeing in nonclinical populations (Brewer et al., 2011), which is important for consideration in organizations. Improving attentional focus could have significant benefits for organizations such as increased productivity and mental health levels. “Mindfulness appears to have an overall beneficial impact upon mental health” (Lomas et al., 2017, p. 16). Mindfulness based interventions are becoming a more promising intervention for organizations hoping to improve employee levels of work-related mental health (Van et al., 2014).

A key area mindfulness supports wellbeing in the workplace is in managing stress.

The costs associated with workplace stress go well beyond higher health care utilization, to include inflated expenses due to increased absenteeism and presenteeism, reduced productivity, greater compensation claims, and rising health insurance expenses. In addition, other mental health disorders, including anxiety and depression, add to this burden (Aikens et al., 2014, p.721).

One reason mindfulness is able to reduce anxiety is because stress is related to being preoccupied with the past or the future. When we learn to focus on the moment it offers humans a temporary relief from immediate stressors (Trunnell, 1995). Mindfulness-based interventions have been of increasing interest as a cost-effective, low-stigma, accessible

treatment option for a variety of psychological symptoms, including anxiety (Hoge et al., 2013). A study conducted by Brown (2003) found that the enhancement of mindfulness was shown to predict declines in stress. These studies are showing the connection between the changes occurring in the brain during mindfulness practices and an ability to better manage stress and other psychological effects such as anxiety.

One proposed way that mindfulness exerts its positive effect is through “reperceiving”, where individuals are better equipped to detach themselves from distressing internal senses that might otherwise precipitate stress (Lomas et al., 2017). Aiken and colleagues (2014) analyzed the effects of a shortened, online, and flexible format mindfulness training program and found that employees who participated in the program showed significant improvement in perceived stress levels. What these studies are showing is that mindful individuals are able to stand back and witness their thoughts and feelings more objectively through the deliberate action of focusing non-judgementally on the present.

Hülshager and colleagues (2013) examined the impact of surface acting on emotional exhaustion and job satisfaction, both contributors to workplace stress. “Surface acting can be described as a response-focused form of emotion regulation. It targets the modification of the emotional expression after emotional cues have already been evaluated and after experiential, physiological, and behavioural response tendencies have been initiated” (Hülshager et al., 2013, p. 313). Hülshager and colleagues (2013) analyzed the impact of a self-training approach spanning over two weeks that focused on key mindfulness practices that could be readily integrated into participant’s daily work life, ones that are based off of exercises from both Mindfulness Based Stress Reduction

(MBSR) and Mindfulness Based Cognitive Therapy (MBCT) programs. The results of the study showed that surface acting will mediate the relationship of a mindfulness self-training intervention with emotional exhaustion and that mindfulness affects surface acting, emotional exhaustion, and job satisfaction (Hülsheger et al., 2013).

Jamieson and Tuckey (2017) reviewed 40 published articles of mindfulness interventions in the workplace and noted “in nearly all of these studies, there was a statistically significant benefit of mindfulness training for employee health and wellbeing” (p. 189). However, it remains a challenge to influence organizations to adopt these practices.

Shonin and colleagues (2004) looked at the impact of Meditation Awareness Training (MAT) on the work-related well-being of 76 participants. Their study used two types of meditation: concentrative and insight. Concentrative meditation focuses the mind on present moment experience, typically through use of breath, working to reduce extraneous cognitive activity. Where concentrative meditation helps to calm maladaptive emotional states and create a more tranquil state, insight meditation undermines the determinants of such negative affective states (Shonin et al., 2014). The study demonstrated a specific impact on attention of the concentrative meditation practices used which is important because it shows the positive effects mindfulness can have through breath work on well-being.

Mindfulness Training in the Workplace

Mindfulness training and practice became more prominent with the work of Jon Kabat-Zinn after he developed a program at the University of Massachusetts Medical School that was later refined and became known as Mindfulness Based Stress Reduction

(MBSR: Hyland, 2015). Since then, MBSR programs have become a starting point for many mindfulness-based interventions (MBIs) used in and outside of organizations.

“Attempts to increase mindfulness in an organizational context are complicated, because organizations are established, held together, and made effective largely by means of concepts” (Weick & Putnam, 2006, p. 281).

Nature of Mindfulness in Organizations

Until more recently, mindfulness training was primarily studied outside of an organizational context. Although mindfulness adoption within organizations still has a long way to go, there is an increasing number of workplaces that are offering training for their employees. “Today, several larger organizations and numerous smaller firms specialize in offering workplace mindfulness training. The format and content of workplace mindfulness programs has been adapted from the MBSR model to be more conducive to the workplace” (Hyland, 2015, p. 579). It appears the adoption of a full MBSR programs within an organizational context is challenged by a few factors, in particular that of: duration of the program, having the proper space (to account for any movement that is part of the program), comfort with the topic of mindfulness, and cost of in person delivery (that of the instructor) (Hyland, 2015).

Despite their advantages, a considerable challenge to the inclusion of MBSR programs in organizations is the time commitment they require from their participants (e.g., Adams et al., 2016; Aikens et al., 2014; Klatt et al., 2009). A recent literature review conducted on mindfulness interventions in the workplace noted some interest in self-directed and Internet-based delivery methods because these formats can be beneficial

in reducing the costs associated with delivering a mindfulness intervention program (Jamieson & Tuckey, 2017, p. 187).

Characteristics of Effective Mindfulness Training at Work

There appears to be benefits with implementing variations of mindfulness programs in organizations, with modifications to things such as the length and delivery type still producing higher mindfulness levels as well as workplace outcomes. Hülshegar and colleagues (2013) assessed the impact of a self-training program inspired by MBSR, spanning only two weeks and without any regular group sessions. They found that employees who went through the self-training program had significantly higher levels of mindfulness and felt less emotional exhaustion than did the controls. Aikens and colleagues (2014) conducted a study to determine whether a shortened, web-based, workplace-specific mindfulness program could replicate the effectiveness of a traditional Mindfulness Based Stress Reduction (MBSR) program. Specifically, the study examined if employees had a reduction in stress and an enhancement in mindfulness and employee wellbeing (Aikens et al., 2014). They discovered that the altered mindfulness program could replicate the results of traditionally delivered MBSR programs, with the outcomes showing significant decreases in perceived stress and increased mindfulness levels, thereby enhancing overall employee well-being. This research suggests that shortened and online programs are associated with positive work-related benefits. This information is important for this study looking at an online mindfulness program and the impact to employee attention because of both the online and less formally structured nature of the program participants experienced.

Examining the Impact of Mindfulness Programs on Employee Attention

Considering attention's importance in nearly everything we engage in, it is of significant importance to learn how to strengthen that mind muscle. Mind wandering, which is defined "as the unintentional shifting of attention toward internal thoughts" (Seli et al., 2015, p. 629) is a common activity present in roughly 50% of our waking life and is connected to neural activity in a network of brain areas called the default-mode network (Brewer et al., 2011). Stated more simply, regardless of having a formal attention deficit diagnosis, we as humans may spend half of our time distracted.

One way to strengthen the attentional mind muscle is through mindfulness practices. There is a more recent understanding of mindfulness as a tool for staying and engaged in the present moment. "Experienced meditators show reduced activation in the neural network indicative of mind wandering and brain activity patterns consistent with sustained attention" (Good et al., 2016, p. 6). As previously stated, mindfulness is conscious awareness that allows attention to be focused on present-moment phenomena (Dane, 2011).

Although limited research appears to exist on the impact of mindfulness programs specifically looking at employee attention in the workplace, "mindfulness is germane to the growing body of scholarship concerned with how individuals focus their attention in organizations" (Dane, 2011, p. 998). Additionally, mindfulness has been shown to play an important role in attention and focus and, the application of mindfulness to a workplace setting appears to be practical and advantageous (Trunnell, 1995, p. 290).

Due to the impact of mindfulness on attention and the intense focus required to conduct tasks within an organizational context, a case could be made to not only further

study the effects mindfulness practices have on attention in the workplace, but also that mindfulness practices could be a foundational element in all organizations. With the ability to adapt mindfulness programs to an online format and less rigid structure, the ease of access and resulting impact for successful adoption of mindfulness work inside organizations may be even greater.

Chapter 3: Methodology

The purpose of this study was to look at the impact of an online mindfulness program on employee attention and mindfulness levels in the workplace. This study intends to provide a better understanding for future implementation of mindfulness initiatives into organizational settings. This chapter describes the methodology used in this research project, including the research design, research sample, data collection, data analysis, and summary.

Research Design

The research design for this study was a mixed-method research approach.

Quantitative data was collected through the following methods:

- The use of the MAAS pre and post mindfulness questionnaire
- The use of pre, post, and weekly self-measurement attention questionnaires
- The use of data collected on the frequency of meditation by participants through the Whil mindfulness platform

Qualitative data was collected through:

- An in-person focus group at the end of the mindfulness program where the results of the program were shared as well as a few questions around mindfulness that were explored with participants

The qualitative responses were collected from participants and the main points summarized and shared to show what participants said.

MAAS as a Measure of Mindfulness

Although there are a few mindfulness scale measurements that exist, the MAAS (Mindful Attention Awareness Scale) was used in this study. The MAAS is a self-reporting tool designed to measure individual differences in the frequency of mindful states over time (Brown & Ryan, 2003, p. 824). It is a 15-item instrument measuring attention to and awareness of present-moment experience in daily life (Baer et al., 2004, p. 192). The MAAS was used because it is one of the most popular self-reported measures, the psychometric properties have been extensively studied, and research supports consistency and test-retest reliability as well as construct and criterion validity (Chiesi et al., 2017). Ryan and Brown (2003) explained that studies have shown that the MAAS measures a unique quality of consciousness that is related to a variety of self-regulation and well-being constructs. These questions can be found in Appendix A.

Research Sample

A total of ten participants initially made up the sample, with two people dropping out of the study throughout the program due to personal reasons. All participants were female and worked in various departments of a midsize organization in North Vancouver, Canada. The participants had various levels of experience with mindfulness with five stating they were new to mindfulness and with three stating they had some experience with mindfulness. The demographics of the eight participants showed five participants were between the age of 21-30 years old and three participants were between the age of 31-40 years old. The mean age of the participants was 30.38.

The study received approval from Pepperdine's Institutional Review Board (IRB) Center.

Recruitment

An email went out to 48 employees of a high-performance outdoor equipment company in December 2017. Employees of the organization were given six weeks to respond to the email if they were interested in participating. Ten participants responded and began the program. Two participants dropped out part way through the study. The program launched on February 7th, 2018 and ran until April 4th, 2018 for a total of eight weeks.

Procedures

Whil, the mindfulness platform used for this study, consisted of guided meditations instructed by trained mindfulness instructors. Participants were able to access all sessions through an online platform using the Whil application on their phone or through the web portal on their computer. The participants were asked to complete specifically assigned programs including Mindfulness 101, Developing a World View, Clear your Mind, and Overcome Mental Hurdles. Mindfulness 101 is a starter program that helped participants learn the basics of a mindfulness practice. Developing a World View explores how ethics relate to living a courageous and mindful life. Clear your Mind is a program designed for participants to see what's going on more clearly and better control the outcome. Overcome Mental Hurdles supported participants to overcome hindrances in meditation to create a clearer and calmer mind. Each program had a number of sessions available ranging from five to seven. These programs were chosen because of the focus on mindfulness awareness intentionality and building attentional skills given throughout the sessions, which connected to the purpose of this study. Although Whil offers many different session lengths, participants were asked to choose

the ten-minute meditation session option when completing the assigned programs. The participants were able to practice at any time of the day and any day(s) of the week as long as they aimed to complete the assigned programs. With the assigned programs, participants completed two or three ten-minute meditation practices a day.

The sessions accessed through the Whil platform directed participants through mindfulness activities, including information about mindfulness, breathing techniques and guided meditations. For instance, the Mindfulness 101 program offered sessions on setting intentions, mindfulness of breath and sensing the body amongst other sessions. Appendix C provides more information on the Whil content.

Data Collection

Data collection was performed through the pre and post mindfulness questionnaire (MAAS) as well as pre and post and weekly self-attention questionnaires. Additionally, information was pulled from Whil about the frequency of practice, completion of assigned mindfulness programs, and duration of practice by participants. Information was also gathered from dialogue with participants at focus groups around the experience participants had of doing mindfulness practices weekly, thoughts of mindfulness, and any noticeable changes.

Measures

Mindfulness Attention Awareness Scale (MAAS): The MAAS is a questionnaire consisting of 15 sentences that need to be answered on a scale of 1 (almost always) to 6 (almost never). It is a 15-item instrument measuring attention to and awareness of present-moment experience in daily life (Baer et al., 2004, p. 192). A mean of the 15

items is taken and higher scores reflect higher levels of dispositional mindfulness. The MAAS was used because it is one of the most popular self-reported measures, the psychometric properties have been extensively studied, and research supports consistency and test-retest reliability as well as construct and criterion validity (Chiesi et al., 2017).

Attention Scale: A self-report attention scale was created because measurement options did not exist in a currently validated scale to track these attention items. The self-reported attention scale was created as a questionnaire that consisted of three questions that were sent to participants each week. The three questions were as follows:

1. In the past week while at work I experienced mind wandering (coded as MW).
2. In the past week while at work I was able to effectively identify and disengage from distractions (coded as D).
3. In the past week while at work I found attention required more than average effort (coded as A).

Each question was answered using a 5-point Likert scale response: very frequently (5) to never (1). At the end of the program each response was coded with a number representing the different responses. This scale was created based on the three qualities of attention presented in Good et al. (2016): stability, control, and efficiency. First, stability looks at the amount of mind wandering and is measured in question 1. Second, control looks at selecting appropriate targets with many potential targets and was measured in question 2. Last, efficiency looks at the allocation of attentional resources and was measured in question 3 (Good et al., 2016). See Appendix B.

Data Analysis

Both quantitative and qualitative methods were used for this study to create a mixed-methods study.

The quantitative data was conducted by administering a paired sample t-test to compare the means of the pre-MAAS and post MAAS questionnaire. Similarly, the attention survey pre-mean was compared to the average of weeks 1-8 of the attention survey using a paired samples t-test.

The qualitative data consists of questions asked to participants during the focus group. This was conducted in an informal setting to create an opportunity for participants to dialogue on their experiences. The data is further recorded in chapter four to capture the comments made by participants.

The questions asked to participants in the focus group were:

1. What was your experience of having a regular mindfulness practice?
2. What is the biggest change you've experienced?
3. What are you taking away from doing an 8-week mindfulness program?
4. What new insights do you have regarding your attention in the workplace?

These questions were created for the purpose of the focus group to gain greater insight into the experience participants had and to see if they had any insights or new awareness that resulted from participating in a mindfulness program.

Summary

In summary, the intention of this approach is to test the hypothesis that participation in an online mindfulness program for 8 weeks will have a positive impact on

attention and mindfulness level of employees within an organization. The mixed methods approach allows for a deeper understanding behind the results of the data.

Chapter 4: Results

This chapter reports the results of the study. This study used a mixed methods approach. The results are organized in the following order:

- Mindfulness Data
- Attention Data
- Focus Group Experience

Mindfulness Data

It was recommended that participants work through four programs from the Whil system, all programs that are designed to enhance attention and mindfulness. At the end of the eight weeks data showed that participants worked through some of those recommended, while also adding in other programs. Although participants did not get through all the assigned programs, participants completed an average of 0.38 to 6.38 sessions per week. Table 1 shows the average per week for all eight participants:

Table 1

Participant Participation Averages

Participant Number	Average Per Week
2	3.13
3	2.50
4	4.50
5	0.75
6	3.75
7	6.38
8	3.75
9	0.38

Participants were asked to complete 10-minute meditation sessions. Participants were instructed that they could do more, just not less, per session. This worked out to participants doing 10-minute meditation sessions on average 2-3 times per week. Tables 2 and 3 show a summary of a few descriptive statistics related to the weekly meditation practice. Note, active users are defined by anyone who has completed at least one session in a given month.

Table 2

Total Minutes Practiced by Year and Month

Year and Month	Total Minutes Practiced
February 2018	526
March 2018	298
*April 2018	40

Table 3

Total Active Users by Year and Month

Year and Month	Total Active Users
February 2018	8
March 2018	6
*April 2018	3

Note: *April was a partial month due to the eight-week program length's ending date of April 4th.

Mindfulness Attention Awareness Scale (MAAS)

Each participant was asked to complete the MAAS survey prior to participation in the study (pre-MAAS) and the same survey after, sent within two days of the last day of the program (post-MAAS).

This survey shows increases or decreases in mindfulness levels. An independent-sample t-test was conducted on the pre and post MAAS scores for all eight participants.

There was a significant difference in the scores for pre-mindfulness level ($M=3.15$,

$SD=0.53$) and post-mindfulness levels ($M=3.94$, $SD=0.39$) conditions; $t(7) = 8.14$, $p < 0.000$. This means hypothesis 1 was supported.

It should be mentioned that normative information on the trait MAAS has been validated in two studies (Brown & Ryan, 2003; Carlson & Brown, 2005). In those studies, the mean baseline level of pre-mindfulness was shown to be 4.20. In this study, it was 3.15.

Attention Data

Each participant was asked to answer the pre-program survey and after each week's mindfulness practice. The data was then analyzed using an independent samples t-test to compare the pre and post results based on the mean of participant responses for each attention question.

An independent-samples t-test was conducted on each attention question to compare attention levels pre and post program for all eight participants of the mindfulness program. The results showed an increase in mind wandering when comparing baseline ($M=1.88$, $SD=0.64$) to post-mind wandering levels ($M=2.69$, $SD=0.45$), $t(7) = 3.22$, $p < 0.007$. This means hypothesis 2 was supported.

There was an increase in attention when comparing baseline ($M=2.38$, $SD=0.74$) to post-attention levels ($M=3.06$, $SD=0.48$), $t(7) = 2.40$, $p < 0.02$. This means hypothesis 3 was supported.

There was no significant ability to disengage from distraction shown when comparing baseline ($M=3.00$, $SD=0.76$) to post-distraction levels ($M=2.72$, $SD=0.34$), $t(7) = 1.356$, $p < 0.11$. This means hypothesis 4 was not supported.

Some participants were more active than others. The determination of how active participants were is illustrated by looking at those who completed all attention surveys versus those who did not. Below is the data for only those four participants who are considered active when reporting attention levels. The other four participants have incomplete data that provides inconsistent results.

Figures 1, 2, and 3 represent the data that was collected on attention levels for those participants who completed the attention survey all nine times. The three sets of graphs represent each scale of attention: Mind Wandering (MW), Distractions (D) and Attention (A). The Y axis represents participant ratings of 1 through 5 and the X axis is time with 1 representing the baseline (or pre-mean data), 2 representing week 1, 3 representing week 2 and through 9 which represents week 8. Four out of the eight participants completed every week's attention data which can be seen in Table 4.

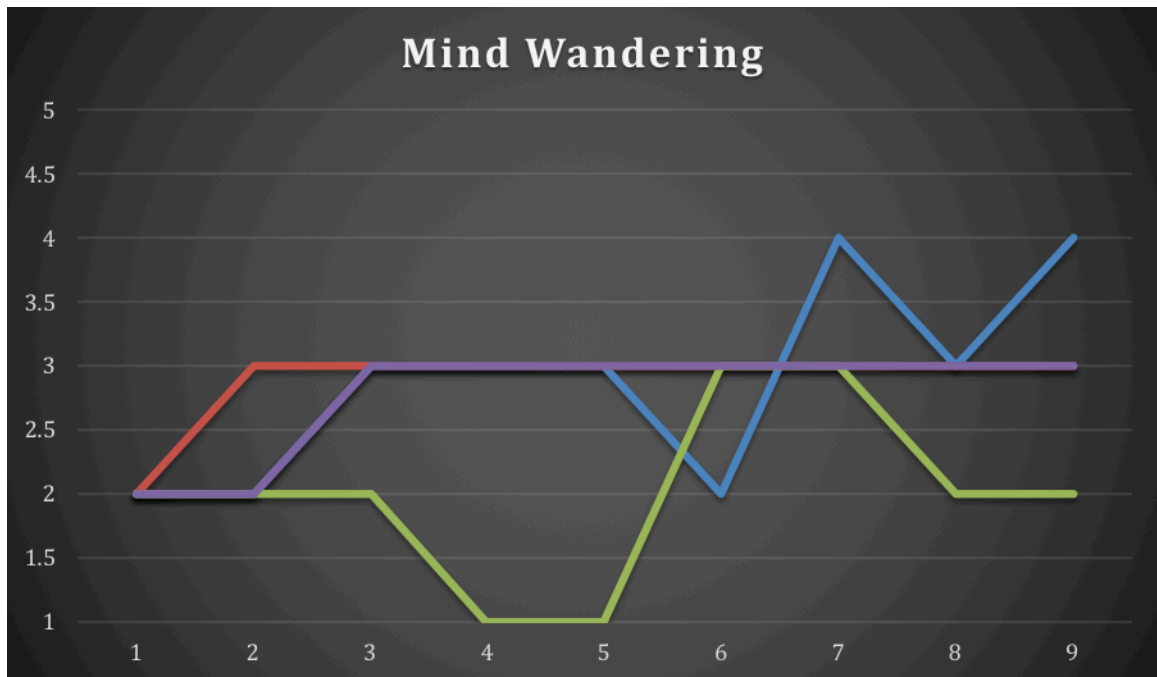
Table 4

Participant Average Participation

Participant Number	Average Per Week	Color in Figures
2	3.13	NA
3	2.50	Blue
4	4.50	Red
5	0.75	NA
6	3.75	Green
7	6.38	Purple
8	3.75	NA
9	0.38	NA

Figure 1

Mind Wandering Results for 4 Active Participants

**Figure 2**

Distraction Results for 4 Active Participants

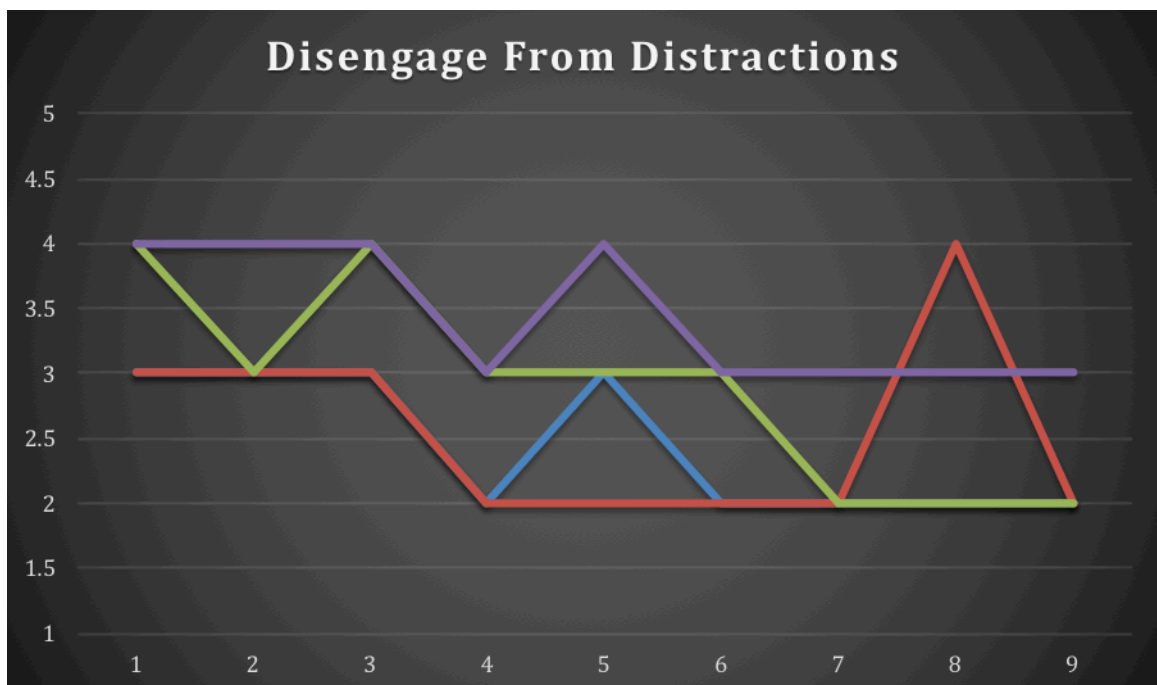
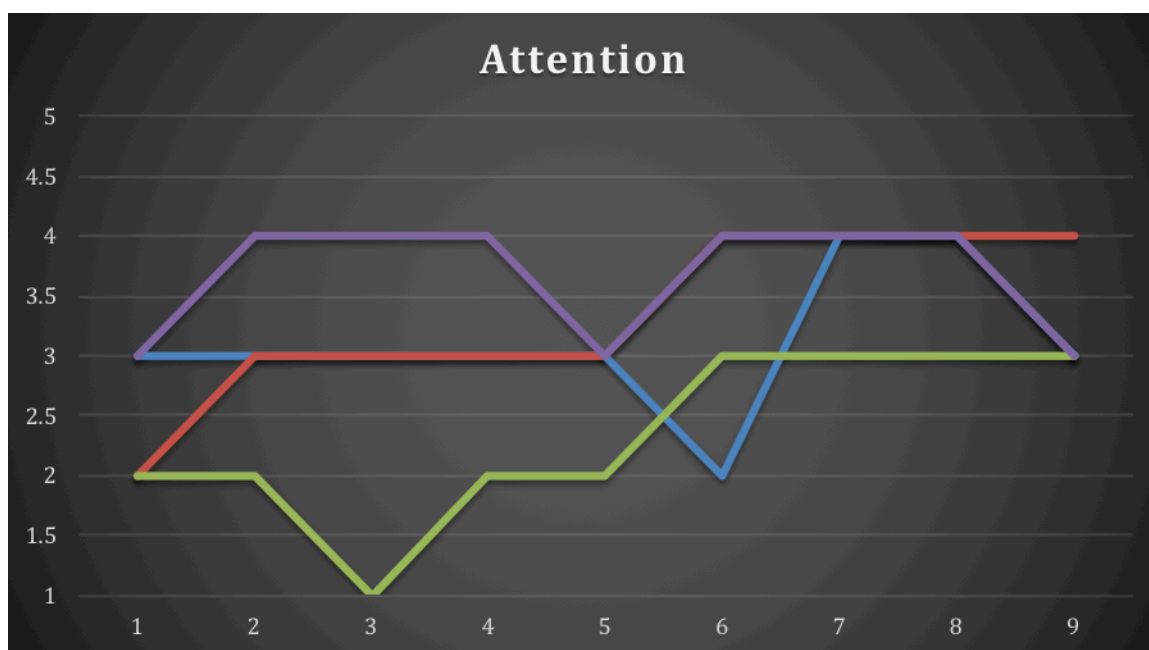


Figure 3
Attention Results for 4 Active Participants



Focus Group

A focus group was conducted on April 20th, 2018 with the participants from the study. Five of the eight participants were able to attend.

The focus group design consisted of a brief overview of the results of the mindfulness work, both the attention and mindfulness data. It was made clear to participants that the results seem to indicate mindfulness did increase as a result of the intervention and two out of the three attention sub scales increased. However, with such a small sample size the results of the analysis are more to show positive trends in the right direction than confirmed positive results of mindfulness on attention.

As a full group, participants were asked the following four questions to consider as a final reflection.

1. What was your experience of having a regular mindfulness practice?

2. What is the biggest change you've experienced?
3. What are you taking away from doing an eight-week mindfulness program?
4. What new insights do you have regarding your attention in the workplace?

Themes and exemplars from question 1 can be seen in Table 5.

Table 5

Question 1- What was your experience of having a regular mindfulness practice?

Theme	Exemplar Quote	# of Participant Comments
Perspectives	"Fun to see other ideas and approaches."	3
Consistency	"Liked having a regular practice."	2
Accountability	"Without doing formal program wouldn't have done it as frequently."	3

While certain themes were discovered across multiple participants, a few outliers were noticed as well. For example, one participant stated, "Once I buckled down to do it, it was lovely." Another participant said, "I didn't feel comfortable doing it at work for the most part."

Question 2 sought to answer the biggest change experienced by participants. Largely, participants commented on sleeping a lot better as a major change experienced: "Sleep a lot better (tend to do them before going to sleep because tend to do heaviest thinking before bed); went to sleep straight away when did it before bed; way less anxiety around judging certain feelings and emotions (to know there are programs that exist helps to know you are normal); felt more calm, relaxed and less anxious; brought awareness to feelings; not preventative; recognizing emotions when happening; concepts around how to deal with different types of distractions helpful to other meditation practices."

Question 3 sought to understand what participants were taking away from the program and those results can be seen in Table 7.

Table 6

Question 3- What are you taking away from doing an eight-week mindfulness program?

Theme	Exemplar Quote	# of Participant Comments
Awareness	“A lot more awareness around certain situations and how I feel at work (and this transfers to everyday life as well).”	2
Continuity	“To continue to practicing.”	3
Learning	“It changed my energy etc...when needed paired with an understanding of how and why it works (i.e., breathing exercises / naming thoughts).”	4

Question 4 sought to understand what insights participants took regarding attention in the workplace and those results can be seen in Table 8.

Table 7

Question 4- What new insights do you have regarding your attention in the workplace?

Theme	Exemplar Quote	# of Participant Comments
Attention	“Noticed a big difference in now allowing things to take attention in conversation.”	5
Awareness	“More aware of when my attention is wandering and whilst I do not always act on it at least I have some techniques to be able to change things, which seems like a big step forward to me.”	2

While certain themes were discovered across multiple participants, one outlier was noticed as well. One participant stated, “Maybe even 8 weeks is not enough.”

Of those participants who were unavailable to attend the focus group, I received reflections from some of them on their experience of what worked and didn’t work in terms of committing to a mindfulness practice. One participant, for example, commented on their experience of doing a mindfulness program stating:

I sometimes have a block when it comes to guided meditations and have better success when I set my own intention for meditation. It became apparent that if I was struggling with a particular matter that day (i.e. on vacation with my family, I get stressed out when everyone wants to do their own thing and I’m trying to herd cats), I didn’t want to just work on my breathing. Because I was anxious to work on, well, my anxiety or stress, I made it harder for myself to be in the present to do the Whil session.

Table 9 shows the overall challenges and solutions that came as a result of the study.

Table 8

Challenges and Solutions

Challenge Stated	Suggested Solution
Block when it comes to guided meditation	Set own intentionality
When struggling with matters in life	Work on more than just breathing
Anxious to work on anxiety or stress	Come back to present moment practice

Although this is represented in a small sample size of eight participants, with four completing the entire study, there is still an argument that a mindfulness program can

impact both mindfulness and attention levels. Participants shared comments around positive impacts of participating in an online mindfulness program and the data shows some support for the increased levels.

Chapter 5: Discussion

The purpose of this study was to look at the impact of an online mindfulness program on employee attention and mindfulness levels in the workplace. This chapter reviews the study conclusions and interpretations, recommendations and implications, limitations, and directions for future research. This chapter concludes with a summary of the learning.

Conclusions and Interpretations

Conclusion 1: This study was an example of how online mindfulness programs can impact participants and increase mindfulness levels. Specifically, this program shows tentative support for the impact of an online mindfulness program. This information is important because it means that organizations may be able to implement mindfulness programs that they hope improve mindfulness, attention and other workplace outcomes. Specifically, there is an opportunity to implement flexible format programs that do not require regular commitment each day for eight weeks and there may be benefits.

Conclusion 2: This study shows some evidence that mindfulness training is able to support an increase in employee attention within an organization. This suggests that the use of mindfulness techniques inside an organization to enhance attention may be beneficial. This is important information because it means organizations have the ability to assist employees with other work-related well-being elements with the potential to further impact things such as stress. Mindfulness-based interventions have been of increasing interest as an accessible option for a variety of psychological symptoms, (Hoge et al., 2013). After all, “Mindfulness is theorized to affect human functioning primarily through attention” (Good et al., 2016, p. 5).

Although the results show increased levels of mindfulness and attention levels as a result of the intervention, due to the extremely small sample size the results of the analysis provide more of a positive trend in the right direction that would need to be substantiated by recruiting additional participants to do the same mindfulness training. The findings show that it may be possible to increase sub scales of attention and mindfulness levels. Future research may consider creating a similar study with a larger sample size to further discover the impact online mindfulness interventions can have on attention levels in a workplace.

After reviewing the mindfulness data, further interpretations can be drawn around what the findings from this study show. With the pre and post mindfulness levels increasing, it may be possible that participants came into the program with lower mindfulness levels. This is further suggested through the normative information on the trait MAAS that has been validated in two studies (Brown & Ryan, 2003; Carlson & Brown, 2005) showing the mean baseline level of pre-mindfulness at 4.20, while this study shows 3.15. This may also be a result of a small sample size.

After reviewing the attention data, further interpretations can also be drawn. It is important to consider that the sub scales of attention are based on self ratings and thus hypothesis 2, 3 and 4 are looking at the self awareness of mind wandering, attention, and distraction. Although this data is still supportive of showing trends for the purpose of this study, without neural maps it is hard to know if, for example, the mind is wandering or not. Hypothesis 2 expected an increase in mind wandering and was supported. As mindfulness training teaches the brain to recognize when mind wandering is occurring, it is creating greater levels of self-awareness to identify and reorient when distracted. This

understanding of how mindfulness works supports the reason why hypothesis 2 was aiming to increase mind wandering and why the favourable results are valuable to mindfulness research. Hypothesis 3 presumed an increase in attention and was supported. This is likely because of the focus on this element in both the overall study and specific guided meditations. Hypothesis 4 stated that distraction levels would decrease, however there was no significance shown with the ability to disengage from distraction and therefore this was not supported. This may be due to the fact that participants' distraction levels were based on each individual's circumstances and work activities. As these could be quite varied and different in what was being compared against, it may have impacted the results.

Limitations

This study had a small sample size of eight volunteers participating in the mindfulness program. Specifically, with only four participants who reached the end of the program, it limits the conclusions that can be drawn from the research about both mindfulness and attention. With all ten original participants coming from one organization with some already established wellness practices, it may have created a biased sample. The absence of a control group makes it difficult to assert that the study results are solely due to participation in the program. As well, these participants had an expressed interest in participating in a mindfulness program, which potentially had an impact on their perceptions of the benefits of the practices. Additionally, the data showing the total number of minutes practiced by participant by month (Table 2) shows a decline in participation level. One of the challenges in these types of programs may be showing up in this study around consistent engagement levels and active users. Given

these factors it is difficult to generalize from this study about the impact of mindfulness in organizations and on attention levels.

Directions for Additional Research

Due to the ever-increasing research that is being generated to date regarding the effectiveness of mindfulness to support work-related outcomes, it is important to find ways to bring mindfulness into the workplace. Specifically, finding ways to support workplace functioning such as attention through the use of mindfulness would be valuable to organizations. Ideally, I would recommend shorter term flexible format mindfulness programs be considered in organizations. Short-term programs may be piloted, tested, adopted, or considered in some combination of these as a way to support employees and thus organizational health. This study showcased the value in having a program set up for employees to follow as it created a structure and ease, as well as a learning opportunity for participants. I would therefore recommend some direction given to participants in future mindfulness programs conducted within organizations. The ease of use with practice options available any time of day and from any location contributed to the comments from participants saying they were able to continue to practice regardless of other pressures. From this feedback point, I would be in support of seeing organizations offer mindfulness options that can be conducted in a space most conducive to individual employee preferences. As shown in the data around participation levels, participants struggled to continue to practice over a longer duration. With research showing that short-term programs can still be effective (Aikens et al., 2014), I would suggest a modified length that is less than 8 weeks, while still maintaining two to three practices per week. Additionally, from this study it appears that even ten minutes of

practice for two to three weeks can produce positive outcomes and therefore I would favour shorter practice sessions to encourage more regular and consistent participation. With participants engaging in shorter practices twice a week, longer studies may be possible while still maintaining participation levels. As well, with a variety of formats and options offered within an organization, this may also increase consistency. These are areas that may be interesting to explore in future research.

Conclusion

While mindfulness work is becoming more widely studied, there is still continued research to be done around the impact it has on workplace functioning, especially that of attention. This study shows insight into how mindfulness work can support employee attention. With a larger sample size, the hope is that similar results would ensure showing supportive trends towards how mindfulness can support attention. With this research, there is some support for mindfulness as a way to support employee well-being and workplace outcomes. The results of Aikens et al. (2014) looked at a mindfulness program modified in length, content and messaging to fit workplace needs, while also being delivered through an online platform suggested that mindfulness training is “more than just an effective stress management solution but an efficacious intervention for the development of positive organizational behavior” (p. 730). As continued research is done in the field of mindfulness it will be interesting to see how studies link organizational behaviour to employee well-being factors such as increased attention levels.

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Appendix A: MAAS Questionnaire

Day-to-Day Experiences

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be. Please treat each item separately from every other item.

1	2	3	4	5	6
Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never

I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5	6
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1	2	3	4	5	6
I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1	2	3	4	5	6
I forget a person's name almost as soon as I've been told it for the first time.	1	2	3	4	5	6
It seems I am "running on automatic," without much awareness of what I'm doing.	1	2	3	4	5	6
I rush through activities without being really attentive to them.	1	2	3	4	5	6
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1	2	3	4	5	6
I do jobs or tasks automatically, without being aware of what I'm doing.	1	2	3	4	5	6
I find myself listening to someone with one ear, doing something else at the same time.	1	2	3	4	5	6

1 Almost Always	2 Very Frequently	3 Somewhat Frequently	4 Somewhat Infrequently	5 Very Infrequently	6 Almost Never				
I drive places on 'automatic pilot' and then wonder why I went there.									
				1	2	3	4	5	6
I find myself preoccupied with the future or the past.									
				1	2	3	4	5	6
I find myself doing things without paying attention.									
				1	2	3	4	5	6
I snack without being aware that I'm eating.									
				1	2	3	4	5	6

To score this scale, simply compute a mean of the 15 items. Higher scores reflect higher levels of dispositional mindfulness.

Appendix B: Attention Measurement Questions

Attention Measurement Questions

1. In the past week while at work I experienced mind wandering.
2. In the past week while at work I was able to effectively identify and disengage from distractions.
3. In the past week while at work I found attention required more than average effort.

Responses:

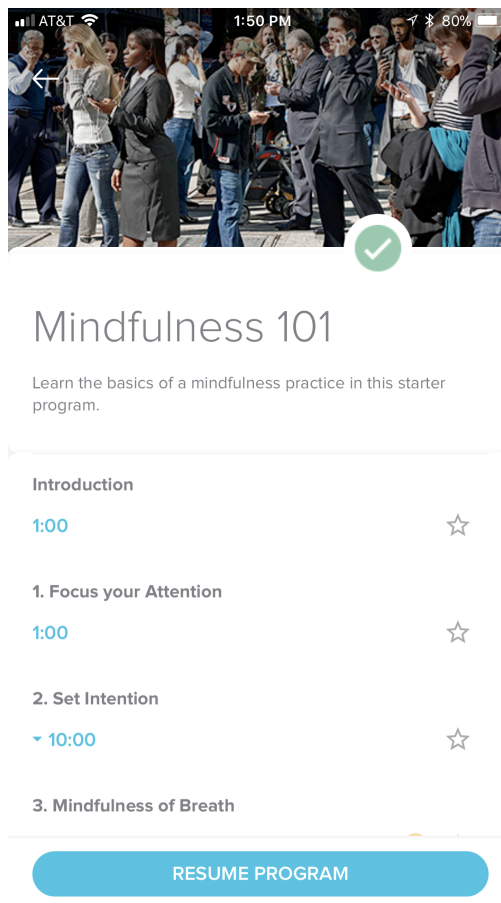
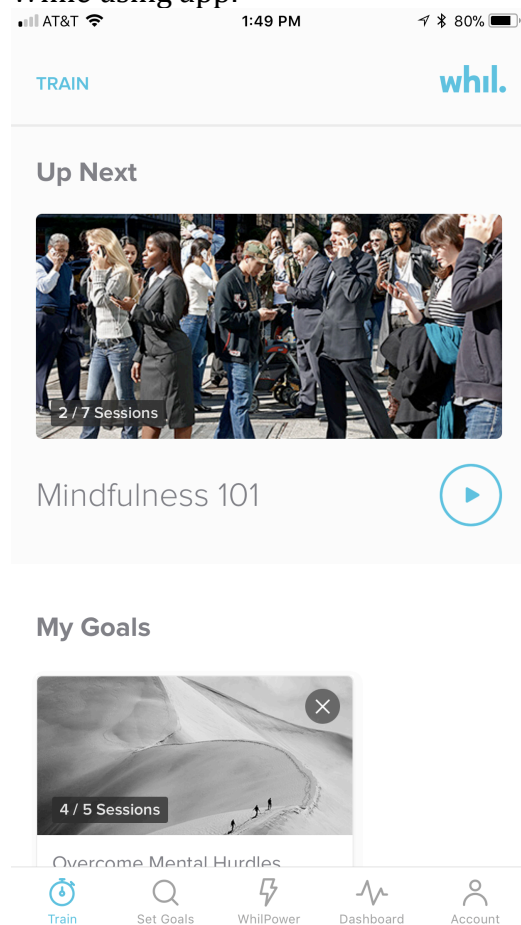
- Very Frequently
- Frequently
- Occasionally
- Rarely
- Never

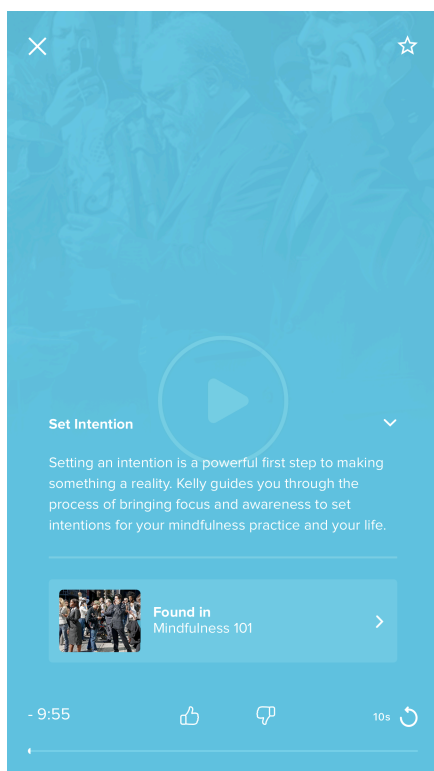
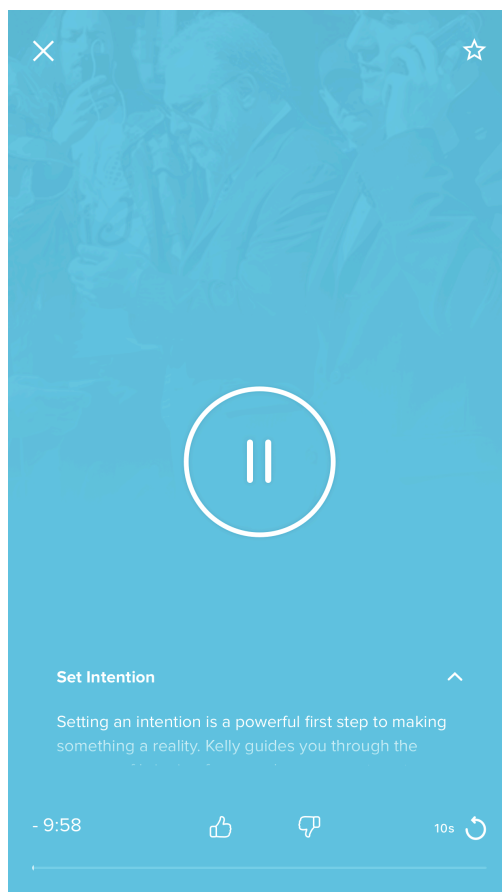
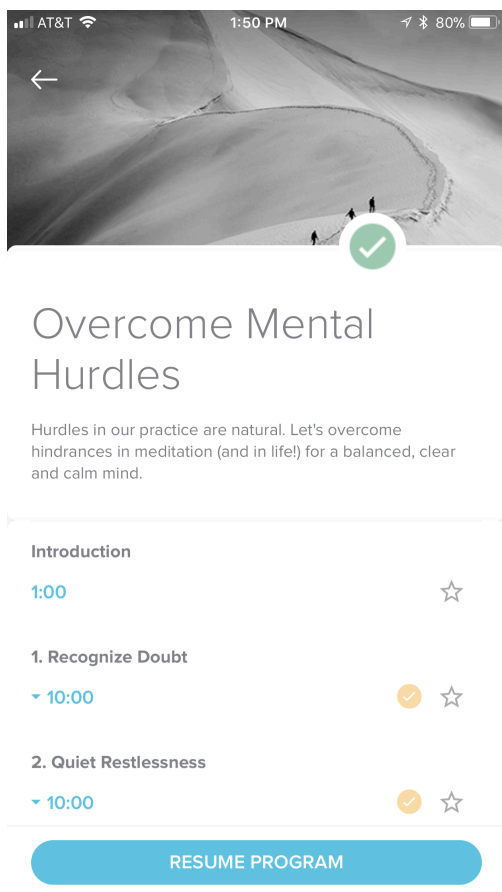
Appendix C: Whil Content

Whil Content

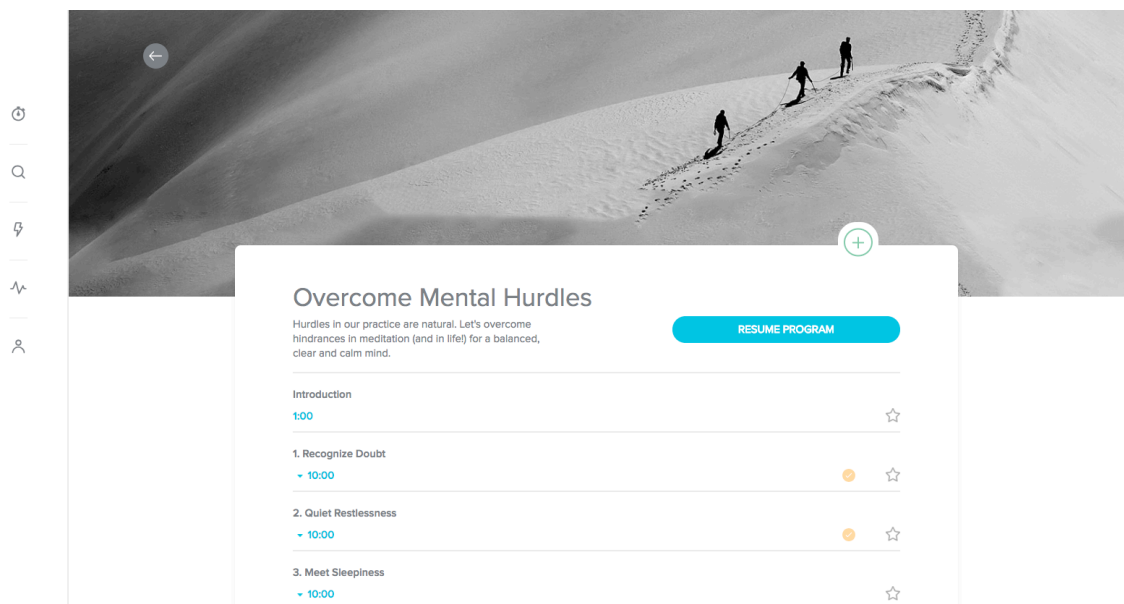
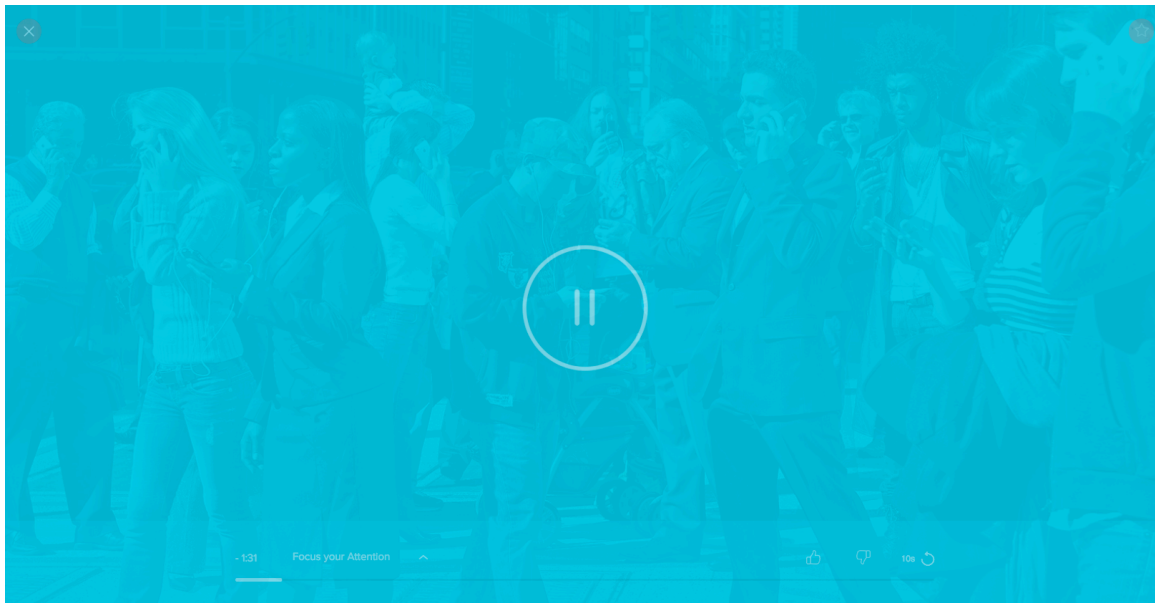
Below, please see pictures to show what participants experienced while using the Whil platform.

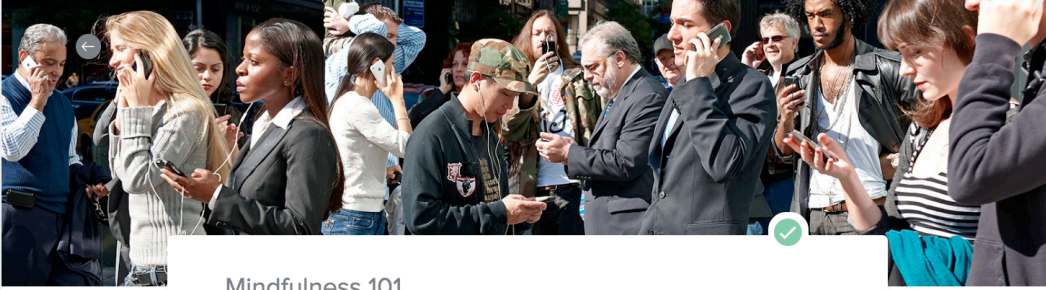
While using app:





While in program:





Mindfulness 101

Learn the basics of a mindfulness practice in this starter program.

[RESUME PROGRAM](#)

Introduction

1:00

☆

1. Focus your Attention

1:00

☆

2. Set Intention

▼ 10:00

☆

3. Mindfulness of Breath

▼ 10:00

●

☆

Mindfulness 101

Learn the basics of a mindfulness practice in this starter program.

[RESUME PROGRAM](#)

Introduction

1:00



1. Focus your Attention

1:00



SET GOALS

whil.

Basic Training

Stress

Emotions

Performance

Relationships

Physical Health

Emotional Intelligence

Career

SUBJECT

TEACHER

Mindfulness Basic Training

2 / 7 Sessions

Mindfulness 101

✓

Extended Mindfulness

2 / 10 Sessions

Learn the Basics with M...

+

7 Sessions

Basic Training with Kelly

+

6 Sessions

Basic Training with Pascal

+

9 Sessions

Extend Mindfulness

+