

EXAMINING A WEB-BASED MINDFULNESS  
INTERVENTION ON UNIVERSITY STUDENTS'  
WELL-BEING DURING COVID-19

by

Victoria Lecker

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**Supervisor:** Gabriela I. Tymowski-Gionet, PhD, Kinesiology

**Examining Board:** Lisa Keeping-Burke, PhD, Nursing, Chair  
William Montelpare, PhD, Applied Human Sciences  
Stephan Dombrowski, PhD, Kinesiology

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## **Abstract**

Student mental health and well-being services are an increasing concern in higher education. This exploratory study examined students' experiences in a four-week online mindfulness program. Four brief mindfulness-based practices were introduced: breathing and movement meditation, mindful eating, body scan, and loving-kindness meditation. Fourteen participants completed online questionnaires to explore their experiences of mindfulness and how this intervention impacted their well-being. Results of thematic analyses suggest that there were variations in participants' experiences and participants' preferred mindfulness sessions. The sample consisted of 14 participants. Seven participants withdrew from the study while seven participants persisted throughout the intervention. Twelve participants reported beneficial outcomes. Findings suggest that the participants who completed the intervention reported an improvement in their ability to cope with stress, negative emotions and increased their self-awareness. These findings are congruent with those of other online interventions, and the intervention served as an effective foundation for exposing students to mindfulness. This study has implications for cost-effective mental health care delivery, given the current shortages in resources on university campuses and in communities throughout Canada.

## **Dedication**

In memory of my loving father, Joel Lecker, and all those who have suffered or are currently suffering due to the significant gaps in the mental healthcare system.

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## **Chapter One: Introduction**

Canadian university students have faced increased mental health challenges as they adapt to the various consequences of the COVID-19 pandemic (Treleaven, 2020; Sutter, 2020; Hamza et al., 2020). The pandemic is adding more pressure to university campuses' mental health services which were already oversubscribed before the pandemic (Treleaven, 2020; Sutter, 2020; Hamza et al., 2020). There is a need to improve the response to care and services provided at meeting students' mental health needs, as most students attempt to cope by being silent, and are reluctant to seek help (Digal & Gagnon, 2020; Epstein et al., 2019; Srivastava & Srivastava, 2019). Students' approach to coping has significant effects on their mental health because by age 25, approximately 20% of Canadians will have developed a mental illness, and in turn 86% of students with mental health problems withdraw from university before completion (Digal & Gagnon, 2020; Srivastava & Srivastava, 2019). Hospital emergency visits related to mental health concerns for Canadians aged five to twenty-four increased by 75% from 2007-2017 (Treleaven, 2020). Hamza and colleagues found that on a sample of 773 university students in Toronto, students with and without pre-existing mental health conditions are both facing different poor mental health outcomes and require ongoing support. According to the Canadian Alliance of Student Associations, over 70% of post-secondary respondents reported they have felt stressed, anxious, or isolated due to the pandemic and 82% reported worry about their futures beyond the pandemic ("Students excited," 2020).

While campuses across Canada create inventive solutions to address the increasing demand for mental health services to support students, the programs and services implemented are insufficient (Cunningham & Duffy, 2019; De Somma et al.,

2017; Ng & Padjen, 2019; Vallianatos et al., 2019). For example, the University of Alberta introduced ACCESS Open Minds in 2017; however, not all students are cared for consistently during the most critical periods in the semester (Vallianatos et al., 2019). Some universities in Ontario have also carried out innovative solutions; however, such services do not meet students' needs for all-inclusive and flexible services (Ng & Padjen, 2019). Despite Canadian universities' efforts to introduce and expand services, they often have inadequate financial resources, and their mental health programs do not provide sustainable and long-term solutions (Ng & Padjen, 2019; Cunningham & Duffy, 2019). Sixty-eight out of 180 institutions in Canada were lacking policies regarding mental health services research which suggests urgency of the situation (De Somma et al., 2017).

As a result of students' unmet mental health needs, faculty members – especially female faculty often feel pressured to tend to students' emotional needs (Dengate et al., 2019). University students tend to rely on informal coping mechanisms for their mental health and well-being, because they prefer to be self-reliant (Digal & Gagnon, 2020; Srivastava & Srivastava, 2019). Such informal coping mechanisms may include the use and misuse of alcohol, cannabis, and study drugs (Abelman, 2017; Epstein et al., 2019; Mader et al., 2019; Reducing alcohol harms., 2012; Smith et al., 2019; Thompson et al., 2019; Willcott, 2018). While using such substances may induce short-term relief, these substances are linked to increased mental health challenges, damage to students' social connections, unsafe university environments and increases in incidences of sexual assault and victimization (McDougall et al., 2019; "Reducing alcohol harms," 2012; Thompson et al., 2019). While all students are exposed to several life stressors, student athletes, LGBTQ+ students, students of sexual abuse and ethnic minorities exhibit greater rates of

mental health challenges (Colvin et al., 2019; McDougall et al., 2019; Monaghan et al., 2019; Srivastava & Srivastava, 2019; Sullivan et al., 2019).

Mindfulness practices are reported to increase the ability of individuals to cope with stress and may alleviate the pressure placed on mental health services (El Morr et al., 2020; Gardner & Kerridge, 2019; Ingram et al., 2019; Miller et al., 2019; Palmer & Rodger, 2009; Schwind et al., 2017; Tufford et al., 2019). The practices cultivated from a mindfulness intervention may replace the informal and often unhealthy coping mechanisms mentioned above (Palmer & Rodger, 2009). A mindfulness approach may also foster a less stigmatizing university environment regarding mental health (Sandhu HS, Arora A, & Brasch J, 2019; Schwind et al., 2017). Past in-person mindfulness interventions for university students have all exhibited positive benefits without harming students in any way (El Morr et al., 2020; Gardner & Kerridge, 2019; Ingram et al., 2019; Miller et al., 2019; Palmer & Rodger, 2009; Schwind et al., 2017; Tufford et al., 2019). Given the beneficial outcomes of past mindfulness studies, this study consisted of a mindfulness web-based intervention, in an effort to provide students with a flexible, sustainable, and holistic approach that is inclusive to all students (Ingram et al., 2019).

This study was of interest to me because mindfulness is a feasible, inclusive, and practical practice for stress management and the promotion of well-being that could have beneficial outcomes on the student population. Therefore, creating an online Mindfulness intervention was an effort to provide a platform to introduce university students to mindfulness practices in the hope for greatly impacting their quality of life.

Given that students' well-being is increasingly under strain, and campus and off-campus resources are under strain and cannot meet capacity, it is important to explore

possible solutions to increase and maintain the well-being of students. Mindfulness is a possible solution because research shows that it has been granted as highly effective and helpful on individuals' well-being. In addition, given the COVID-19 pandemic, which has increased students' stress and decreased the necessary resources to meet their needs, an innovative online intervention may be helpful. The literature review shows in-person mindfulness interventions have been granted as highly helpful, so it is important to further consider if an online mindfulness intervention may be an effective solution for students. This thesis will examine the effects of a four-week online mindfulness intervention, which consists of four online guided mindfulness sessions. Chapter two will discuss the literature review, chapter three will discuss the research methods, chapter four will discuss the research findings, chapter five will provide a discussion of the findings, and chapter six will provide a conclusion, including the recommendations. The following chapter will begin by discussing the literature review findings.

## **Chapter Two: Literature Review**

This chapter explores the effects of the COVID-19 pandemic on students' well-being, the status of student mental health services, including barriers to such services, and how these services impact university faculty. This section also reveals students preferred coping mechanisms, and the student subgroups whose well-being is most affected at university.

### **2.1 The Impact of Covid-19 on Canadian University Students**

University students are facing mental health challenges as they adjust to remote learning, employment uncertainty, the potential severance of their support networks, social isolation, their parents facing unemployment, and the financial concerns of paying rent, utility bills, and tuition (Treleavan, 2020; Sutter, 2020). University students across Canada are experiencing common concerns of lengthy wait times to see a counsellor, mandated leave policies, mandatory sick notes, overall inaccessible and inadequate campus support, and inadequate representation in decision-making related to mental health services (Treleavan, 2020). The pandemic is only adding more pressure to campus mental health services which are already inadequate, as emergency visits related to mental health concerns for Canadians ages 5 to 24 increased by 75% from 2007-2017 (Treleavan, 2020). Moreover, Hamza and colleagues (2020) found that on a sample of 773 university students in Toronto, those university students without pre-existing mental health concerns were consistently and more negatively impacted by the pandemic than students with pre-existing mental health conditions. Hamza and colleagues suggested that students with pre-existing mental health concerns were more likely to have the same or better social circumstances pre-pandemic than they did before and were in a better

position to weather the pandemic. Further, university students without pre-existing conditions could end up with greater social isolation, which was a significant contributor to their poor mental health outcomes (Hamza et al., 2020). Their findings suggested that universities will need to support the ongoing needs of students with pre-existing mental health challenges and develop early intervention and prevention programming for students who are struggling during the pandemic (Hamza et al., 2020).

## **2.2 Demand on Health Care Services**

In Epstein and colleagues' (2019) scoping review of Canadian postsecondary students' mental health, about 70% of the articles revealed that university students who experienced mental health-illness in health and allied healthcare programs coped by being silent, and 35% of studies described how students felt a lack of support that affected their well-being. Wiens and colleagues (2020) reported, while the current student mental health climate does not imply the emergence of a mental health crisis among postsecondary students, but rather highlighted the need for improved response to handle mental health issues among both postsecondary and nonstudent populations. These findings suggest that mental health services are insufficient in assisting student needs and that students are reluctant to seek help for various reasons, such as feelings of stigmatization (Epstein et al., 2019). Even when students do overcome feelings of stigma to attend mental health services, many universities are lacking services aimed at diagnosis, ongoing therapy, and referral or follow up to appropriate in-/off-campus services (Epstein et al., 2019). Therefore, students have a preference for informal help seeking over formal sources of help because of the associated stigma and their desire to be self-reliant (Digal & Gagnon, 2020; Srivastava & Srivastava, 2019). However,

university campuses continue to create inventive solutions to address the lack of services, and this will be addressed below.

Due to the increasing demands on mental health services are increasing, the University of Alberta introduced a program entitled: ACCESS Open Minds (ACCESS OM UA) which focused on improving mental health services for first year students. ACCESS OM UA is focused on “supporting students regardless of where they seek help first and then following this through to early identification and referral to mental health services when needed” (Vallianatos et al., 2019, p. 58). ACCESS OM UA is equally focused on prioritizing the most serious cases instead of a standard waitlist, improving early intervention and enhancing rapid access to appropriate care as well as fostering a holistic approach to mental health (Vallianatos et al., 2019). Many university students are often placed on waiting lists for up to one month and students may no longer feel they require this help when their appointment arises, and the timely process of seeking help may place students behind in their academic work (Dunley & Papadopoulos, 2019). Therefore, changes that ACCESS OM UA was necessary for the present Canadian mental health services climate. While ACCESS OM UA initiatives demonstrate solutions regarding the increased demand on university mental health services, students with mild-moderate concerns were often left unattended during peak stress times (e.g., final exams) because staff were only able to see critical or urgent cases (Vallianatos et al., 2019). Therefore, students who are experiencing distress are not provided with healthy coping mechanisms and may not be adequately supported during the most critical times in university.



In Ontario, because of the sharp increase in demand for counselling services and increased wait times, various innovative solutions have been proposed and some put in place; however, services in place do not meet students' needs for all-inclusive and flexible services (Ng & Padjen, 2019). Some campuses have introduced the Stepped Care Model, which proposes counselling centers "as a 'step' on a range of other interventions that promote well-being, such as peer support programs and wellness app" (Ng & Padjen, 2019, p. 536). While Ontario launched the Mental Health Innovation Fund (MHIF), only two of the 16 campus mental health projects were permanently implemented because of changes in staff and loss in funding (Ng & Padjen, 2019).

As mental health services on campuses require an expansion of their service delivery options, and professional training, universities financial resources are often inadequate to enhance student mental health services. Across Canadian communities, mental health services are also inadequate as just over half of respondents who reported distress received professional help, according survey results from 2013 and 2016 (Corcadden et al., 2019). While some campuses have introduced electronic-counselling<sup>1</sup> and telephone-based counselling to meet students' demands of all-inclusive and flexible services, such initiatives are not available on all campuses, nor do they provide sustainable solutions to a students' well-being (Ng & Padjen, 2019). While it is suggested that best practices in mental health consists of prevention initiatives focused on decreasing stress, providing social support, and encouraging self-care to foster preventative coping mechanisms, knowledge gaps exists regarding the services currently

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<sup>1</sup> In e-counselling, the counsellor and client exchange e-mail instead of meeting face-to-face. Typically, e-mails are exchanged once a week for an average of 3 weeks ("E-Counselling," 2012).

offered, whether/which best practices are implemented, and the feasibility of replicating similar programs (Ng & Padjen, 2019). These issues may be due to a lack of rigorous evaluation, limited internal and external funding, which may not be renewed if the program does not show convincingly effective results. Because of insufficient evaluation efforts and methods used, programs supporting mental health and well-being may be overlooked (Ng & Padjen, 2019).

In New Brunswick, universities campuses have started several campus initiatives, such as offering more intensive psychotherapy that works within their students' personal budget, and the University of New Brunswick in Saint John has implemented a 24/7 mental health support for students ("UNB partners with Family Plus," 2020; "UNBSJ offering Students," 2020). At the University of New Brunswick, UNB counsellors suffer burn out because the number of students seeking services. The number rose 40 percent in 10 years and more than 50 percent of UNB students come to their appointment with suicidal thoughts and students with medium-to-high risk of suicide consists of 30 per cent in the past 10 years (Fraser, 2019).

Ontario and Alberta are among other Canadian provinces experiencing unprecedented increases in demand for mental health services for students (Cunningham & Duffy, 2019). Despite the need for additional mental health services, it is challenging to implement new programs to support students because of the lack of specific data describing the mental health needs of postsecondary student populations across Canada (Cunningham & Duffy, 2019). Even though there is a need for more research to better support postsecondary students' services, there is a consensus that these students need greater access to services immediately, and this will be addressed further.

According to De Somma and colleagues (2017) all Canadian postsecondary institutions evaluated (sixty-eight out of one-hundred-and-eighty institutions) were lacking policies regarding mental health services research, initiatives, and program evaluation. However, their results revealed that Ontario emerged as a national leader for preventing suicide and there is still a need for Canadian postsecondary institutions to carry out comprehensive strategies and policies that are inclusive of campus mental health (De Somma et al., 2017).

### **2.3 Barriers to Student Mental Health Services**

In Canada, university students face multiple barriers in seeking mental health services. These barriers include institutional and structural barriers such as insurance coverage, and internal barriers such as lack of awareness, time constraints, stigma, beliefs, lack of perceived need, preference for self-reliance, and beliefs about treatment effectiveness (Dunley & Papadopoulos, 2019). While mental health issues are frequent in students in higher education, Sandhu and colleagues found that increased exposure and experience with mental illness are associated with reduced explicit stigma on a sample of university students in a large Canadian university (Sandhu et al., 2019). This finding suggests that it is possible to overcome barriers to student mental health services.

### **2.4 Demand on the Faculty of Universities**

As a result of insufficient mental health services, female faculty in Canada feel pressure to tend to students' emotional needs even though faculty's actions may not always align with the suggested manner to care for students who are struggling their mental health (Dengate et al., 2019). Therefore, a proposed solution was suggested to train faculty, who are willing to address students' non-academic challenges (Dengate et al., 2019). Most

faculty (88.6%) had at least one student cry in their presence, with 29.7% estimating they had this experience with more than five students; 90.3% had at least one student discuss stress, distress, or long-term mental health issues; however, most male faculty saw students' problems as an annoyance (Dengate et al., 2019). The distinction in gender roles places a heavy burden on female faculty and it diminishes their own well-being. In contrast, male faculty are not as involved with student's personal challenges and providing care for them. Because many Canadian university students are dealing with serious personal and mental health problems, including physical/sexual violence and suicidal thoughts and behaviours, it is important that they have access to the appropriate services or/and are guided to the right services when consulting faculty members (Dengate et al., 2019).

Sandhu and colleagues (2019) found that increased education and experience with mental illness are associated with reduced stigma. Therefore, faculty may be more likely to guide students to the appropriate services if they are knowledgeable and comfortable with this topic and students feel comfortable discussing their state of distress (Sandhu et al., 2019).

Flett and colleagues (2019) found that instructors who regularly come into contact with students can provide key initial support to distressed students (Flett et al., 2019). They also found that even small actions, such as remembering a student's name, may create a sense of belonging (Flett et al., 2019). If students feel that they belong and matter, then this creates a space for students to be open about their well-being and guided to appropriate services. While faculty members should not be responsible for caring for

students' personal well-being, they can act as guidance for seeking the appropriate services and opening this conversation may help reduce stigma.

## **2.5 Canadian University Students' Mental Health and Coping Mechanisms**

Othman and colleagues found that from a sample of university students at a large institution in Toronto, 39.5% reported symptoms of moderate to severe depression, 23.8% reported moderate-severe anxiety and 80.3% reported moderate-severe levels of perceived stress, with no significant differences between males and females (Othman et al., 2019). Dunley and colleagues found that, mental health issues impact somewhere between 18.5% and 30% of the postsecondary student population, and university students are 2.5 times more likely to report symptoms of mental illness than non-university youth (Dunley & Papadopoulos, 2019). Variables significantly associated with depression were grade-point-average, family factors, social factors, self-rated health and political factors while anxiety was significantly associated with family factors, socioeconomic factors and age. Finally, the significant factors for stress were grade-point-average and social factors. The study concluded that students may need to engage in a variety of activities and services to deal with stressors of university life instead of relying solely on mental health services which are limited (Othman et al., 2019).

## **2.6 Alternative Coping Mechanisms and Substance Use**

In Canada, some university students have reported using cannabis, alcohol, and study drugs to cope with mental health issues as opposed to services on campus (Abelman, 2017; Epstein et al., 2019; Mader et al., 2019; Reducing alcohol harms., 2012; Smith JM et al., 2019; Thompson K et al., 2019; Willcott, 2018) University students' preferences for alternative coping mechanisms and substances was likely influenced by their

preference to cope by being silent (Epstein et al., 2019). Coping by being silent suggests that students become self-reliant for determining the best course of action for their well-being and their actions may translate as being passive, withdrawing, and at times hiding (Epstein et al., 2019). Consequently, by avoiding professional help, students may be placing themselves at greater risk of developing substance misuse and addiction (Epstein et al., 2019).

According to Smith and colleagues (2019) 52% of Canadian university students respondents used cannabis at least once in their lifetime, with 11% reporting medicinal cannabis use. While many students reported medicinal cannabis use to relieve anxiety or depression, and one-third replaced a traditional treatment with cannabis, cannabis use has been associated with poor long term mental health outcomes (Smith et al., 2019). For example, cannabis use may exacerbate anxiety and potentially induce panic attacks and more intense or disordered cannabis use may lead to depressive symptoms (Smith et al., 2019). However, the ailments reported by Canadian university student cannabis users in this study does not match the effects of cannabis use for treating palliative pain, spasticity, and chemotherapy induced nausea (Smith et al., 2019). The study also reported that approximately 35% of medicinal users reported authorization of cannabis by a health care provider, which suggests the power health care workers have to disseminate healthy coping mechanisms to students (Smith et al., 2019). Mader and colleagues (2019) examined students from the University of Calgary, and their results found that lifetime cannabis use was associated with lower religiosity, and perceived risk associated with regular illness, varsity athlete's status, and living away from parents or relatives. Their findings suggest that the coping mechanisms students develop to treat their mental health

in university impacts the remainder of their life (Mader et al., 2019). Therefore, it is essential that students develop sustainable and healthy coping mechanisms to manage university and personal stressors, as these skills will carry them into their adult lives.

Canadian university students tend to use alcohol to cope with stressors, which provides short term gratification; however, in the long-term, this behavior decreases well-being by disrupting disconnectedness, community support, and increasing second harm, particularly towards women ("Reducing alcohol harms", 2012; Thompson et al., 2019). University students' alcohol use depends on their mental health status and the support of their peers, as this will better help them to manage various daily life stressors ("Reducing alcohol harms," 2012). In turn, increased alcohol consumption may increase mental health challenges, for the user and students surrounding the individual ("Reducing alcohol harms," 2012). While alcohol helps students socialize with peers and facilitates social bonding, heavy drinking disrupts feelings of connectedness and support networks which is crucial to students' mental health (Thompson et al., 2019). A high sense of belonging is associated with fewer mental health problems; yet second hand harms of alcohol may disrupt these relationships, particularly for women (Thompson et al., 2019). Eighteen-nine percent of students had at least one second hand harm from alcohol in the last 30 days, with 73% of students reporting interpersonal harm as most common (Thompson et al., 2019). Personal harm, which consists of physical and/or sexual assault or harassment, and feeling unsafe, contributes to higher levels of depression and anxiety and victimization, which reduces a sense of belonging in university settings (Thompson et al., 2019). Therefore, it is important to mitigate exposure from students' drinking, not only by implementing campus policies, such as quiet hours, designated areas where

alcohol consumption is permitted, and alcohol-free floors or buildings, but by implementing mental health services to ensure students are better able to cope with life triggers (Thompson et al., 2019)

Canadian university students report using “study drugs” such as Concerta, Ritalin, Focalin and Adderal, which are typically prescribed to individuals diagnosed with ADHD (Abelman, 2017). University students begin using these drugs to improve academic performance, as a mechanism to cope with underlying mental health issues, an emotional coping mechanism to address a lack of confidence, enjoyment, and/or interest in their coursework. Most students who use these medications receive them from friends with ADHD (Abelman, 2017). While many students believe that these medications are effective in completing academic work and the prevalence of study drugs use is increasing, these drugs are not beneficial. Approximately 8% of the total percent of the student population in Canada used study drugs in 2016 (Abelman, 2017). The risk of these drugs includes symptoms of malnutrition, high blood pressure, feelings of anxiety, increase in the likelihood of a stroke, increase in the risk of addiction among other numerous health concerns (Abelman, 2017). Therefore, in order to reduce the harm of prescription drugs, university students should be more comfortable or aware of the availability of a mental health service, and campuses could install campaigns to improve students’ confidence, increasing self-efficacy, and making coursework more enjoyable (Abelman, 2017). However, campus services and programs that help students cope require financial expenses for them to occur, but these expenses can be mitigated by promoting educational and support services that universities already have, which Western University has done (Abelman, 2017).



According to a study conducted by Willcott and colleagues (2018) on students at Memorial University in Newfoundland, Canada, survey results indicated that 3% of students reported non-medical use of prescription stimulants to help them stay awake to reduce daytime sleepiness. Off-label prescription stimulants were used to prolong alertness or manage daytime effects of poor sleep, however; they have been associated with sleep disturbance, anxiety, increased heart rate, nausea, and dependence. Even though stimulant use in this sample was lower than those reported in other university samples, these findings suggested that students are willing to find alternative measures to cope with time management and lack of sleep (Willcott et al., 2018). Unhealthy alternatives for coping with daily stressors may continue to prevail if university services do not offer adequate mental health services.

## **2.7 Subgroups within University Students**

As described earlier, university students are exposed to several stressors of university life and tend to increasingly rely on informal coping mechanisms. Because Canadian university students are encouraged to explore academic choices, they may be challenged in terms of identity development, and because of a lack of academic preparation, and maturity, they may experience maladjustment in university (Gfellner & Córdoba, 2020). However, certain student populations have greater personal challenges and consequently, may be more impacted by mental health issues than others (Colvin et al., 2019; McDougall et al., 2019; Monaghan et al., 2019; Srivastava & Srivastava, 2019; Sullivan et al., 2019). These students may be student-athletes, LGBTQ+ students and students of minority cultural backgrounds.

### **2.7.1 Athletes**

According to Sullivan and colleagues (2019) generalized psychological distress experienced by Canadian university student-athletes is quite high, with approximately 20% of the sample showing scores indicative of severe mental illness, and levels of psychological distress appear to be significantly higher than both their non-athletes counterparts and society in general. This study found variations within student-athletes, such as, while being female was associated with higher levels of psychological distress, maintaining an athletic scholarship was not a significant source of distress (Sullivan et al., 2019). However, participation in certain sports, such as track and field, may result in increased psychological distress, and different levels of pre-competitive anxiety within starts and advance student-athletes, are among the study's results (Sullivan et al., 2019).

### **2.7.2 LGBTQ+**

University students who are sexual and gender minorities often exhibit greater mental health challenges given the associated stigma and stress of deviating from the dominant heteronormative culture (Colvin et al., 2019; Monaghan et al., 2019). Many university age individuals are exploring their sexuality while working to develop a positive self-identity; however, certain sexual identities are less accepted and this poses an issue accessing health services (Monaghan et al., 2019). For example, bisexuality is often poorly tolerated within both heterosexual and LGBTQ+ communities and biphobia can emerge, which is a specific form of stress related to intentional and unintentional stigma experienced by sexual minorities (Monaghan et al., 2019). In turn, this affects mental health, as minority stress is associated with increased levels of depression and lower levels of self-esteem in bisexual women, and is linked to substance abuse and suicidal

ideation (Monaghan et al., 2019). As a result, bisexual women are more likely to rate their health as poor and less likely to have a family physician than heterosexual and lesbian women (Monaghan et al., 2019). This sexual minority among a sample of Canadian university women were 3.6 times more likely to have anxiety and/or mood disorders and 5.9 times more likely to report serious suicidal ideation than heterosexual women (Monaghan et al., 2019). As a whole, sexual and gender minorities in North America are more likely than cisgender and heterosexual youth to face mental health challenges and be victimized, therefore, it is important that each sexual and gender minority is given the appropriate attention and services within a university setting (Colvin et al., 2019).

### **2.7.3 Sexual Abuse and Victimization**

McDougall and colleagues (2019) found that non-consensual sex was prevalent by 6.8% among female undergraduates attending universities in Maritime Canada and sexually victimized women were twice as likely to be at risk of depression compared with those who had not been victimized; therefore, sexually victimized women were more prone to substance abuse and risky sexual behaviours (McDougall et al., 2019). It is crucial for there to be mental health support for those who have been victimized since research suggests that those who wait longer than one month are at an increased risk of developing mental health issues (McDougall et al., 2019). Because of the difficulty and stigma associated with making sexual victimization reports, creating a university environment that is supportive could encourage students to seek help (McDougall et al., 2019).

#### **2.7.4 Cultural Perspectives**

Various cultural identities have been acknowledged as having a reduced understanding towards mental health, and often times when students seek help they may encounter a lack of culturally competent services that supports their identity, and is inclusive of cultural and social contexts (Srivastava & Srivastava, 2019). Certain cultures have a greater stigma associated with mental health, as mental illness may be perceived as a source of family shame and personal weakness (Srivastava & Srivastava, 2019).

According to Gaimos and colleagues, being Asian, male, religious or from a poor family was associated with a higher prevalence of stigma and negative association with help seeking. While some cultures may be less stigmatizing towards mental health, they may not understand the languages of mental health and their symptoms may be regarded as something that one does not need to seek help for (Srivastava & Srivastava, 2019). Consequently, on an interpersonal level, the individual is left seeking the family's approval and acceptance of their mental health challenges (Srivastava & Srivastava, 2019).

#### **Conclusion**

This section of the literature reviewed in Chapter Two reveals how the COVID-19 pandemic has added more pressure to universities' mental health services, which were already oversubscribed before the pandemic; therefore, there is a need to improve the response to care and services provided at meeting students' mental health needs. This literature review found that youth are significantly struggling with mental health difficulties and are more likely to cope independently than seek external support, which is ineffective. Their coping mechanisms may include the use and misuse of alcohol,

cannabis, and study drugs. In turn, this negatively impacts university faculty who are unaware of how to help students, and student athletes, LGBTQ+ students, and students of sexual abuse and ethnic minorities are more likely to exhibit mental health challenges.

## **2.8 An Online Mindfulness Intervention to Address University**

### **Students' Well-being**

This section of the literature review in Chapter Two will explore the potential of an online mindfulness to improve students' well-being, including how it affects coping mechanisms and the overall university community. This section will also discuss the feasibility of mindfulness interventions, and a summary of in-person mindfulness interventions to better understand why it may be important to further research on online mindfulness intervention.

Given that university students have reported tendencies to seek help informally, be self-reliant and that universities favour early flexible, holistic interventions, which serves all students (Abelman, 2017; Epstein et al., 2019; Huang et al., 2018; Ng & Padjen, 2019; Smith et al., 2019; Srivastava & Srivastava, 2019; Thompson et al., 2019; Vallianatos et al., 2019); a mindfulness-based web intervention was thought to be a beneficial service to support university students current mental health climate. An online mindfulness-based intervention is also an appropriate solution to the current physical distancing measures during the COVID-19 pandemic in conjunction with the financial limitations of universities to implement new services. Mindfulness increases the ability to cope with stress (di Pierdomenico et al., 2017; Kaiseler et al., 2017; Palmer & Rodger, 2009; Valikhani et al., 2020; Weinstein et al., 2009); therefore, it was thought that this would benefit all university students' well-being. For example, Iacono (2018) examined

how mindfulness interventions influences LGBTQ youths' management of identity issues, internalized homo/bi/transphobia and how it can benefit sexual and gender minorities. Gardner and Kerridge (2019) argue that mindfulness is a health promotion tool that is inclusive of all students instead of only specific 'at risk' groups such as those with mental disorders or students reporting high levels of stress and anxiety. These findings suggest that mindfulness is a viable tool that can help various students within university.

### **2.8.1 Mindfulness Intervention to Foster Healthy Coping Mechanisms**

Mindfulness has been found to benefit students who are on a waiting list to see a counsellor; require healthy coping mechanisms; support them during stressful periods; and help them manage their time management skills (Gardner & Kerridge, 2019). The mindset and techniques cultivated from a mindfulness intervention could impact all aspects of university students' life, which aligns with the necessity of a holistic approach for students' well-being. For example, even though "mindfulness-based interventions were found to be effective, other interventions, i.e. art, exercise, and peer support had the highest post-intervention effect size (ESs) for both depression and generalized anxiety disorder (GAD) among college and university students" (Huang et al., 2018, p. 7). These findings suggest how important a well-rounded life is in maintaining students' mental health, however; mindfulness can act as a catalyst to implement this lifestyle by bringing students' awareness to the forefront. Because mindfulness increases the ability to focus, listen, learn, and provides a calm pause during a stressful day, university students will better understand how to further support themselves and manage the varying tasks and activities within university life.

Given the statistics mentioned above regarding students' tendency to use substances and how this poorly affects their mental health, coping mechanisms learnt through a mindfulness intervention could replace substance habits. Di Pierdomenico and colleagues (2017) found a negative correlation between substance use, (specifically those using substances as coping mechanisms) and mindfulness in university students. The results suggest that "university students who use drugs or alcohol to cope are more automatically reactive, take longer to calm themselves, and report lower levels of native trait mindfulness" (di Pierdomenico et al., 2017, p. 129). It is important that students foster healthy coping skills, because poor coping strategies may lead to psychological distress, physical health risks, and interpersonal conflict, which affects students' grades and likeliness to graduate (di Pierdomenico et al., 2017).

### **2.8.2 Mindfulness Benefits Faculty Members and the University**

Implementing easily accessible mindfulness services might allow faculty members to clearly direct students in distress towards interventions when health care professionals are unavailable. This may potentially create a supportive community and consequently, reduce the stigma associated with help-seeking and well-being. While most faculty are unlikely to have time to participate in this, other individuals, such as graduate students, who may lead such courses for credit, counselling staff, or community organizations affiliated with the university might be able to provide the required services (Hawkins & Erickson, 2015). The intervention could reduce coping by being silent and foster a university environment where students feel that they belong and matter as whole. According to Schwind and colleagues (2017) instructors who participated by guiding students through a brief mindfulness breathing practice before class and lovingkindness

meditation after class, identified benefits for both the students and for themselves. These findings suggest that mindfulness interventions have the ability of fostering a greater sense of well-being for faculty, who will consequently spend less time inadequately guiding students regarding their personal problems and focus their attention on their research and lectures. Such an intervention will also allow student to perform better in class as students reported a greater ability to focus on academic work (Schwind et al., 2017).

### **2.8.3 An Online Mindfulness Intervention Provides a Financially Feasible Service**

This type of intervention does not require significant financial funding as course instructors did not receive in-depth training on mindfulness practices; therefore, this will not cause a strain on universities' financial budget or lack of personnel for mental health services. This is because, mindfulness training and practices are an accessible method to cope with daily stressors (di Pierdomenico et al., 2017). If instructors are unwilling to present mindfulness exercises, online videos, and volunteer-led workshops are a viable solution. For example, volunteers may consists of graduate students who are conducting such work as credit or to obtain experience in their field (Hawkins & Erickson, 2015).

### **2.8.4 A Summary of In-Person Mindfulness Intervention Studies for Students**

Mindfulness interventions offered and/or examined at university institutions that have been conducted in Canada have all taken place in person, and most in a classroom setting as part of a course before or after the start of a class (Gardner & Kerridge, 2019; Ingram et al., 2019; Miller et al., 2019; Schwind et al., 2017; Tufford et al., 2019). From the mindfulness interventions conducted in Canada for students, they have all demonstrated beneficial outcomes on students without harming students in any way (El Morr et al.,



2020; Gardner & Kerridge, 2019; Ingram et al., 2019; Miller et al., 2019; Palmer & Rodger, 2009; Schwind et al., 2017; Tufford et al., 2019).

While students have not reported experiencing any harmful consequences from participating in mindfulness interventions, some students described feeling uncomfortable with the nature of mindfulness approaches and uncomfortable practicing mindfulness in a classroom setting. For example, Tufford and colleagues (2019) found that some students were distracted by other students while the mindfulness practices were in progress. Therefore, an online intervention may help students practice mindfulness because it eliminates the concern of potentially casting judgment on themselves (Tufford et al., 2019).

An online intervention would not lessen the effectiveness of the service as evidence suggests that online mindfulness interventions significantly decrease symptoms of stress, depression, and anxiety; however, larger sample studies are needed to have conclusive results (El Morr et al., 2020). Harrer and colleagues (2019) found that “internet interventions for university students’ mental health can have significant small-to-moderate effects on a range of conditions;” however, more research is needed to determine which specific Internet-based interventions are most effective for different student subsets (p. 1). The mindfulness-based intervention carried out in this thesis will aid in determining the effectiveness of mindfulness interventions to facilitate future implementation of these services in universities and how internet interventions can be improved for the general student population.

## **Conclusion**

This section of the literature reviewed in Chapter Two reveals that mindfulness practices have been reported to increase the ability of individuals to cope with stress and may alleviate the pressure placed on mental health services. Therefore, mindfulness practices may replace the informal and unhealthy coping mechanisms utilized by some students. A mindfulness approach may also reduce stigma regarding mental health in universities. In addition, past in-person mindfulness interventions for post-secondary students have reported positive benefits without harming students. Therefore, given the beneficial outcomes of past mindfulness studies, the study for this thesis consists of a mindfulness web-based intervention, and this may provide students with a flexible, sustainable, and holistic approach that is inclusive to all students.

## **Chapter Three: Research Methods**

The purpose of this chapter is to discuss the study design, data analysis, study materials, and describe the research and rationale behind the mindfulness sessions chosen for this online intervention.

### **3.1 Study Design**

The guided mindfulness practices were presented to students online via synchronous education because it is a valuable method to transmit information. Kiwanuka and colleagues (2015) found that synchronous distance education, transmission of information in real time, is associated with higher student completion and satisfaction than asynchronous distance education and the transmission of pre-recorded lectures or information. Offir and colleagues (2008) found that synchronous learning is more effective among students with a high cognitive ability than among those with a low cognitive ability, which can be explained by the potential misunderstandings between the teacher and the students and gaps in communication (Offir et al., 2008). However, when the interaction is sufficiently rich, comprehensive, and synchronous, the importance of the learning profile decreases, which suggests that a synchronous delivery method is an inclusive approach (Offir et al., 2008).

The participants were also given access to an audio recording of each mindfulness session. After the end of each live mindfulness session, I recorded myself giving the session, and then sent it to all the participants. Therefore, participants who could not attend the live session were able to listen to the recording on their own time. In addition, students who did attend the live session were able to refer to the practices.

The intervention took place during a period of 4 weeks which allowed students to slowly become introduced to mindfulness practices, without becoming overwhelmed by all the practices at once. Harrer and colleagues' (2019) systematic literature search suggest that effects are higher for interventions consisting of moderate length (1-2 months), which is in line with previous research (Harrer et al., 2019). In this study, it was also revealed that Internet-based mental health interventions for university students can be a potentially effective and can have a beneficial impact on university students (Harrer et al., 2019). While results reveal the benefits of online interventions for university students, more research is needed to determine which types of interventions best fit which students, and in which context (Harrer et al., 2019).

The study consisted of 4 weeks because of the current effects of the Covid-19 pandemic university students were facing. Canadian students were experiencing burn out from spending most of their time on laptops to attend lectures and complete course work without living in a supportive community amongst their peers and friends which act as motivation and contributes to a balanced life (Wong, 2020). Given these circumstances, a 4-week intervention decreased the amount of screen time that students already face too much of, and it allowed more time to practice the mindfulness exercises to potentially increase their well-being.

### **3.2 Data Analysis**

I analyzed the data by conducting a thematic analysis of open-ended questions. I utilized Braun and Clarker's (2006) contextualist approach. This approach consists of six steps for conducting research consists of a thorough thematic analysis, generating initial codes, searching for themes, reviewing themes, defining themes, and reporting results (Ingram et

al., 2019). The responses to open-ended questions were inputted manually into a Word document from the online survey. During this first stage, I pulled quotations that seemed important (i.e., those that appear meaningful, interesting, informative, detailed, well-articulated, and/or different from others). I then proceeded by coding the data using by highlighting themes in a Word document. This third step consisted of systematically labelling common and interesting pieces of data across the entire data set. The final step consisted of collating codes into themes, reviewing, collapsing, and refining themes to generate findings, and creating a summary narrative for each theme.

### **3.3 Study Materials for Questionnaires and Mindfulness Scripts**

#### **3.3.1 Pre and Post Intervention Survey Questions**

Prior to the intervention, participants were asked to complete a pre-intervention online demographic questionnaire and the Mindful Attention and Awareness Scale questionnaire (MAAS). The MAAS was developed by psychologists Kirk Warren Brown and Richard M. Ryan and is designed to assess a core characteristic of mindfulness, which is the open or receptive awareness of and attention to what is taking place in the present (Brown & Ryan, 2003). The authors of the MAAS survey made this questionnaire available for all researchers to access and utilize.

Table 1 Demographic Questionnaire

<b>Q#</b>	<b>Question</b>
1	<i>What is your age?</i>
2	<i>What is your gender?</i>
3	<i>What is your ethnicity?</i>
5	<i>Where do you live?</i>
6	<i>What is your marital status?</i>
7	<i>What is your employment status?</i>
8	<i>What is the annual income range of your household?</i>
9	<i>Which degree are you currently completing?</i>

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.

Table 2 Mindfulness Attention and Awareness Scale

Q#	Question
1	<i>I could be experiencing some emotion and not be conscious of it until some time later</i>
2	<i>I break or spill things because of carelessness, not paying attention, or thinking of something else</i>
3	<i>I find it difficult to stay focused on what's happening in the present</i>
4	<i>I tend to walk quickly to get where I'm going without paying attention to what I experience along the way</i>
5	<i>I tend to not notice feelings of physical tension or discomfort until they really grab my attention</i>
6	<i>I forget a person's name almost as soon as I've been told it for the first time</i>
7	<i>It seems I am "running on automatic," without much awareness of what I'm doing</i>
8	<i>I rush through activities without being really attentive to them</i>
9	<i>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</i>
10	<i>I do jobs or tasks automatically, without being aware of what I'm doing</i>
11	<i>I find myself listening to someone with one ear, doing something else at the same time</i>
12	<i>I drive places on 'automatic pilot' and then wonder why I went there</i>
13	<i>I find myself preoccupied with the future or the past</i>
14	<i>I find myself doing things without paying attention</i>
15	<i>I snack without being aware that I'm eating</i>

The post-intervention online questionnaire consisted of thirteen open-ended questions that were developed by Spadaro and colleagues (2020) for their study entitled, “Experience of an 8-Week Online Mindfulness Intervention for Nursing Students.” See table 3. The online surveys were created using Microsoft Forms. The participants were also asked to answer the MAAS questionnaire to measure their acquisition of mindfulness skills.

*Table 3 Post-Intervention Qualitative Survey*

Q#	Question
1	<i>Please tell me about your experience being a participant in this online mindfulness intervention.</i>
2	<i>What did you like about the mindfulness experience? What did you not like?</i>
3	<i>What are your thoughts and experiences about mindfulness as it relates to your academics...stress level...mood?</i>
4	<i>What are your thoughts and experiences about mindfulness as it relates to your stress level and ability to cope ...with academic demands...family demands...work demands....other stressors?</i>



- 5 *Can you describe a time you felt stressed with schoolwork? How did you feel, how did you cope? Is this the same coping strategy as before the intervention or different? How different, if different?*
- 6 *After completing the intervention, what are your thoughts and experiences about mindfulness as it relates to your academics: doing the required readings, assignments, meeting deadlines, posting in discussion forums?*
- 7 *Do you have another situation you would like to share or describe, either using mindfulness or not using mindfulness?*
- 8 *Did you learn or gain, if anything from this experience?*
- 9 *What was different or changed for you through this mindfulness intervention? What stayed the same or didn't make a difference through this mindfulness intervention?*
- 11 *Did you experience irritation, frustration, being overwhelmed during this 4-week period? If so, did you use mindfulness to cope? If not, why not and what did you use to cope?*
- 12 *Is there anything else you would like to tell me about your experience: positive, negative, neutral thoughts and experiences?*

13 *What will get in the way of you continuing to practice mindfulness, i.e., barriers?*

After each weekly intervention, participants were asked the following question: Please tell me about your experience being a participant in this online mindfulness intervention tonight. Is there anything else you would like to add about this meditation experience (or about the past week)?

### **3.3.2 Scripts for Mindfulness Sessions**

This section reveals the scripts that were utilized for the four mindfulness sessions. The mindfulness exercise was derived from diverse and valuable resources. The exercises of the first mindfulness session were derived from Dr. James Gordon's 2019 book, "The Transformation." The exercise of the second mindfulness session was derived from the organization, Greater Good in Action, which is affiliated with the University of Berkeley. The mindfulness exercise of the third mindfulness session was derived from the website, Beecuz, an organization dedicated to creating and promoting healthier futures for children and youth. Finally, the exercises of the fourth session were derived from the website, Greater Good in Action, which part of the University of Berkeley. The next section, Mindfulness Session 1, presents the entire script utilized. My introduction and concluding segment were the same for each session; therefore, I only included the written portion in the Mindfulness Session One section below.

#### **Mindfulness Session One**

*Hi everyone. My name is Victoria Lecker, and I'm going to be leading you through the next four weeks of mindfulness practices. I am graduate student at the University of New*

*Brunswick. This study is an important part of my degree, so I appreciate your interest in my research into mindfulness and well-being. Thank you so much for participating in this study.*

*As a reminder, these practices are focused on general well-being. It is important that you understand that these mindfulness sessions are not intended to be therapeutic in nature. In an earlier, you were provided with a list of mental health resources which you may access at any time. You do not need to disclose whether you choose to do so. Participating in this study is voluntary, and you may withdraw at any time.*

*Before we begin tonight's mindfulness session, I want to make sure that everyone has completed the demographic questionnaire and Mindfulness Attention and Awareness scale survey.*

*If you haven't completed them yet, please let me know in the chat box, and I will give you time to complete them now.*

*I have shared the links to the questionnaire and survey in the chat box. Please let me know in the message box when you have completed the questionnaires. They will only take a few minutes; please do not rush to complete them.*

***Thank you for completing the questionnaires.***

***We will now begin the guided mindfulness session, which consists of a breathing meditation and a movement meditation and will take approximately 20 minutes. If there is anything that is not comfortable for you, you may adjust or modify the activity to suit yourself. Please be gentle with yourself, and as you know yourself best, work within what is comfortable for you. I will be taking several long pauses during the guided meditations, so please don't be alarmed by the silence. I wanted to make that clear so that the silent pauses are not interpreted as an internet issues.***

***Breathing meditation (10 minutes):***

*Become aware of yourself sitting in your chair, breathing slowly and deeply, in through your nose and out through your mouth. Allow your belly to be soft. Let it expand on the in-breath, relax even more on the out-breath. You might say to yourself "Soft" as you breathe in and "Belly" as you breathe out. This will help focus your mind and remind you that you want your belly to be soft and relaxed. Continue breathing slowly and deeply, in through your nose and out through you mouth.*

*Close your eyes if it's comfortable for you, or bring your eyes down to the floor in front of you. Closing your eyes eliminates a great deal of external stimulation and may help you relax even more. Continue breathing deeply and slowly.*

*When your mind wanders to other things, let those thoughts come and let them go. This is **an** entirely normal part of the process of paying attention. There is nothing wrong with this happening, it's part of the process. When you notice that your mind has wandered, gently bring your attention back to your breath.*

*As you continue breathing, you're relaxing your body, quieting your mind, decreasing your fear and anger, and enhancing your judgment. You're becoming more compassionate to yourself and to others, allowing yourself to connect more easily and closely to them.*

*Breathing slowly and deeply, in through your nose and out through your mouth, with your belly soft and relaxed, sets the stage for relaxation in all your muscles. I'm going to help you work towards relaxing those muscles now.*

*Each time I guide your attention to a muscle group or a part of your body, breathe twice, slowly and deeply, and become aware of the relaxation in those muscles.*

*Breathing in slowly and deeply, and as you breathe out, or exhale, feel the relaxation in your pelvis and buttocks.*

*Now breathe in slowly, inhaling and exhaling twice more, and feel your thighs and knees relax; and your legs and feet.*

*Take in two more breaths, and then let them out, breathing in and breathing out, and, as you exhale, feel the relaxation in your back.*

*Breathing twice more, feel your chest and shoulders relax as you exhale.*

*Continue breathing slowly and deeply. Relaxing all the while.*

*As you continue to breathe, feel the relaxation in the muscles of your neck, face, and head.*

*Continue breathing in and out, slowly and deeply, feeling your whole body relax with each exhalation. When outside thoughts come, let them come and let them go. Having your mind wander, having other thoughts come into your mind, is all part of this process. When this happens, gently bring your mind back to your breath.*

*Slowly and gently open your eyes and let your attention come back into the room. Continue to breathe.*

*Take a moment to stretch if you need to, listen to what your body tells you it needs to do.*

*We will now move into a movement meditation, which will last about ten minutes.*

**Movement meditation (10 minutes):**

*Start by standing up and planting your feet about shoulder-width apart, bending your knees slightly, and relaxing your shoulders. You might close your eyes so you're not distracted. If you have trouble with balance, you might keep your eyes open and look at a wall or out a window.*

*Begin to shake your whole body. Shake up from your feet, through your knees, hips, and shoulders, through your chest. Shake to your capacity – vigorously, strongly. Let your shoulders relax and bob up and down with the shaking. Let your head go as you shake. Let your jaw, which can carry so much tension, hang open. If sounds come out of your mouth, let them come.*

*This is probably not something you do regularly. If you feel silly or bored or tired, that's okay. Just keep going. Remember to shake from the feet on up. Do it faster, wholeheartedly. Let the shaking take over your whole body. Keep going for a few minutes. I will let you know when to stop.*

*Now stop. Pay attention to your breathing and your physical sensations. Breathe deeply. Relax. Be aware of your body, of your breath.*

*Now for this part, you can turn on upbeat music (if you'd like) and just let your body move as it will and keep moving. Don't follow a particular pattern or dance step. You're doing this just for yourself, just for you. No one is watching or judging you. Do this for a few minutes. I will let you know when to stop.*

*Now stop.*

*Now relax for a few moments, standing or sitting. Keep your arms out to the side to help you balance after the vigorous activity.*

*Remember to breathe, and to notice how your body feels now. Notice the sensations from the movement to now being still.*

*Before we end the session, please complete a questionnaire regarding your experience tonight. I have provided a link to the questionnaire in the chat box. Please let me know if you have any issues accessing it. Take your time completing it and do let me know when you are finished completing it by sending a message in the chat box.*

*If you haven't already done so, please download the **UCLA Mindful app** on your phone to practice Mindful breathing. Tonight's session is recorded, and you will all be sent the link so that you may practice the movement meditation on your own time. Please try to practice mindful breathing and the movement meditation at least once before we meet next week.*

*Thank you so much for your participation this evening and see you next week Tuesday at the same time. Our next session will be focused on a body scan meditation. Have a good rest of your evening. Bye everyone. If you have any questions or concerns, please do not hesitate to contact me via email.*

### **Mindfulness Session Two**

The script for the introduction and conclusion portion of this session is the same as for the first mindfulness session. The script I utilized for the mindful eating exercise can be found on the following website: [https://global-uploads.webflow.com/5f072f2b6caa23ebf5fb91cf/5f3bcdcec58fd317b770037f\\_Mindful-Eating-Script.pdf](https://global-uploads.webflow.com/5f072f2b6caa23ebf5fb91cf/5f3bcdcec58fd317b770037f_Mindful-Eating-Script.pdf).

### **Mindfulness Session Three**

The script for the introduction and conclusion portion of this session is the same as for first mindfulness session. The script I utilized for the mindful eating exercise can be found on the following website: [https://ggia.berkeley.edu/practice/body\\_scan\\_meditation](https://ggia.berkeley.edu/practice/body_scan_meditation).

### **Mindfulness Session Four**

The script for the introduction and conclusion portion of this session is the same as for the first mindfulness session. The script I utilized for the mindful eating exercise can be

found on the following website:

[https://ggia.berkeley.edu/practice/loving\\_kindness\\_meditation](https://ggia.berkeley.edu/practice/loving_kindness_meditation).

### **3. 4 Description and Rationale of the Four Mindfulness Sessions**

This study followed the same structure as the in-person mindfulness intervention from the study entitled, “Teaching for well-being? Introducing mindfulness in an undergraduate course,” by Ingram and colleagues (2019). In this study, mindfulness lessons were introduced in a third-year undergraduate course at the University of Guelph in Ontario, Canada. They adapted the Mindfulness-Based Stress Reduction (MSBR) program into 15-minute lessons involving mindfulness practices and group discussion. In this condensed program, the practices included were mindfulness meditation, walking meditation, body scan, mindful eating, loving-kindness and Tonglen meditation, and were generally given for the first 15 minutes of class. Students were encouraged to practice any or all the mindfulness-based practices in their own time. Students benefited from this intervention by effectively learning mindfulness concepts; reported positive responses to the mindfulness lessons; enhanced students’ learning about self-care and promoting well-being; using mindfulness-based practices as a form of self-care to enhance well-being, self-reflection, and stress management. The results of the study also suggest that students should develop a ‘toolbox’ of self-care approaches that may include mindfulness practices, therefore; the implementation of a condensed mindfulness intervention would be useful to implement at other university campuses because it offers students sustainable coping mechanisms (Ingram et al., 2019). Since self-care needs will shift according to the context across the lifespan, mindfulness practices may act as sustainable coping mechanisms (Ingram et al., 2019). The sustainable and long-term aspect of mindfulness

practices provides a solution to the dilemma, mentioned on page 11, of finding university students sustainable coping mechanism that they can carry into their lives after university.

### **3.4.1 First Session: Breathing and Movement Meditation**

The first mindfulness practice consists of a breathing meditation and a movement meditation. The practice brings attention to one's breath and associated physical sensations (Ingram et al., 2019). The introduction of various mindfulness practices, such as mindful breathing exercises, have proven effective on university students' symptoms of anxiety and stress, and results have found that "participants who were better able to self-regulate their breath attention to breathing during five minutes of mindful breathing exercise (MBE) displayed significantly higher values of on two of three HRV (Heart Rate Variability) (Tufford et al., 2019; Call et al., 2014; Cho et al., 2016). According to Buccelletti and colleagues (2009), results suggested a relationship between low HRV and worsening depression and anxiety, and a low HRV is even associated with an increased risk of death and cardiovascular disease.

Cho and colleagues (2016) found that university students in South Korea who practiced daily mindful breathing showed increased positive automatic thoughts over time, and this self-training increased students' capacities for self-regulation, which have helped them deal more effectively with test anxiety. This study also found that MBP contributed to decentering, which "enables people to distance and disidentify themselves from the contents of their conscious thoughts and emotions" (Cho et al., 2016, p. 6). Therefore, decentering allows students to gain a sense of mastery over their thoughts, emotions and perceive them as transient mental events, "rather than to identify with them



or to believe that thoughts and emotions are accurate reflections of the self or reality” (Cho et al., 2016, p.6).

Jerath and colleagues (2006) found that voluntary slow deep breathing causes shifts in the autonomic nervous system by inducing the parasympathetic response during breathing exercises. Their study examined slow deep breathing by observing indicators such as respiratory sinus arrhythmia (RSA), the frequency of heart rate variability, and their findings revealed that the parasympathetic shift creates a sense of relaxation and well-being in the subject (Jerath et al., 2006). Similarly, Lin and colleagues (2014) found that several different breathing patterns were associated with significantly increased feeling of relaxation. Tsai and colleagues (2020) found that paced breathing improves sleep quality as their study revealed autonomic nervous dysfunction among insomniacs, especially in relation to vagal activity; however, decreased vagal activity can occur by practicing slow, paced breathing (Tsai et al., 2015).

After guiding university students through a brief breathing meditation, a movement meditation was instructed. According to Edwards and colleagues (2018) a ten-minute meditation and a combination of a ten-minute meditation and a ten-minute brisk walk resulted in significant reductions in state anxiety among a sample of young adults; however, a brisk walk alone did not yield significant reductions. The results suggests that participants’ enhanced mindfulness state following the meditation may have led participants on a more focused brisk walk, and exercising before meditation may have enhanced participants’ state to meditate (Edwards et al., 2018). That being said, the authors of this study found that the participants benefited significantly from both a 10 minute brisk walk and a 10 minute meditation, as this yielded anxiety reductions and

physiological benefits of ambulation which were only present when walking was paired with a meditation (Edwards et al., 2018). However, if the participant only had 10 minutes available then they might benefit more by engaging in a meditation. While previous work has shown that acute bouts of aerobic exercise reduces anxiety symptomology, this was not observed in the study, and this is possibly because a brisk walk was not an intense enough stimulus to induce significant anxiolytic effects (Edwards et al., 2018, p. 954).

Following a guided breathing meditation in this intervention, a mindful movement exercise was instructed. While a walking meditation induces mental calmness and relaxation, as it alleviates somatization symptoms; given the research findings of acute bouts of exercise, mentioned above, and the benefits of mindful movement; a shaking and dancing exercise will greatly enhance participants' well-being, in comparison (Kim & Ki, 2014). Dr. James Gordon's findings suggests that shaking and dancing may be "the simplest and most consistently effective expressive meditation," because "shaking breaks up self-protective, leaden despair, melts physical rigidity, and energizes depleted bodies" (Gordon, 2019, p. 72). Given that university students are experiencing a collective trauma of great uncertainty and fear because of the diverse (financial, social, educational), and threatening implications of the COVID-19 pandemic, this type of movement meditation will allow students to remove themselves from a state of fear and distress. Other researchers like Peter Levine discuss the importance of shaking during threatening situations (such as the implications of the COVID-19 pandemic or/and a heavily weighted university exam), because it allows for "a more balanced state in which awareness, imagination, and social engagement are possible" instead of remaining in an immobilized state of fear or distress (Gordon, 2019, p. 73).

### **3.4.2 Second Session: Mindful Eating**

Because there is a high prevalence of disordered eating behaviours in university students worldwide, the fourth intervention will focus on developing a mindful eating practice, and such techniques can also be applied to their relationship with drinking and other substances (Giannopoulou et al., 2020). Giannopoulou and colleagues performed a study on 221 students from the University of Brighton in the United Kingdom, 41% of the student population reported being binge eaters and some contributing factors consisted of relocation from home, new social network and eating environment, high academy pressure, and academic discipline (Giannopoulou et al., 2020). The results of the study revealed that mindful eating is inversely related to binge eating behaviour and mood, and that severe binge eating is linked to lower levels of mindfulness in eating and more severe mood disturbances, demonstrating the need for effective eating behavior for this high risk population (Giannopoulou et al., 2020).

Masuda and colleagues (2012) found that college students at Georgia State University, USA, exhibited greater disordered eating cognitions associated with greater psychological distress, whereas greater psychological flexibility and mindfulness was associated with lower psychological distress. Given that eating habits greatly influence mood and psychological distress, it is important that university students are given techniques to deal with stress and improve eating habits (Masuda et al., 2012).

### **3.4.3 Third Session: Body Scan Exercise**

The third intervention consisted of a body scan exercise. The body scan meditation has been included in several beneficial mindfulness interventions as part of a mindfulness practice for participants. According to Hubbling and colleagues (2014), their research

found that the body scan meditation was identified as an effective tool to enable falling asleep faster. The body scan meditation facilitated sleep because it has a great power to calm the mind and induce relaxation and has the ability to leave long-acting benefits on participants (Hubbling et al., 2014). For example, a participant who used the body scan in the morning felt that this created a stable emotional level throughout the day, and it was much easier for them to calm down and relax at the end of the day (Hubbling et al., 2014). Participants who practiced the body scan meditation regularly revealed that their communication with family and co-workers had improved, which suggests that they are in a calm state to resolve matters rather than become reactive and/or create conflicts with others. While the results were beneficial, some participants disliked this practice at first or did not continue practicing it, because it was hard to stay still, too repetitive, too hard to keep my mind under control, and too long, many of the other participants preferred yoga to be their preferred technique (Hubbling et al., 2014). The intervention exposed participants to a wide range of mindful practices so that they can determine what works best for them and have an inventory of techniques they can try in different distressful situations or states of being.

Fox and colleagues' (2012) findings of the body-scan meditation on introspection revealed that, while expert meditators showed significantly better introspective accuracy than beginners; meditation significantly predicted individual introspective accuracy. This study measured the participants' sensitivity on their body parts while they practiced a body-scan meditation, to measure introspection (Fox et al., 2012). Even though the study revealed that expert meditators showed significantly greater results than beginners, a short-term mindfulness intervention is still beneficial as this will provide participants

with the tools to continue practicing mindfulness and start benefitting from the novice benefits of a body-scan meditation.

#### **3.4.4 Fourth Session: Loving-Kindness Meditation**

The fifth mindfulness session of the intervention is a loving-kindness meditation (LKM). LKM meditation cultivates a generalized feeling of love and compassion towards all sentient beings without causing significant distress to practitioners (Lee et al., 2012). Hofmann and colleagues' (2015) findings align with the benefits of the meditation mentioned above, and an LKM meditation has also been found to change one's emotional well-being. This study found that LKM is positively experienced and well tolerated as it decreases depressive symptoms, leads to an enhancement of adaptive emotional regulation strategies, improved sense of self and others, and a greater general acceptance and emotional tolerance (Hofmann, 2015).

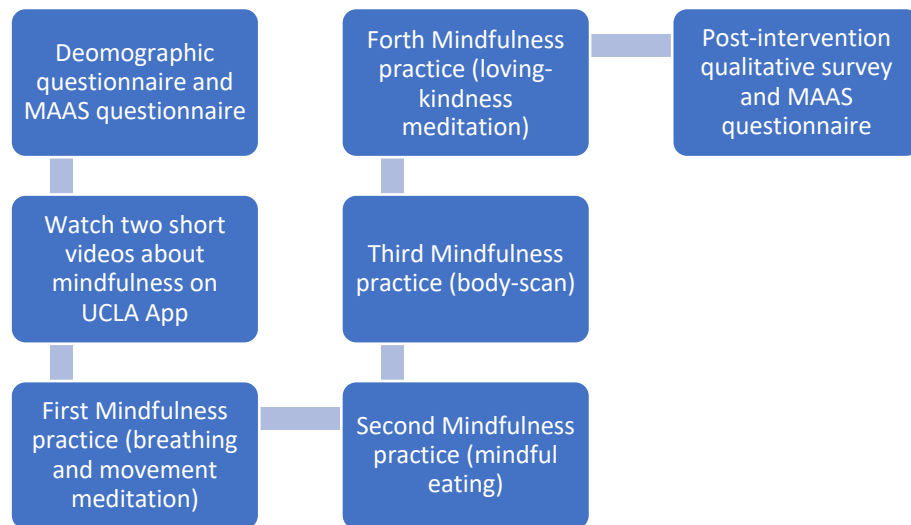
### **3.5 Summary of the Online Mindfulness Intervention**

Participants were asked to attend all four of the mindfulness video conference sessions and practice what they have learned at least once before the next session takes place. Participants were asked to download the UCLA Mindful application (app) on their phone to practice a version of the week's mindfulness practice. During week 1, participants were asked to practice the 5-minute Breathing Meditation in the *Basic Meditations* tab, followed by the movement meditation from the session's audio recording, which was sent to them. During week 2, participants were asked to practice the 3-minute Body Scan Meditation in the UCLA app found under the *Basic Meditations* tab. During week 3, participants were asked to apply the principles of the mindful eating exercise to a meal or

snack they will eat. During week 4, participants were asked to practice the 9-minute Loving-Kindness Meditation in the UCLA app found under the *Basic Meditations* tab.

Before the start of the intervention, participants were asked to watch two brief videos on the UCLA app entitled, *Introduction to Mindfulness and Introduction to the Science of Mindfulness* under the tab *Getting Started*. These two brief videos provided participants with a basic understanding of mindfulness and its reported benefits.

*Figure 1 Flow Chart of Mindfulness Intervention*



### **3.6 Data Security**

During analysis questionnaires were de-identified, and no names were used to report results. All hard copies of research materials, such as, questionnaires, de-identified transcripts, and field notes were stored in a secure space only accessible to the researcher. All digital files, were stored on a password protected computer, accessible only by the researcher. All notes collected by the research assistant were turned over to the researcher to be stored.

### **3.7 Ethical Considerations**

The research was approved by the University of New Brunswick Research Ethics Board and is on file as REB 2021-029. To ensure free and informed consent, participants were informed that participating in the study was voluntary and that they could withdraw from the study at any time. Participants were sent an electronic document informing them of the purpose of the study and the terms of the participation. They provided their consent to partake in the study by participating in the first session and completing the pre-intervention questionnaires. Participants had the opportunity to ask questions throughout participation in the research. Since participants were not minors, parental consent was not required. No identifying information is used in the reporting results. The participants chose their pseudonyms.

Various mental and physical distractions and/or discomforts are to be expected when practitioners are first starting with focused attention practices and once the mind has become very focused and moves into the phase of open monitoring meditation, different potentially troubling mental and physical phenomena may arise (Compson, 2018). These short-term negative experiences can be a transient part of the process if individuals do not overidentify with these negative states or display excessive efforts and striving, as this will lead to distressing experiences (Compson, 2018). Mindfulness and meditation practices are reported as difficult skills to acquire because they require training the attention through exercises and are sometimes compared to going to the gym to train muscles (Baer et al., 2019; Lomas et al., 2015). If unpleasant emotions or interpersonal problems arise while practicing mindfulness, individuals may require adjustment and integration before the person is comfortable staying with what arises

(Dobkin et al., 2012). Individuals practicing mindfulness have reported reduced negative outcomes when observed awareness is connected with non-judgmental observation, non-reactivity, acceptance, compassion, decentering and deidentification with the experience (Britton, 2019; Compson, 2014, 2018; Lomas et al., 2015). However, some techniques to foster emotional regulation are challenging to achieve; therefore, it is important that individuals are equipped to manage what may arise, such as unresolved trauma, before they practice lengthy mindfulness practices (Lomas et al., 2015).

While participants practicing mindfulness for the first time are expected to find it difficult and experience manageable discomfort and distractions, they were encouraged to only continue practicing within their window of tolerance. It is highly unlikely that participants enrolled in a brief mindfulness program will achieve very focused attention, by which potentially troubling or difficult phenomena may arise.

### **3.8 Risks and Limitations of Mindfulness**

Individuals practicing mindfulness are expected to encounter discomfort and/or distractions because it is a skill that must be acquired; however, severe adverse effects are mostly exhibited in intensive retreats and in individuals with disorders. The majority of negative outcomes occur in intensive meditation retreats, whereby consequences have included: acute psychotic episodes; depression; reactivated trauma manifesting itself in emotional distress such as panic, anxiety, rage and insomnia; and dissociation or what is known as depersonalization (Compson, 2014, 2018; Lomas et al., 2015). However, individuals with severe disorders are at greater risk of experiencing adverse outcomes as a consequence of mindfulness practices (Baer et al., 2019; Britton, 2019; Dobkin et al., 2012; Kuijpers et al., 2007). For example, individuals with a psychiatric history or a



certain personality structure are most likely to experience psychotic symptoms, increased anxiety, and other symptoms; therefore, they should practice mindfulness with a therapist (Baer et al., 2019; Britton, 2019; Dobkin et al., 2012; Kuijpers et al., 2007). 62.9% of long-term meditators reported at least one adverse event (anxiety, panic, tension, boredom, pain, impaired reality testing, confusion, depression) during and after meditation and that 7.4% suffered profound adverse effects (Dobkin et al., 2012). However, it is unclear if the effects of meditation alone can be compared to MBCT or MBSR courses (Dobkin et al., 2012). Lindahl and colleagues reported similar findings as 60 meditation practitioners all reported negative experiences after practicing meditation for 1 day to more than 25 years (Wong et al., 2018). However, most unwanted effects were mild and transitory, did not lead to discontinuing meditation practice or the need for medical assistance (Cebolla et al., 2017). The symptoms included anxiety, pain, depersonalization and derealization, hypomania or depressive symptoms, emotional lability; however, the most frequently described reactions were anxiety (13.7%) and depersonalization or derealization (8.0%) (Cebolla et al., 2017). While there is consensus that a higher frequency of practice generates more unwanted effects, there is no consensus about how the symptoms are derived (Baer et al., 2019; Britton, 2019; Cebolla et al., 2017).

## **Conclusion**

Chapter three described how this is an exploratory qualitative study examining the effects of a four-week online mindfulness intervention on student' general well-being. Online qualitative questionnaires and the Mindfulness Attention and Awareness Scale (MAAS) were conducted, as well as demographic surveys with a sample of 14 participants. The

study consisted of a breathing and movement meditation, a mindful eating exercise, a body scan meditation, and loving-kindness meditation. Mindfulness scripts from recognized institutions and authors were utilized for the study and I used Braun and Clarke's approach for data analysis. The next chapter will discuss the findings of this study.

## **Chapter Four: Findings**

The following chapter will present the findings from the demographic survey, qualitative questionnaires, and the Mindfulness Attention and Awareness Scale. This chapter will also present participants attendance throughout the mindfulness intervention. I will be using the pseudonym initials of the participants throughout this chapter.

### **4.1 Demographic Survey**

The resulting sample consisted of 14 students and three non-students; however, I only analyzed the data of students. I accepted non-students because I was uncertain as to whether enough participants would enroll in this study. Based on my thesis supervisor's recommendations, I began the study after the perceived enrollment of 28 students.

The participants ages ranged from 19 to 40 years old. Most of the participants were in their 20s (seven) while the remaining participants were in their 30s (four), 40s (one) and late teens (two). The mean of the age was 23.85. Most of the participants either lived with their parents or lived with roommate(s) (57.14%) while the remainder lived alone (14.28%) or lived with a partner and/or children (21.42%). One participant's response regarding her living arrangement was unclear, as she only said "homeowner." The sample of students was culturally diverse as 42.84% of the sample identified their race as other than white.

Participants' races ranged from Black Caribbean, Dravidian, Indian, Bi-racial, and Han Chinese. However, the response of two participants regarding their race was uncertain, as one participant stated "general" and another "Anglo." 42.85% of the sample reported their race as white. Most of the participants were employed as 28.57% held a full-time job while 21.42% held a part-time job. 65.37% of the participants held a job; however, two of the participants did not specify if their job was part-time or full-time. Conversely, 35.71% of the participants were unemployed. Most of the participants (71.42%) resided in New Brunswick while the remaining participants (35.70%) resided in Quebec, Ontario, India, and the United Emirates. Four of the participants resided in Saint John, NB while four other participants resided in Fredericton, NB, and one participant resided in Quispamsis, NB. The participants current educational program was diverse; however, most of the participants were graduate students (64.26%) while the remaining participants were undergraduate students (35.7%). The participants' educational programs were diverse as they ranged from a bachelor's degree in computer science to a Master of Arts in Counselling Psychology. The educational programs were not predominantly in a particular discipline, such as the arts or sciences. However, two participants were from the Master of Applied Health Services Research program while two other participants were pursuing a PhD in Interdisciplinary studies. The table below expresses the demographic data of the participants:

Table 4 Demographic Findings

		Total sample (n=14)
<b>Gender, n (%)</b>		
	Male	5 (35.71%)
	Female	9 (64.28%)
	Other	
Age, mean		23.85
<b>Residential living arrangement, n (%)</b>		
	Live alone	2 (14.28%)
	Live with parents	4 (28.57%)
	Living with spouse and/or children	3 (21.42%)
	Living with roommate(s)	4 (28.57%)
	Homeowner	1 (7.14%)
<b>Race, n (%)</b>		
	White	4 (28.57%)
	Black Caribbean	1 (7.14%)
	Dravidian	1 (7.14%)
	Bi-racial	1 (7.14%)
	Indian	2 (14.28%)
	Han	1 (7.14%)
	Chinese	1 (7.14%)
	General	1 (7.14%)
	Anglo	1 (7.14%)
<b>Employment Status, n (%)</b>		
	Full-time job	4 (28.57%)
	Part-time job	3 (21.42%)
	Unemployed	5 (35.71%)
	Employed (part-time or full-time status not revealed)	2 (15.38%)
<b>City, n (%)</b>		
	Fredericton, New Brunswick	4 (28.57%)
	Saint John, New Brunswick	5 (35.71%)
	Quispamsis, New Brunswick	1 (7.14%)
	Montreal, Quebec	1 (7.14%)
	Toronto, Ontario	1 (7.14%)
	Abu Dhabi, United Emirates	1 (7.14%)
	Punjab, India	1 (7.14%)
<b>Educational Program, n (%)</b>		
	Master of Global Affairs	1 (7.14%)
	PhD in Interdisciplinary studies	2 (14.28%)
	MA in Sport and Recreation studies	1 (7.14%)
	BSE in Chemical Engineering	1 (7.14%)
	Master of Applied Health Services Research	2 (14.28%)
	PhD in Biology	1 (7.14%)
	Pre-MBA program	1 (7.14%)
	BA Honours English	1 (7.14%)
	Bachelor of Arts	1 (7.14%)
	Environmental Technology	1 (7.14%)
	Master of Arts in Counseling Psychology	1 (7.14%)
	Bachelor of Science in Computer Science	1 (7.14%)

## **4.2 Attendance Throughout the Four-week Intervention**

### **4.2.1 First Mindfulness Session**

In the first session, 14 participants attended the session; however, it was not noted which participants attended the live session. Five male and nine female participants attended this session. The average age for this session was 23.85. Most of the participants (71.42%) resided in New Brunswick while the remaining participants (35.70%) resided in Quebec, Ontario, India and the United Emirates. Most of the participants were employed as 28.57% held a full-time job while 21.42% held a part-time job. Conversely, 35.71% of the participants were unemployed. The participants current educational program was diverse; however, most of the participants were graduate students (64.26%) while the remaining participants were undergraduate students (35.7%). The participants were culturally diverse as 42.84% of the sample identified their race as Black Caribbean, Dravidian, Indian, Bi-racial, or Han Chinese. 42.85% of the sample reported their race as white. Most of the participants either lived with their parents or lived with roommate(s) (57.14%) while the remainder lived alone (14.28%) or lived with a partner and/or children (21.42%). The table on the next page expresses the attendance and demographics of the participants in the first session.

Table 5 Participant Attendance for Mindfulness Session One

<b>Pseudonym</b>	<b>Gender</b>	<b>Age</b>	<b>Living Arrangement</b>	<b>Race</b>	<b>Employment Status</b>	<b>City</b>	<b>Educational Program</b>
Hungry Wolf	Male	23	Lives with parents	White	Employed	Toronto, Ontario	Master of Global Affairs
Spring Robin	Female	40	Lives with spouse and children	White	Full-time	Quispamis, NB	PhD in Interdisciplinary Studies
Abrumada	Female	25	Live with roommate	Black Caribbean	Unemployed	Fredericton, NB	MA in Sport and Recreation Studies
White Oblivion	Female	18	Lives with parents	Dravidian	Unemployed	Abu Dhabi, United Emirates	BSE in Chemical Engineering
Cat Lady	Female	32	Homeowner	Bi-racial	Full-time	Saint John, NB	Master of Applied Health Services Research
Straight Forward	Male	19	Lives with parents	Indian	Unemployed	Punjab, India	Bachelor of Science in Computer Science
Ram	Female	29	Lives with roommate	Indian	Part-time	Fredericton, NB	PhD in Biology
JZ	Male	31	Lives alone	Han Chinese	Unemployed	Saint John, NB	Pre-MBA program
Pink Walnut	Female	23	Lives with roommates	White	Employed	Saint John, NB	Master of Applied Health Services Research
Rubber Maid	Male	34	Lives with spouse	Anglo	Unemployed	Saint John, NB	Bachelor of Arts
<b>Lucky Duck</b>	Female	20	Lives with parents	White	Part-time	Saint John, NB	Bachelor of Arts in Honours English
<b>September Moon</b>	Female	25	Lives with partner	White	Full-time	Montreal, Quebec	Master of Arts in Counselling Psychology
<b>Green Book</b>	Male	32	Lives alone	General	Part-time	Fredericton, NB	PhD in Interdisciplinary Studies
<b>Purple Parrot</b>	Female	23	Lives with roommate(s)	White	Part-time	Saint John, NB	Environmental Technology

**Note: 15 participants attended the live session; however, it was not noted which participants attended the live session.**

#### **4.2.2 Second Mindfulness Session**

For the second session, ten participants attended the session. Four participants attended the live session while the other participants listened to the recording of the session. Three male and seven female participants completed this session. The average age of the participants for this session was 27. The living arrangement of the participant was diverse as two participants lived with their parents, two lived alone, three lived with a partner and/or children. One participant did not specify their living arrangement. The participants' race was also diverse as three participants identified as white and seven participants identified as other than white, such as Indian, and Han Chinese. Most of the participants were employed, as six participants reported working while four participants identified as unemployed. The participants' educational programs were diverse; however, most identified as graduate students. 8 participants were graduate students while two participants were undergraduate students. Most of the participants resided in New Brunswick (seven) while the remaining participants (three) resided outside of New Brunswick, in cities ranging from Montreal, Quebec to Abu Dhabi, United Emirates. The table below represents the attendance for the second session and the participants' characteristics.

Table 6 Participant Attendance for the Second Mindfulness Session

Pseudonym	Gender*	Age	Living Arrangement	Race	Employment Status	City	Educational Program	Attended live or recorded session
Straight Forward	M	19	Lives with parents	Indian	Unemployed	Punjab, India	Bachelor of Science in Computer Science	Live
White Oblivion	F	18	Lives with parents	Dravidian	Unemployed	Abu Dhabi, United Emirates	BSE in Chemical Engineering	Live
Cat Lady	F	32	Homeowner	Bi-racial	Full-time	Saint John, NB	Master of Applied Health Services Research	Live
Spring Robin	F	40	Lives with spouse and children	White	Full-time	Quispamsis, NB	PhD in Interdisciplinary Studies	Live
Purple Parrot	F	23	Lives with roommate	White	Part-time	Saint John, NB	Environmental Technology	Recorded
Pink Walnut	F	23	Lives with roommates	White	Employed	Saint John, NB	Master of Applied Health Services Research	Recorded
September Moon	F	25	Lives with partner	White	Full-time	Montreal, Quebec	Master of Arts in Counselling Psychology	Recorded
Green Book	M	32	Lives alone	General	Part-time	Saint John, NB	PhD in Interdisciplinary Studies	Recorded
Abrumada	F	25	Live with roommate	Black Caribbean	Unemployed	Fredericton, NB	MA in Sport and Recreation	Recorded
JZ	M	31	Lives alone	Han Chinese	Unemployed	Saint John, NB	Pre-MBA program	Recording



### **4.2.3 Third Mindfulness Session**

For the third session, ten participants attended the session. Four of the participants attended the live session while the other six participants listened to the recording. The participants consisted of four males and six females. The average age was 26.8. The living arrangement of the participants was diverse as two participants lives with their parents, two participants lived with their partner and/or children, two participants lived with roommates, two participants live alone, and one participant did not specify her living arrangement. The participants' race was also diverse as four participants identified was white and five participants identified as other races, such as Black Caribbean and Han Chinese. Six of the participants were employed while the remaining four participants were unemployed. Most of the participants resided in New Brunswick (seven) while other participants resided in cities such as Abu Dhabi, and Montreal. The participants' educational programs were diverse; however, seven participants identified as graduated students whereas the remaining three participants were undergraduate students. The table below represents the attendance for the third session and the participants' characteristics.

*Table 7 Participant Attendance for the Third Mindfulness Session*

<b>Pseudonym</b>	<b>Gender</b>	<b>Age</b>	<b>Living Arrangement</b>	<b>Race</b>	<b>Employment Status</b>	<b>City</b>	<b>Education</b>	<b>Attended live or recorded session</b>
Straight Forward	M	19	Lives with parents	Indian	Unemployed	Punjab, India	Bachelor of Science in Computer Science	Live
Spring Robin	F	40	Lives with spouse and children	White	Full-time	Quispamis, NB	PhD in Interdisciplinary Studies	Live
Green Book	M	32	Lives alone	General	Part-time	Saint John, NB	PhD in Interdisciplinary Studies	Recorded
Cat Lady	F	32	Homeowner	Bi-racial	Full-time	Saint John, NB	Master of Applied Health Services Research	Recorded
Pink Walnut	F	23	Lives with roommates	White	Employed	Saint John, NB	Master of Applied Health Services Research	Recorded
Purple Parrot	F	23	Lives with roommate(s)	White	Part-time	Saint John, NB	Environmental Technology	Recorded
September Moon	F	25	Lives with partner	White	Full-time	Montreal, QC	Master of Arts in Counselling Psychology	Recorded
Rubber Maid	M	34	Lives with spouse	Anglo	Unemployed	Saint John, NB	Bachelor of Arts	Recorded
White Oblivion	F	18	Lives with parents	Dravidian	Unemployed	Abu Dhabi, United Emirates	BSE in Chemical Engineering	Recorded
JZ	M	31	Lives alone	Han Chinese	Unemployed	Saint John, NB	Pre-MBA program	Recorded

#### **4.2.4 Fourth Mindfulness Session**

For the fourth session, six participants completed the session. One participant attended the live session while the remaining five participants listened to the recording. The participants consisted of three males and three females. The average age was 27.33. The participants' living arrangement was diverse as one participant lived with their parents, one participant lived with their roommate, two participants lived with their partner, and one participant lived alone; however, one participant did not report their living arrangement. The participants' race was also diverse, as two participants identified as white, while the remaining participants identified as other races, such as Indian, and Bi-racial. The participants' employment status was diverse as half of the participants were employed while the other half were unemployed. Four of the participants resided in New Brunswick while the remaining two participants resided in Punjab, India, and Montreal, Quebec.

*Table 8 Participant Attendance for the Fourth Mindfulness Session*

<b>Pseudonym</b>	<b>Gender</b>	<b>Age</b>	<b>Living Arrangement</b>	<b>Race</b>	<b>Employment Status</b>	<b>City</b>	<b>Education</b>	<b>Attended live or recorded</b>
Straight Forward	Male	19	Lives with parents	Indian	Unemployed	Punjab, India	Bachelor of Science in Computer Science	Live
Purple Parrot	Female	23	Lives with roommate(s)	White	Part-time	Saint John, NB	Environmental Technology	Recorded
September Moon	Female	25	Lives with partner	White	Full-time	Montreal, QC	Master of Arts in Counselling Psychology	Recorded
Cat Lady	Female	32	Homeowner	Bi-racial	Full-time	Saint John, NB	Master of Applied Health Services Research	Recorded
Rubber Maid	Male	34	Lives with spouse	Anglo	Unemployed	Saint John, NB	Bachelor of Arts	Recorded
PZ	Male	31	Lives alone	Chinese	Unemployed	Saint John, NB	Pre-MBA program	Recorded
Green Book	Male	32	Lives alone	General	Part-time	Fredericton, NB	PhD Interdisciplinary Studies	Recorded

### **4.3 Participants' Experience of Each Mindfulness Session**

Five overarching themes emerged from the weekly surveys completed after each mindfulness session: Positive Responses, Challenges, Reflections, Realizations, Accessible, and Interesting. Each of these themes and their sub-themes will be discussed in depth in the following paragraphs.

### **4.3.1 Mindfulness Session One**

Overall, the participants expressed positive responses for the mindful breathing and movement session. Several participants enjoyed the experience because they reported relaxation, it enhanced how they felt in their body, and enhanced the connection to their body. Four participants reported challenges because they had difficulties related to distractions and focus. Three participants reported discomfort because it was unfamiliar, but they still found the session beneficial. In addition, four participants reflected on their self-consciousness and acquired knowledge.

#### **Positive Responses**

##### **Relaxing**

Six of the participants (GI, PZ, HW, SR, WO) (pseudonym initials) found the session relaxing because it helped them release tension in their body, free their mind by focusing on their body and allowed them to immerse themselves in the dancing meditation. For example, WO wrote *“the breathing part was quite soothing. Had a pleasant time participating tonight.”*

SR reported similar findings, *“I also found that I got 'lost' in the movement after a few moments, which I hadn't anticipated. I now feel both relaxed and energized.”*

In addition, PZ's response reported that they are hopeful: *“I feel good, and that following your sessions would give me an opportunity to practise bringing me peace of mind.”* Therefore, PZ is hopeful that they will achieve peace of mind by following these sessions.

##### **Enhanced how they feel in their body**

Two participants (GI and CL) reported that the session enhanced how they feel in their body. GI wrote *“I felt some tension releasing - especially in my jaw. My body felt great after the movement meditation - standing still after having moved so randomly felt almost like little tingles in my muscles. I liked it.”* CL said *“I liked putting on music I enjoy dancing to and don't do this enough. It's nice to shake all the tension out.”*

### **Enhanced the connection to their body**

Two participants (GB and PP) reported that they felt a greater connection to their body after completing this session. GB said, *“It helped a bit to free my mind and I feel my body was involved in another task, so less thinking about other stuff.”*

In addition, PP said *“The shaking meditation and dancing meditation got me out of my mind and into my body. It was nice to let go and be completely in the moment. These exercises left me feeling more present and energized.”*

### **Challenges**

Four participants experienced challenges while participating, since it was difficult to stay focused on breathing because of constant thoughts, some were distracted by external factors such as their phone, and background noises (i.e., bathroom fan, partner cooking), and some reported discomfort. The sub-themes of challenges are discomfort, focus, and distractions.

### **Unfamiliar**

Even though some participants (SF, RM) expressed how the movement meditation felt weird, silly, and some laughed at themselves while participating, they still found the experience beneficial. For example, SF wrote *“It was a good experience, I laughed at*

*myself when I was doing some random and funny movements, so it was fun and enjoyable.”*

In addition, RM wrote *“As a first timer, I was amused, giddy and wondering why I was doing what I was doing. I did enjoy it and will do it again at least once before next week’s meeting.”*

### **Interesting**

In addition, five participants stated that this was an interesting and/or unique experience, and one participant stated it was *“kind of awkward.”*

### **Focus**

Participants GI and LD reported having difficulty focusing during the session. For example, GI wrote *“thoughts came in equally with both techniques, but I’ll work on identifying when thoughts come in sooner.”* In addition, LD wrote, *“I had trouble focusing on my breathing because I would get distracted by other thoughts, but I tried to let them pass as best as I could.”*

### **External distractions**

Two participants (CL and PW) reported difficulties related to distractions during the session. CL wrote that *“I had a hard time putting my phone away in the begging as a friend is having a problem and we were talking (sorry).”* In addition, PW wrote, *“I had a hard time focusing during the mediating session because of external factors. In the background, the bathroom fan was running, and my boyfriend was cooking dinner (pots and pans were loud). I went through the guided motions but had difficulty clearing my mind and not getting distracted.”*

### **Reflections**

### **Self-conscious**

Three participants (LD, Abramada and CL) expressed their perspective related to consciousness. Two participants had opposing views for practicing the movement meditations, as CL expressed how this session encouraged them to not feel self-conscious of practicing in public, such as at work, whereas Abramada expressed how they would not have actively engaged if their cameras were not turned off.

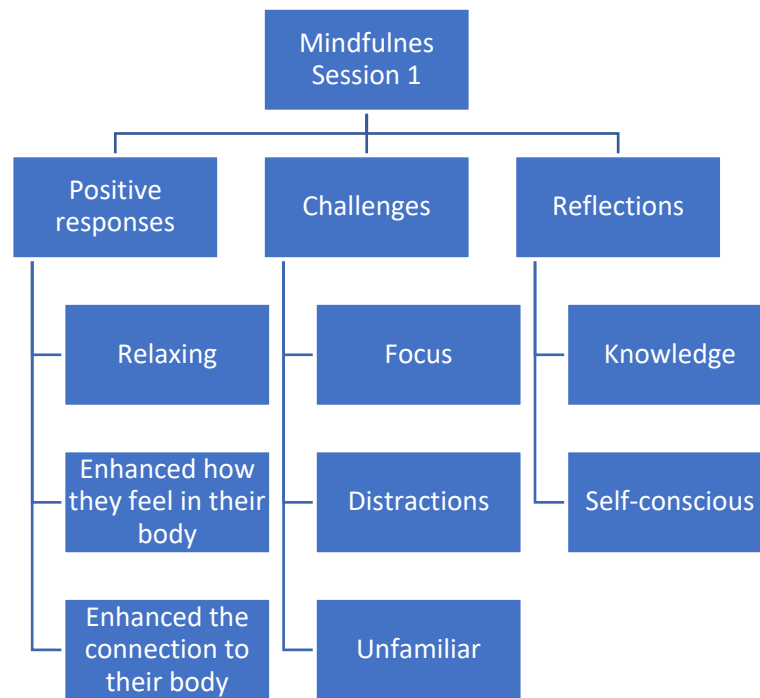
In addition, LD wrote that *“The shaking exercise was interesting. I have done it more to music previously as I find intensely dancing helps dispel my anxiety and/ or wake me up. Without the music, I was much more conscious of my movement. It made me feel tingle-y afterwards.”*

### **Knowledge**

SM expressed how this session reminded them to implement prior knowledge, such as positive self-talk. For example, SM wrote *“Things that I have learned that are very helpful is saying "thinking" or "feeling", also drawing our thoughts in an imaginary bubble and then blowing them away when breathing out.”*



Figure 2 Themes of Mindfulness Session One



#### 4.3.2 Mindfulness Session Two

Overall, the participants expressed positive responses for the mindful eating exercise.

Several participants enjoyed the experience and found it beneficial because they reported it gave them a greater appreciation for the food they eat (two), relaxation (two), increases concentration (two), awareness (three), gratitude (one), allowed them to learn how the food felt in their mouth (one), and learn how to control their impulses (one). Participants said the session gave them a greater appreciation for their food because they thought about how far it came from, and the people responsible for harvesting, shipping, and packaging the food, etc. Many participants also reported developing an awareness of their behaviour, such as the temperature of their food, paying attention while they eat, noticing all the characteristics of the food, such as smell, predicting when they will swallow their

food next. Two participants reported that the session was relaxing because it was calming and allowed them to relax from their hectic schedule.

### **Challenges**

Three participants said this session was challenging because it was more difficult to get into than the first mindfulness session, difficult to stay present, experiences of aspects of guilt and larger emotions and thoughts surfaced, which were harder to let pass, and it was difficult to connect to the practice because it was difficult to imagine practicing this exercise daily, given time restraints.

### **Accessibility**

Two participants also found the session accessible because they reported the length was enjoyable, as it makes meditation less daunting. In addition, some participants found it helpful that the sessions were recorded because it allowed them to participate on their own time. While one participant said that it was not feasible to practice mindful eating regularly, several participants expressed interest in practicing mindful eating again, despite the challenges they faced during the session. Five participants expressed that they would like to practice mindful eating again in the future, and one participant who found the session challenging, said that they would still like to practice this exercise again in the future. For example, RM reported, *“I will absolutely take the chance to think about my food and my body eating it several more times before the next intervention”* and SM reported *“I enjoyed the mindful eating and feel as though it would be beneficial to implement as an everyday practice.”*

### **Reflections**

Three participants reflected on how their eating habits generally lack mindfulness.

Participants said that they often eat without paying any attention, do not usually focus on how the food feels in their mouth, and chew food and swallow without much awareness.

For example, PZ wrote, *“For a long time, I had chewed food and swallowed without much awareness; I also drank a cup of coffee without much awareness.”* SB wrote, *“eating is so commonly not mindful and more rote.”*

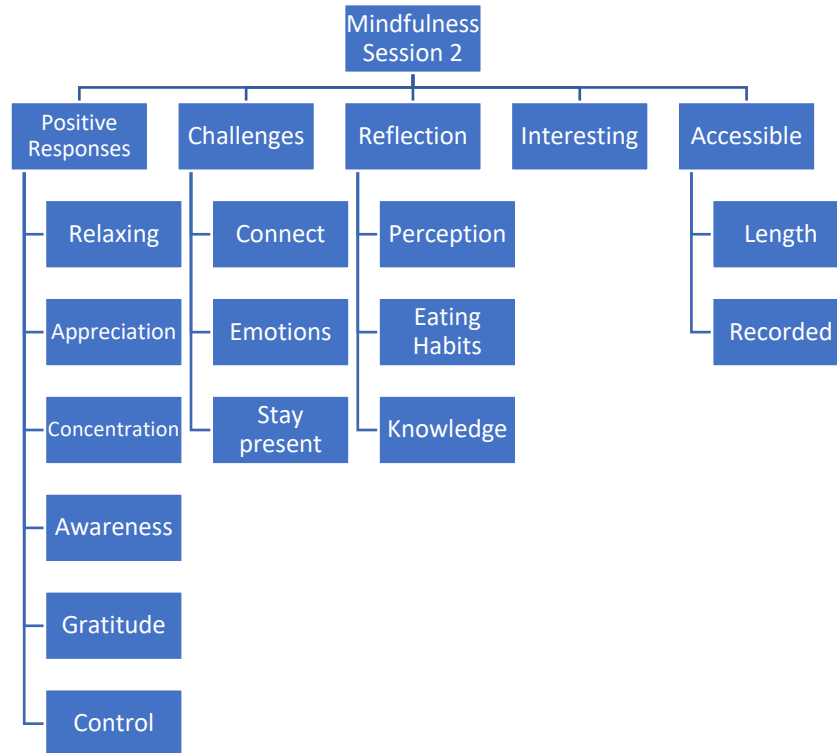
For another participant, this session provided a reflection on their prior knowledge of the food industry and past meditation and mindfulness purchases. SR wrote that they *“recommend the book the 100 Mile Diet for a literal interpretation of where your food comes from. Your suggestion to practice mindfulness this week reminded me I should use the Buddhify app I paid for more often. Thank you.”*

Other participants in the study reflected on how this exercise shifted their perception of a seemingly ordinary activity, as it led them to think about the food industry and observing their food. For example, SM wrote that *“It was nice taking time to look at my piece of cucumber. It sounds silly but imagining it was my first time seeing a piece was unique experience.”*

### **Interesting**

Two participants reported that this session was an interesting experience, while two other participants reported that this experience was a unique experience, because the unique aspect of the experience emerged from a very common activity, eating. The two participants who reported the experience as interesting did not provide an explanation for this.

Figure 3 Themes of Mindfulness Session Two



### 4.3.3 Mindfulness Session Three

Overall, the participants expressed positive responses for the body scan meditation. Most of the participants enjoyed the experience because they reported it was relaxing (three). Other participants enjoyed this session because they liked setting an intention (two), it lightened and set their mind free (two), allowed them to take a step back and breathe (one), and allowed them to feel more in tune with themselves by practicing consistently (one).

#### Positive Responses

Eight participants reported positive responses for this session.

## **Relaxation**

Three participants reported it was relaxing. For example, PP wrote that “*I did feel calmer after the practice,*” and SF wrote, “*It was a very relaxing experience as my mind felt so free and light.*”

## **Challenges**

Four participants reported challenges during this session. Several participants found it challenging because they felt distracted and had difficulty focusing on the sensations of different parts of their body and shifting the focus of their breath to different parts of the body while breathing.

## **Distracted**

Three participants felt distracted because of external reasons, such as having a dishwasher running in the background; however, it is unclear why PP said they were distracted. They may have been distracted for internal or external factors. While these participants felt distracted during the session, the participant SF was able to overcome their distraction; however, PP and CL felt distracted during the whole session. Even though PP and CL were unable to overcome their distraction, PP still felt calmer after the practice, and CL still enjoyed certain aspects of the practice, such as being reminded about posture. RM, the participant who overcame their distractions, said they were able to do so, because “*ignoring it (dishwasher) became surprisingly easy once I began to think about the parts of my body that I don’t usually think about. The sensations that we are so accustomed to as background parts of life become quite loud and, in the foreground, if you let them.*”

Similarly, SR, who did not report challenges, wrote, *“I also appreciate the intention within mindfulness practice of accepting outside thoughts and noises and allowing them to pass.”* Perhaps SR’s skill of this intention was stronger, which is why he did not report challenges.

Two participants reported difficulties related to breathing and focusing on different parts of the body. WO wrote, *“this was a little difficult because of shifting the focus of our breath to different parts of the body at the same time wholly breathing.”*

Similarly, PZ, wrote, *“While breathing, focusing on the sensations in my stomach region and heart region is easier than other parts of my body.”*

While WO, did not report a desire to practice this exercise again given the challenges, PZ reported a desire to practice again. For example, PZ, wrote, *“And this can be practiced even when I sit in the classroom – focus on each internal organ within one to three breathing.”*

### **Realizations**

Five participants reported realizations that surfaced during this session. Two participants realized how they were truly feeling afterwards. For example, PW, wrote, *“It felt nice to take a stand back and breathe for a minute. It needed it more than I thought.”* Similarly, PP wrote, *“When I began breathing deeply and focusing on the different areas of the body, I realized how exhausted I felt.”*

Other participants realized how their behaviour has improved since the first session, realized how external distractions may be overcome, and how there is a lack of awareness surrounding certain body parts. For example, SR, wrote, *“I am more able to*

*pause and let frustration or anger or self-deprecating thoughts happen and then pass with mindful practice.”*

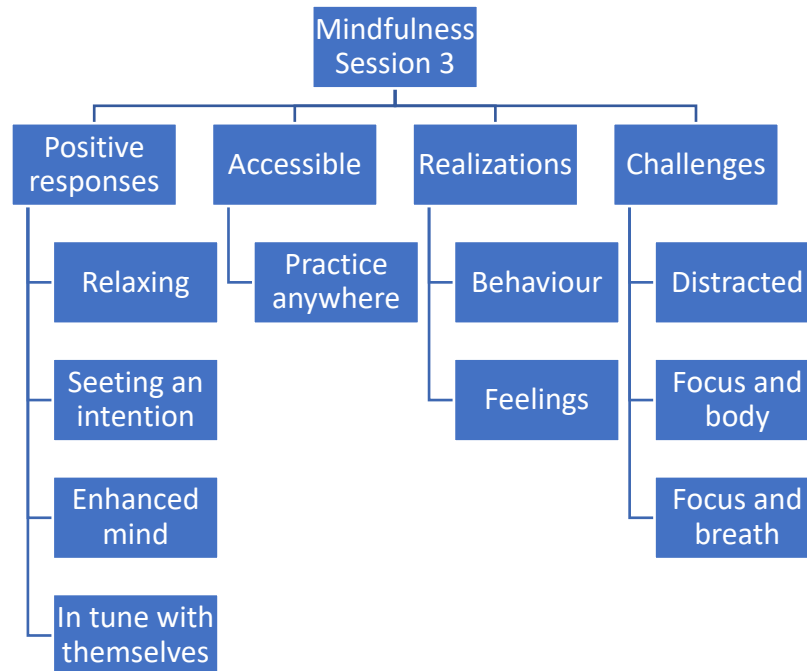
Instead, SF, reported that *“Ignoring it (dishwasher) became surprisingly easy once I began to think about parts of my body that I don’t usually think about. The sensations that we are so accustomed to as background parts of life become quite loud and, in the foreground, if you let them.”*

### **Accessibility**

Three participants revealed the accessibility of mindfulness. These participants expressed it was accessible because it can be practiced anywhere. For example, PZ, wrote, that *“And this can be practiced even when I sit in the classroom – focus on each internal organ within one to three breathing.”* Similarly, SF demonstrated the accessibility of the exercise, as he wrote, *“ignoring it (dishwasher) became surprisingly easy once I began to think about the parts of my body that I don’t usually think about.”* SF’s response suggests that he this practice can be practiced in noisy spaces.

Conversely, CL’s responses suggested that this mindfulness exercise was not accessible because they were distracted by external factors, as she completed this session at their workspace. The above responses suggests that how mindful (skill level) you are determining the extent of its accessibility, such as how many places you can practice it in.

Figure 4 Themes of Mindfulness Session Three



#### 4.3.4 Mindfulness Session Four

Overall, the participants expressed positive responses after completing the loving-kindness meditation. Most of the participants enjoyed the experience because they said it was relaxing (three), provided techniques to practice daily, such as how to cope with negative thinking (two), connect with other students (one), and increased compassion (one).

##### Positive Responses

Eight participants reported positive responses for this session.

##### Relaxing

Two participants expressed that this session was relaxing. Another participant, GB, implied it was relaxing, as they wrote, *“I felt I was away from my thought for few*



moments.” In addition, SF wrote that *“it was a very relaxing experience”* but he did not provide an explanation for this reasoning.” Similarly, PP wrote that *“the loving-kindness meditation left me feeling more compassionate and calm.”*

### **Benefits of Mindfulness**

Four participants expressed that mindfulness is beneficial. These participants reported that mindfulness provides helpful techniques to practice daily, such as combatting negative thinking, provides coping skills, enhances well-being and connect with other students. For example, PP wrote that *“I think this practice was very helpful as it can be easy to get caught up in negative thinking. The loving-kindness exercise is a very strong way to counter that.”* Similarly, SM wrote that *“I think mindfulness is a skill that is learned, and I appreciate you wanting to teach and make others aware. I think mindfulness is key to cope.”*

In addition, PZ expressed how it enhances well-being: *“I think I will tend to feel good about myself by practicing meditation, in breathing, eating, body scanning, and connecting with people in my mind.”*

While PP, PZ, and SM expressed the benefits of mindfulness related to skills, coping mechanism, and enhancing well-being, CL expressed how the mindfulness intervention was socially beneficial. CL reported that, *“It was a nice way to connect with other students in a group. It made me mindful to spend time with more people.”*

### **Challenges**

One participant found the session challenging. RB had difficulty practicing this exercise: *“I found it difficult to visualize certain things like sending my love to even people I knew.”*

*In addition, it became difficult to think of some of the people I have met who I am convinced only find joy in other's suffering."*

In addition, while PZ did not find this session challenging, they did reflect on how they still have difficulties with the shaking meditation. PZ wrote, *"I haven't get used to shaking my body, and that's the one I would also try."*

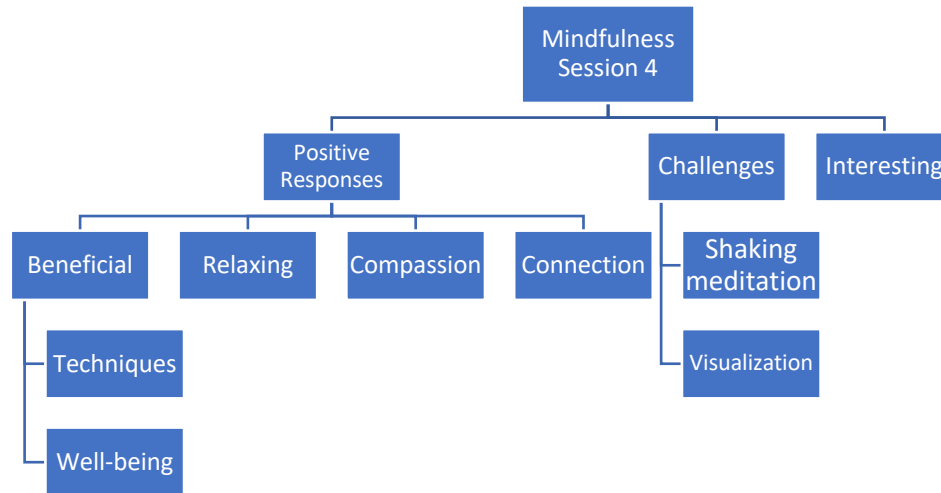
### **Interesting**

GB reported that the session was a unique experience because they wrote, *"I felt was away from thought for a few moments."* In addition, CL stated that *"it was interesting to help me be more mindful of my after-work activities."*

### **Attendance**

One participant reflected on her attendance. CL stated, *"I forgot about a session because I was overwhelmed with tasks to complete."*

Figure 5 Themes of Mindfulness Session Four



#### 4.4 Post-Intervention Qualitative Survey Findings

The following section discusses the themes that emerged in the final post- intervention qualitative survey after the participants completed the final session of the intervention.

This section discusses the participants’ views on mindfulness and coping with stress, how the intervention affected their stress coping skills, what they learned/gained from this experience, what stayed the same and/or changed for them throughout this experience, which supports, and challenges will influence their mindfulness practice, how they coped with negative emotions, their usage of the UCLA app, and their final thoughts on mindfulness. Seven participants completed the final post-intervention qualitative survey.

##### 4.4.1 Mindfulness and Stress

Overall, most of the participants expressed that mindfulness is helpful to cope with stress. However, two participants were uncertain to what extent mindfulness can be helpful to cope with stress.

Four participants reported that mindfulness useful to cope with stress, and the participants expressed varying degrees of how important mindfulness is to cope with stressors.

The participants: PP, PZ, SM, SF and CL strongly believe that mindfulness is important to cope with stressors. For example, PP wrote that *“Being present and aware in times of stress is incredibly important when it comes to managing these stressors. Oftentimes, when we are not present, we get carried away with these stresses and let them overcome us. Practicing mindfulness is an excellent way to gain awareness and cope with these issues in a healthy way.”*

Similarly, PZ wrote that *“I think mindfulness is very helpful for coping with stress in my personal life, learning or work. It can increase the possibility of being at ease and feeling comfortable with my body and mind, and thus I can perform better.”*

SM’s response also aligned with participants PZ and PP, as they wrote, *“I think mindfulness is key to cope.”*

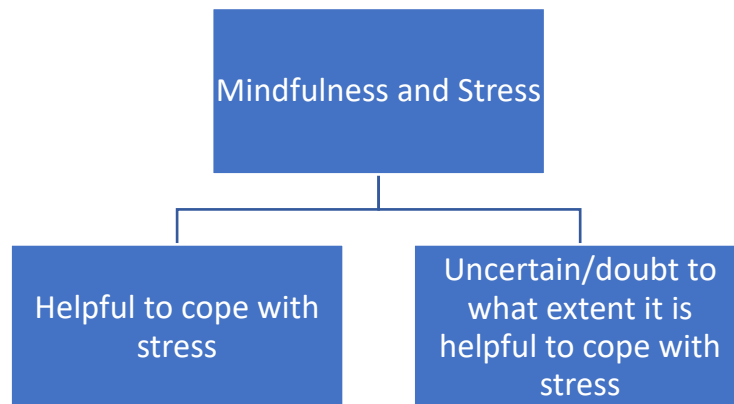
However, participant SF does not believe that mindfulness is as important to cope with stress as the participants: PP, PZ, and SM. SF wrote, *“It is very nice as it takes away some stress and helps feel good.”*

It is unclear to what extent the participant CL believes that mindfulness is effective to cope with stress. However, they reported that this intervention encouraged them to use another mindfulness application and referenced how it has helped them academically. CL expressed, *“This has helped me to use another mindfulness app Buddhify. For academic demands, it has helped me to feel more in control.”*

Participants GB and RB's responses reported uncertainty and doubt regarding the effectiveness of mindfulness to cope with stress. For example, GB wrote, *"I believe it helps but not in acute and intense situation, it's good for regular and routine stuff but not when you are faced with a real and important challenge."*

While GB wrote they did not believe mindfulness could be applied to all stressful situations, RM is uncertain of mindfulness's capacity to cope with any stressors. RM reported, *"I feel like it is worth trying and I intend to continue and have been practicing some of the meditations but maybe not as it corresponds to stress."*

Figure 6 Mindfulness and Stress



#### 4.4.2 Stress Coping Skills Before and After the Intervention

Overall, most of the participants' mechanisms to cope with stress changed after they began the intervention. The participants did not reveal their past mechanisms and/or behaviours to cope with stressors prior to the intervention. While the participants did not

reveal their past coping mechanisms, their responses suggests that they did not practice any coping mechanisms to cope with stress. While most of the participants reported changes, one participant did not report changes while another participant was unsure if changes occurred for them.

### **Prior to the Intervention:**

#### **Inaction**

Several participants suggested inaction as their primary behaviour to cope with stress prior to the intervention. The participants PP, PZ, and SM reported that they were negatively impacted emotionally by schoolwork and related demands in the past. While they still experience stress related to schoolwork, their responses reported that they are now applying mindfulness skills to cope with these stressors.

For example, PP, wrote *“I often feel overwhelmed with workload, this makes me anxious, panicked, and has a large impact on the way I speak to myself. I have often let these negative feelings take control. Participating in this study has given me tools to work through them. Although I still feel overwhelmed and sometimes forget to be mindful, I know that with practice I can reduce a lot of my stress in the future.”*

### **Post-Intervention:**

#### **No Changes**

Conversely, the participant GB did not report changes in relation to coping with stress, the participant RM was uncertain if their stress coping mechanisms changed, and it is unclear if the participant SF implemented mindfulness.

GB wrote, *“Yes, I believe there is no difference, because those acute situations cannot be managed by interventions, this is what I believe.”*

While the participant RM wrote, *“I am not sure if anything changed,” they also reported that, “I have been improving slowly as I better understand my own capabilities and how work piles up.”*

The participant SF wrote, *“Once, I had my exam, but I was not prepared for and only one day left. I felt very stressed, but I tried my best to cover the syllabus by studying till night.”* While SF was not mindful of the amount of time they needed to study for their exam, the acceptance of their circumstance does suggest that they chose to take a mindful approach.

### **Mindfulness Skills Implemented**

Several of the participants reported mindfulness tools they have implemented to cope with their stress. The participants PP, CL, PZ, and SM all reported mindful skills they have begun implementing to cope with stress. The mindful skills they implemented consist predominantly of enhancing their awareness to better manage a stressful situation and to better understand how they are feeling, so they can best support themselves when they are stressed.

For example, after completing a group project, PZ expressed, *“Now I realised that I lack being tolerant and grateful, although I would say that the two or three partners were not really responsible for or contributed to the teamwork.”* While PZ only felt *“calm and confident again”* a week after completing the group project, they realized that the traits they discovered about themselves through self-reflection, is what contributed to their stressful group project. Therefore, the insights they gained about themselves may reduce the stress they face in similar situations moving forward.

Similarly, SM reported that *“In the past, when schoolwork would cause high levels of stress, I would become upset and irritable. Now, I take time for me – walks, breathing, writing. I do not let something small ruin my day – I am in control.”* Like PZ, SM expresses a better understanding of their capabilities and needs to best support themselves, as they mention, *“I am in control”* after affirming their need to take time for themselves and to not let their internal well-being be controlled by external factors.

CL’s response is also aligned with SM and PZ, as they learned to accept and become comfortable with external circumstances. CL reports, *“I’ve been stressed talking with profs when I wasn’t being productive enough. I learned to be okay with silence and try not to talk too much.”*

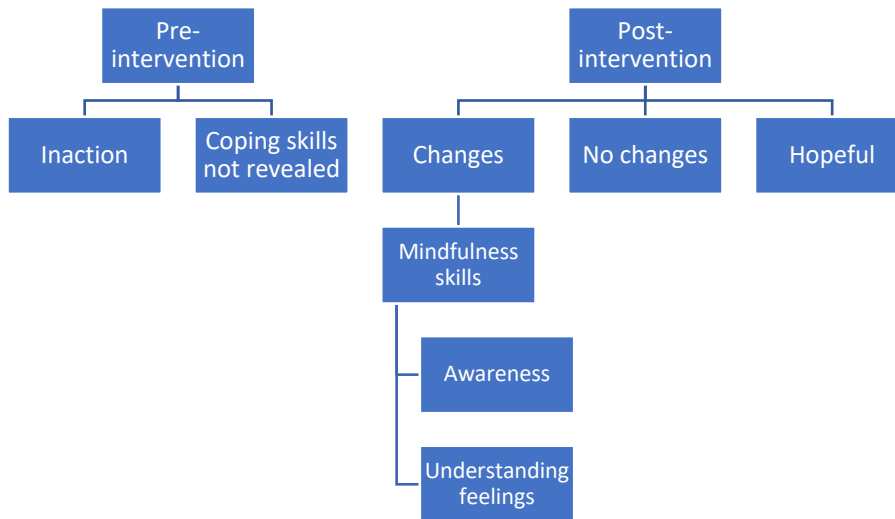
PP did not express the mindfulness skills they have implemented; however, they did report that *“I often feel overwhelmed with workload, this makes me anxious, panicked, and has a large impact on the way I speak to myself. I have often let these negative feelings take control. Participating in this study has given me tools to work through them.”* Therefore, the mindfulness tools they have begun implementing are predominantly geared to work through their negative feelings.

### **Hopeful**

PP wrote, *“Although I still feel overwhelmed and sometimes forget to be mindful, I know that with practice I can reduce a lot of my stress in the future.”*



Figure 7 Stress Coping Skills Before and After Mindfulness Intervention



#### 4.4.3 Knowledge the Participants Gained from the Study

Overall, most of the participants learned that mindfulness is a skill, gained insight on themselves, and learned how to enhance their interpersonal relationships and better manage their external circumstances.

##### **Mindfulness is a Skill**

Three participants (CL, SM, and PP) learned that mindfulness is a skill and the importance of practicing it. For example, CL wrote “*Small bursts of effort are better than no effort. Keep trying it takes practice to get better at things.*” Similarly, SM reported

*“This skill needs to be practiced often.”* In addition, the response of participant PP reveals that their understanding of mindfulness as a skill, helped them put this skill into practice.

PP wrote that *“Prior to this experience, I knew that it was important to be mindful, yet I went through life without practicing in moments when I needed it most. I have learned how **accessible** mindful is, it is something I can **practice** at any time, I have learned to be kinder and more patient with myself, and that everything is a **practice**.”*

PP’s response reveals that they had an intellectual understanding of mindfulness prior to the intervention, but now they gained the skills to practice mindfulness.

### **Gained Insight**

Several of the participants gained insight on themselves to better manage external circumstances and interpersonal relationships. The participants PZ, SF, RM and GB gained such insight. For example, PZ wrote *“I learnt that human relationships are like that. Take it easy, and do not bring emotional pains to myself, nor another one.”*

Similarly, SF said *“I learnt that we ourselves are the reason for our problems. So either don’t do anything which can be problematic for, or if you still fall in a problem immediately look for a solution.”*

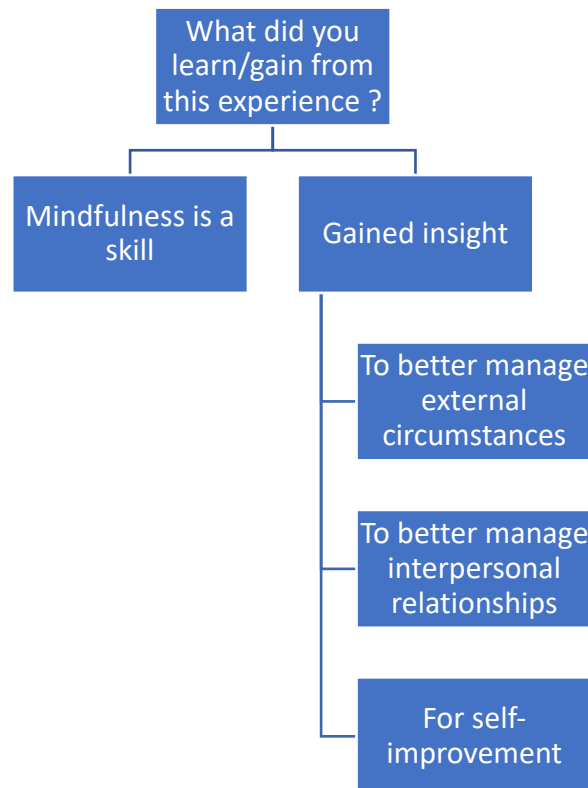
PZ and SF’s responses reveal how they gained a deeper understanding of themselves to better manage their interpersonal relationships and circumstances.

RM’s insights also revealed insights they gained about themselves to overcome their shortcomings. RM said *“This experience has provided me with some insight into my own memory. I have been **practising** concentration and listening to my body's messaging*

*and mind's monologue more closely in an attempt to overcome some of my shortcomings.”*

In addition, GB reported that “*active listening is important,*” which is aspect of healthy interpersonal relationships.

*Figure 8 Knowledge the Participants Gained from the Intervention*



#### **4.4.4 Aspects that Changed and Stayed the Same**

All the participants experienced changes throughout this mindfulness intervention. From the six participants who experienced changes, three of these participants also reported aspects of their life that stayed the same through this intervention.

#### **Changes throughout the intervention**

Most of the participants reported changes regarding their behaviour to promote well-being, focus, changes in their perspective (not daunting, eating), and increases in the amount of time they practice mindfulness.

### **Well-being**

Participants SM, PZ, GB, and SF reported enhanced knowledge of well-being and well-being habits throughout the intervention. For example, SM wrote that “*I made more efforts to take time for myself.*” Similarly, PZ wrote “*What’s changed was that now I know how to have peaceful mind with new, helpful method.*”

In addition, GB wrote, “*As I said it's a good thing to use when you tired or thinking too much about your routine stuff.*”

While SF did experience stress reduction during the mindfulness sessions, the stress was only reduced momentarily. SF wrote, “*my stress reduced during the meditation, but it was back after those sessions.*”

### **Focus**

The participant RB reported that their focus was enhanced during the intervention. RB wrote, “*I feel like I can keep a little more focus on a mental task by controlling my breathing and convincing myself to stay on task and bring wandering thoughts back without judgment.*”

### **Changes in their perspective**

Participants PP and CL experienced changes in their perspectives. For example, PP expressed “*I had thought meditation to be daunting, but it is very simply something you can drop into at any moment. I became more aware of myself forgetting to be mindful which served as a good reminder to be more mindful. This is something I will have to*

*practice.*” Therefore, PP developed the perspective that mindfulness is accessible instead of daunting, as they previously believed.

Similarly, CL expressed that the mindful eating exercise was eye opening for them. CL reported *“I really liked the snack activity. I ate something I frequently eat quickly (a cookie), but the tasks you had us focus on were really eye opening.”*

### **Increased accountability to practice mindfulness**

PP reported that *“Being a participant in this study held me accountable to practicing mindfulness. I think this accountability was important especially as someone new to the practice.”*

### **Aspects that stayed the same for participants**

Participants CL and PZ reported aspects, such as focus and external factors, that stayed the same throughout the intervention.

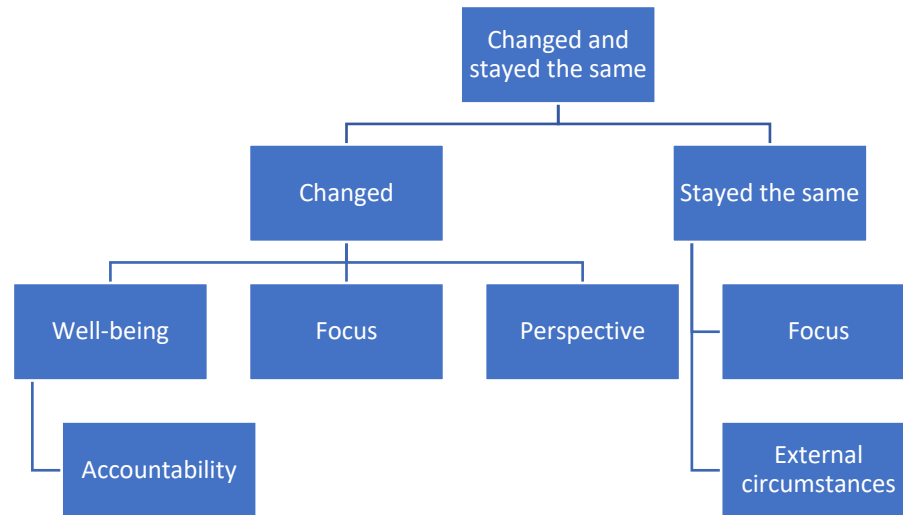
### **Focus**

CL reported that *“What stayed the same was having one ear open to doing something else while trying to focus on the mindful sessions.”*

### **External circumstances**

PZ expressed *“what stayed the same is that I always need to negotiate challenges in my life.”*

Figure 9 Aspects that Changed and Stayed the Same for the Participants



#### 4.4.5 Coping Skills for Negative Emotions during the Intervention

Most of the participants experienced negative emotions during the four-week period of the mindfulness intervention except for two participants. Of the participants who experienced negative emotions, they coped by engaging in physical activities, such as sports, talking with someone, mindfulness, and rest.

##### **Physical activity**

Most of the participants reported using physical activity to cope with negative emotions. PP, SF, CL, and SM all expressed that they used physical activity, such as walking, to cope with negative emotions. For example, CL wrote “*I also used exercise as a way to*

*cope. Boxing in particular.*” Similarly, SF wrote, *“I tried things that I love to do like playing badminton and left the work left the work aside for some time.”*

### **Talking with someone**

The participants CL, and PP reported that they talked to someone when they experienced negative emotions.

### **Mindfulness**

The participants PP, RM, and SM reported that they used mindfulness, such as meditating, to cope. For example, PP wrote *“I did experience these feelings, at times I let them overcome me, other times I used physical activity, talking with a loved one, and I did practice mindfulness more than I had in the past.”*

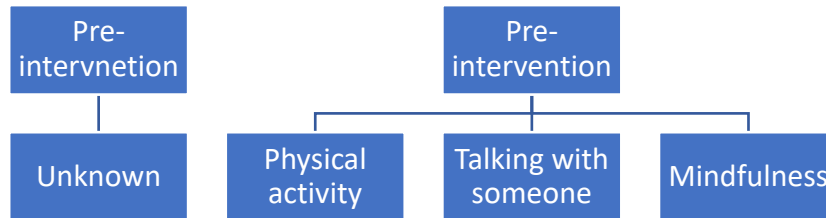
RM reported being mindful and reflecting on his thoughts and reasoning. RM wrote *“I am often frustrated or irritated as is my nature. I did find myself listening a little bit more to my internal reasoning and refocusing on what I was mad about more recently. That said, not always.”*

In addition, while PZ did not experience negative emotions, he reported that he can use mindfulness moving forward to cope. PZ wrote, *“now I can use mindfulness as well, for example, when I go for a walk or sit on a chair, or even stand at somewhere close to plants.”*

#### **4.4.6 Coping Skills for Negative Emotions Pre-Intervention**

Most of the participants did not report how they coped with negative emotions prior to the intervention. However, PZ wrote, *“having a good sleep will be my tip to cope with that situation; apart from plenty of sleeping, now I can use mindfulness as well.”*

Figure 10 Participants' Coping Skills for Negative Emotions Pre-Intervention



#### 4.4.7 Supports and Challenges to Practice Mindfulness

Most of the participants said that time, remembering, and discomfort will be the greatest challenges that influences them to continue practicing mindfulness. Conversely, most of the participants said that scheduling, well-being and practicing mindfulness properly will be the greatest supports to help them to continue practicing mindfulness.

##### **Challenges that will influence the participants to continue practicing mindfulness**

The participants PP, CL, RM, and SM reported challenges related to time, memory, and discomfort.

##### **Time**

Participants CL, RM, and SM all reported challenges related to time. For example, CL said “*dedicating the time for it is hard.*” Similarly, participant RM wrote, “*Although it doesn't take up particularly much time it is a little bit to add to the schedule.*” In addition,



RM wrote *“a busy schedule will be a challenge.”* While the participants did not say mindfulness particularly requires a significant amount of time, implementing mindfulness into their schedule is a challenge in itself. In other words, they must form a habit of practice mindfulness and decide when it is best for them to practice. This process may require some trial and error to see what works best for them.

### **Memory**

The participants PP and RM reported that remembering will challenge their mindfulness practice. For example, PP wrote *“I believe reminding myself to be present and aware will be the largest challenge as it is easy to get caught up in everything that is going on.”* Similarly, RM wrote *“I suppose the only limitation is my own memory.”*

### **Discomfort**

One participant, RM suggested that their comfort regarding certain mindful exercises may be a challenge. RM wrote, *“Additionally I felt a little weird doing the first days shaking and am not too sure about that one.”*

### **Supports that will influence the participants to continue practicing mindfulness**

The participants CL, PP, SM, PZ, and GB reported that scheduling, and well-being act as supporters to continue practicing mindfulness.

### **Schedule**

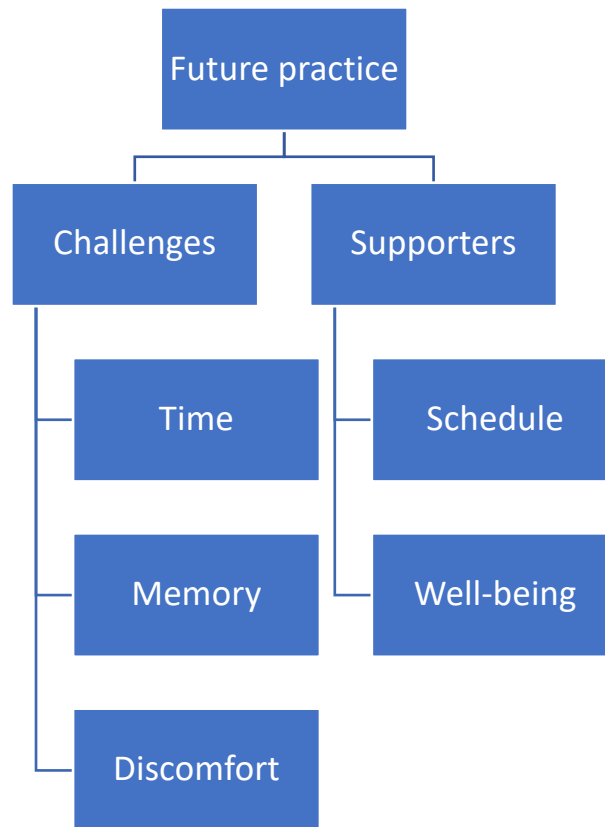
Participants CL, PP, and SM reported that scheduling will greatly influence the likelihood of them practicing mindfulness moving forward. For example, PP wrote *“I think if I schedule a designated time for myself to practice mindfulness every day, I will be more successful.”* Similarly, SM wrote *“A goal and checklist will be a good support to ensure I stay consistent.”*

## Well-being

Participants SF, GB, and PZ reported that well-being is a significant factor for them to continue to practice. For example, SF wrote “*reduction in stress is the reason I feel I should continue this.*” Similarly, GB wrote “*It depends on levels of mental health, healthier more you use I guess.*”

In addition, PZ wrote “*Using mindfulness is much of a quiet thing, so when I get to use **mindfulness properly**, I feel good about myself, and I am more likely to continue practising this skill.*” PZ’s response suggests that because mindfulness enhances their well-being, they will be motivated to continue practicing mindfulness. It is unclear what PZ means by using “*mindfulness properly.*” PZ may be suggesting the depth of focus or time they devote to mindfulness to feel a certain way afterwards.

Figure 11 Challenges and Supporters to Continue Practicing Mindfulness



#### 4.4.8 Learning about Mindfulness Online Versus In-Person

Five of the participants reported that practicing mindfulness online positively impacted their experience. One of the people reported learning about mindfulness online was challenging because of distractions. One of the participants was uncertain if learning about mindfulness in-person would have enhanced their experience and two of the participants did not believe that an in-person intervention would have enhanced their experience.

##### **Positive aspects of learning about mindfulness online**

Four of the participants (PP, CL, PZ, RM, and SM) reported positive experiences from learning about mindfulness online. They believe it was positive because an online

intervention fostered accessibility and awareness, met their needs, and alleviated discomfort.

### **Accessibility**

Three of the participants (RM, PP, and SM) reported that learning about mindfulness online fostered accessibility. For example, RM wrote *“Online learning allowed me to participate as I was unable to attend on Tuesday evenings, but I had to be mindful to remember to continue the exercises.”* Similarly, PP wrote *“I personally enjoyed the online aspect. This allowed participants to practice on their own time and at their convenience. In-person is a special experience in itself, but I found the online practice to be very accessible and a good starting point.”*

### **Awareness**

The participant CL reported that the online delivery method enhanced her awareness of her computer habits. CL wrote, *“It reminds me to be aware of every time I’m on my computer and not just let hours go by.”*

### **Met needs**

Two of the participants (PZ, and SM) reported that an in-person intervention would not have enhanced their experience. For example, PZ wrote *“I do not think that online or in-person delivery would influence much on the use of mindfulness. As I felt, it was a quiet thing, and I like to be aware of myself, be aware of my body and my mind. Online sharing has provided what I need.”* Similarly, SM wrote that *“Online is something I can do. I do not think in-person would have made much of a difference.”*

### **Alleviated discomfort**

RM reported that the online aspect of the intervention enhanced their comfort learning about mindfulness. RM wrote, *“In person experiences may have also increased my awareness of myself among others where it was easy to focus on me in a dark room alone.”* Therefore, RM did not feel self-conscious learning about mindfulness online as opposed to in-person.

### **Challenges of an online intervention:**

#### **Uncertain**

GB wrote, *“Haven't experienced in person before.”*

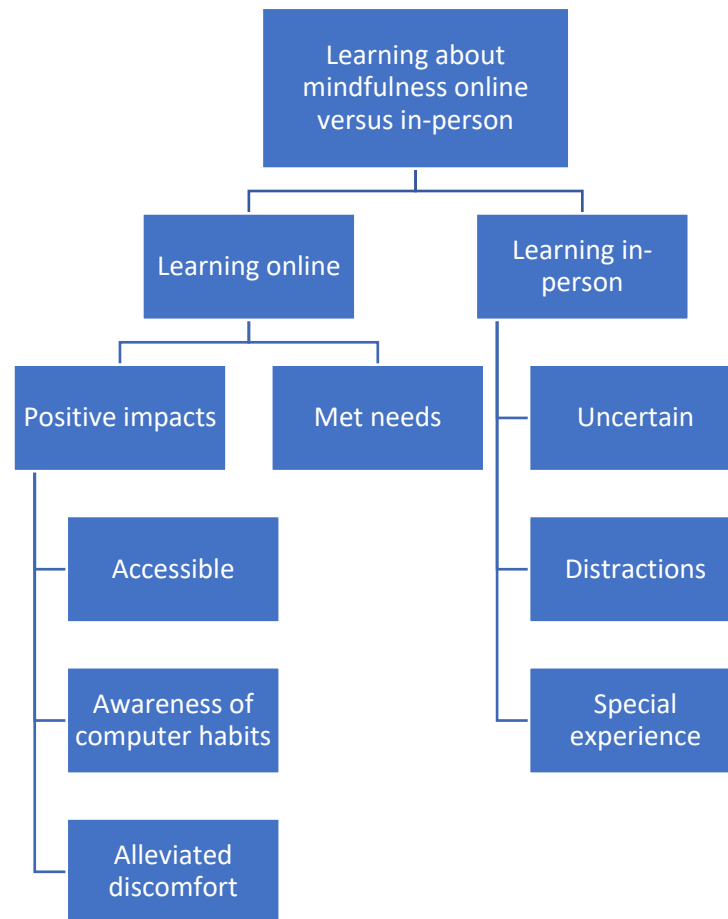
#### **In-Person is a special experience**

PP wrote, *“In-person is a special experience in itself, but I found the online practice to be very accessible and a good starting point.”*

#### **Distractions**

Participant SF reported *“a lot of distractions when doing online.”*

Figure 12 Learning about Mindfulness Online versus In-Person



#### 4.4.9 Engagement with the UCLA Mindfulness Application

Most of the participants reported minimal to no use of the UCLA app. Three of the participants (GB, SF, and CL) did not use the UCLA app during intervention. While PP, and SM reported minimal use of the app. For example, PP wrote, “I forgot to practice with the app for the last session; however, I did practice it a little on my own especially when going to bed.” Similarly, SM reported using the app two times during the intervention.

Two participants reported using the app often during the intervention. PZ wrote, “At least two or three times a week” and RM reported using the app a total of six times.

#### **4.4.10 Final Thoughts on Mindfulness**

Most the participants expressed positive responses after participating in the intervention. The participants were satisfied with their experience because the practices were helpful, fun, and accessible. However, the participant PZ felt neutral towards mindfulness.

##### **Helpful**

Four of the participants (SM, SF, and PP) found the intervention helpful. For example, SM wrote “*I feel it (mindfulness) is the foundation for a happy and successful and healthy life.*” Similarly, SF wrote “*It was a very stress relieving experience for me.*” In addition, PP wrote “*The practices were all very helpful and relevant.*”

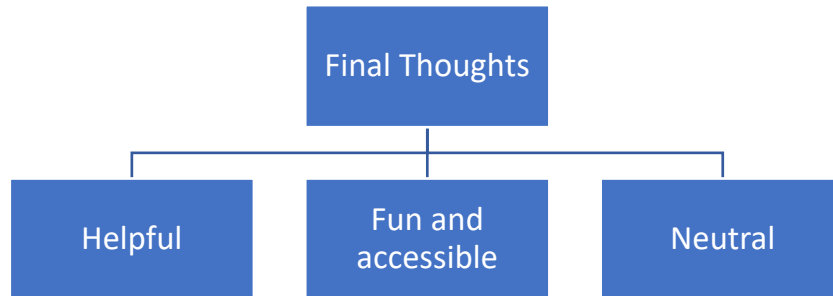
##### **Fun and Accessible**

Participant RM wrote, “*The food and body-based exercises felt like they could be practised regularly and anywhere and I found it fun to do them.*”

##### **Neutral**

Participant PZ felt neutral towards mindfulness. PZ wrote “*Perhaps I'm the kind of neutral thoughts towards mindfulness intervention, which I mean that one don't have to use mindfulness, since doing different activities can all help you relax. However, personally I know I can use the mindfulness method as having a hobby.*”

*Figure 13 Final Thoughts on Mindfulness*



#### **4.4.11 Mindfulness Attentions and Awareness Scale Questionnaire Results**

The MAAS is a 15-item self-report measure designed to assess different behaviours associated with mindfulness. Answers to these questions range from almost always (one) to almost never (six). Higher scores are associated with higher levels of mindful behaviours, and reported scores are individual scores and means across responses. Participants completed the MAAS before and after completing the intervention. The following tables reveal the participants pre- and post-intervention individual and group scores for the MAAS questionnaire. Fourteen participants completed the pre-intervention MAAS survey, and seven participants completed the post-intervention MAAS survey.



Table 9 MAAS Pre-intervention Scores of the Participants' Responses

Pseudonym	I could be experiencing some emotion and not be conscious of it until some time later.	I break or spill things because of carelessness, not paying attention, or thinking of something else.	I find it difficult to stay focused on what's happening in the present.	I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	I forget a person's name almost as soon as I've been told it for the first time.	It seems I am "running on automatic," without much awareness of what I'm doing.	I rush through activities without being really attentive to them.	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.	I do jobs or tasks automatically, without being aware of what I'm doing.	I find myself listening to someone with one ear, doing something else at the same time.	I drive places on 'automatic pilot' and then wonder why I went there.	I find myself preoccupied with the future or the past.	I find myself doing things without paying attention.	I snack without being aware that I'm eating.
JZ	3	6	5	2	2	6	2	3	3	6	6	6	2	5	6
Ram	5	4	3	6	1	6	6	4	3	6	1	6	2	3	6
Purple Parrot	4	3	2	4	5	2	3	4	3	3	5	2	1	3	4
Straight Forward	6	5	3	3	3	5	4	5	3	4	3	6	2	5	6
Rubber Maid	4	5	2	3	3	1	3	3	5	3	4	3	2	1	5
Pink Walnut	3	5	4	2	3	2	3	2	2	4	3	3	4	3	2
Hungry Wolf	4	5	5	1	3	1	3	4	2	2	2	5	4	4	2
Cat Lady	3	4	1	2	2	5	4	2	4	4	3	4	1	2	2
September Moon	5	5	5	4	5	4	5	5	6	6	5	5	4	4	5
Spring Robin	3	5	2	3	2	3	2	3	5	4	1	4	3	2	3
Green Book	4	5	2	3	4	3	2	4	5	3	3	5	1	4	5
Luck Duck	3	4	4	5	2	3	2	2	2	3	2	3	1	3	2
Abrumada	6	5	2	6	6	1	3	2	1	1	2	2	1	3	6
White Oblivion	4	5	3	2	3	5	1	3	4	3	5	4	2	4	6

Table 10 MAAS Post-Intervention Scores of the Participants' Responses

Pseudonym	I could be experiencing some emotion and not be conscious of it until	I break or spill things because of carelessness, not paying attention, or thinking of something else.	I find it difficult to stay focused on what's happening in the present.	I tend to walk quickly/ to get where I'm going without paying attention to what I experience along the way.	I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	I forget a person's name almost as soon as I've been told it for the	It seems I am "running on automatic," without much awareness of what I'm doing.	I rush through activities without being really attentive to them.	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.	I do jobs or tasks automatically, without being aware of what I'm doing.	I find myself listening to someone with one ear, doing something else at the same time.	I drive places on 'automatic pilot' and then wonder why I went there.	I find myself preoccupied with the future or the past.	I find myself doing things without paying attention.	I snack without being aware that I'm eating.
JZ	3	6	5	4	2	6	3	5	2	3	5	6	4	3	6
Green Book															
Purple Parrot	4	5	4	5	4	3	3	3	3	4	4	4	2	4	5
Straight Forward	5	5	2	3	4	6	4	5	3	5	3	6	1	5	5
Rubber Maid	3	5	3	3	3	1	3	3	4	2	4	3	5	4	5
Cat Lady	3	5	3	2	4	4	3	3	3	3	3	2	2	3	4
September Moon	5	6	4	4	5	4	5	5	5	5	4	5	4	5	6

Table 11 Participants' Individual Pre- and Post-Intervention Scores

<i>Pseudonym</i>	Pre-intervention score	Post-intervention score	Difference in pre- and post-intervention score
<i>PZ</i>	4.2	4.2	0
<i>Ram</i>	4.13	N/A	N/A
<i>Purple Parrot</i>	3.2	3.8	+0.6
<i>Straight Forward</i>	4.2	4.13	-0.07
<i>Rubber Maid</i>	3.13	3.4	+0.27
<i>Pink Walnut</i>	3	N/A	N/A
<i>Hungry Wolf</i>	3.13	N/A	N/A
<i>Cat Lady</i>	2.86	3.13	+0.27
<i>September Moon</i>	4.86	4.8	-0.06
<i>Spring Robin</i>	3	N/A	N/A
<i>Green Book</i>	3.53	3.4	-0.13
<i>Lucky Duck</i>	2.73	N/A	N/A
<i>Abrumada</i>	3.13	N/A	N/A
<i>White Oblivion</i>	3.6	N/A	N/A

Table 12 Pre- and Post-Intervention Groups' Mean Scores

<i>Group</i>	<i>Mean score</i>
<i>Pre-intervention group (14 participants)</i>	3.47
<i>Pre-intervention group (7 participants who completed the post-intervention MAAS survey)</i>	3.71
<i>Post-intervention group (7 participants)</i>	3.83

#### **4.5 Participants with Positive Experiences and Challenges**

In session one, four participants reported challenges while eleven participants reported positive experiences. Two of the eleven participants who reported challenges, also reported positive experiences during the same session. Participants who only reported positive experiences for this session held a high MAAS score between 3 and 4.2. While one of the participants who reported challenges and positive experiences, reported a MAAS score of 2.86 which is significantly lower. The participant GI who also reported

challenges and a positive experience did not complete the MAAS survey. CL's MAAS score and responses for the first session suggests that her identification of challenges may have encouraged her to complete the entire intervention. While participants PZ, PP, SF, RM, SM, and GB did not report positive and negative experiences for this session, participants CL, SF, and PP did report positive experiences and challenges in other sessions and completed the entire mindfulness intervention. Conversely, the participants RM, and PZ reported challenges or positive experiences in certain sessions. For example, PZ reported a positive experience in session one and then reported a challenge in session four. The remaining participants, SM and GB are the only participants who did not report any challenges and they completed the entire intervention.

While participants PW, LD, GI, Abrumada, and WO dropped out of the intervention, participants GI, Abrumada and WO are the only participants who dropped out and had both positive experiences and challenges. PW and LD only reported challenges before dropping out. The tables below illustrate the participants from each session who reported challenges and positive experiences. The discussion will address the possible reasons for why experiencing challenges and positive experiences encouraged the participants to complete the intervention and why it may not have had the same effect on the three participants who dropped out. The tables below illustrate the participants' responses of their positive and challenging experiences.

*Table 13 Mindfulness Session One: Comparison of Positive Experiences, Challenges and MAAS*

*Scores*

<b>Participant</b>	<b>Positive Experiences</b>	<b>Challenges</b>	<b>Reflections</b>	<b>Interesting</b>	<b>MAAS Score</b>
GI	Relaxing and enhanced how they feel in their body	Focus		Yes	N/A
LD	N/A	Focus	Consciousness	No	N/A
CL	Enhanced how they feel in their body	Distracted	Consciousness	No	2.86
PW	N/A	Distracted	None	No	N/A
PZ	Relaxing	None	None	No	4.2
HW	Relaxing	None	None	No	3.13
SR	Relaxing	None	None	No	3
WO	Relaxing	None	None	No	3.6
PP	Enhanced how they feel in their body	None	None	No	3.2
Abrumada	Boosted mood	Awkward	Consciousness	Yes	3.13
GB	Enhanced connection to their body	None	None	No	3.53
RM	Enjoyed the experience	None	None	No	3.13
SM	Enjoyed the experience	None	Knowledge	No	4.86
RS	Enjoyed movement meditation	None	None	Yes	3.13

*Table 14 Mindfulness Session 2: Comparison of Positive Experiences, Challenges and MAAS*

*Scores*

<b>Participant</b>	<b>Positive Experiences</b>	<b>Challenges</b>	<b>Reflections</b>	<b>Interesting</b>	<b>MAAS</b>
GI	Appreciation	Difficulty to connect	None	Yes	N/A
Abrumada	Appreciation	Focus	None	No	3.13
SR	N/A	Emotions	Eating habits	No	3
SF	Relaxing	None	None	No	4.2
WO	Relaxing	None	None	No	3.6
GB	Relaxing	None	None	No	3.53
PZ	Relaxing	None	Eating habits	No	4.2
CL	Relaxing	None	Eating habits and knowledge	No	2.86
PP	Enhanced how they feel in their body	None	Eating Habits	No	3.2
RM	Beneficial exercise	None	None	Yes	3.13
PW	None	None	None	Yes	3
SM	Beneficial experience	None	None	Yes	4.86

*Table 15 Mindfulness Session 3: Comparison of Positive Experiences, Challenges and MAAS*

*Scores*

<b>Participant</b>	<b>Positive Experiences</b>	<b>Challenges</b>	<b>Reflections</b>	<b>Interesting</b>	<b>MAAS Score</b>
PP	Relaxing and setting an intention	Distracted	Feelings	No	3.2
SF	Relaxing	Distracted	Focus/behaviour	No	4.2
CL	None	Distracted	None	No	2.86
WO	None	Difficulty focusing on body	None	No	3.6
PZ	None	Difficulty focusing on breath and body	None	No	4.2
GB	Relaxing	None	None	No	3.53
SR	Setting an intention	None	Behaviour	No	3
PW	Enhanced state of mind	None	Feelings	No	N/A
SM	In-tune with themselves	None	None	No	4.86
RM	None	Distracted	None	No	3.12



*Table 16 Mindfulness Session 4: Comparison of Positive Experiences, Challenges and MAAS Scores*

<b>Participant</b>	<b>Positive Experiences</b>	<b>Challenges</b>	<b>Reflections</b>	<b>Unique</b>	<b>MAAS Score</b>
RM	None	Difficulty visualizing and imagining	None	No	3.12
PP	Beneficial to cope and relaxing	None	Benefits of mindfulness	No	3.2
PZ	Beneficial techniques to practice daily	None	Benefits of mindfulness	No	4.2
SM	Beneficial techniques to practice daily	None	Benefits of mindfulness	No	4.86
SF	Relaxing	None	None	No	4.2
CL	Social connection	None	Benefits of mindfulness	Yes	2.86
GB	Beneficial	None	None	Yes	3.53

#### **4.6 Realizations**

The tables above also identify the participants who experienced insightful realizations during the mindfulness sessions they attended. A total of nine participants reported realizations during the intervention. Five of those nine participants completed the entire intervention while the remaining four participants dropped out at different stages in the intervention. SR, PW, LD, and Abramada dropped out at different stages of the intervention while CL, SM, PP, SF, and PZ completed the intervention. From the nine participants who dropped out, only four of them reported realizations: therefore, only 44.4%. Conversely, from the seven participants who completed the intervention, five participants reported reflections: therefore, more than half (71.4%).

In session one, LD, CL, Abrumada, and SM reported realizations after the session. LD dropped out after the first session. The participants MAAS score ranged from 2.86, 3.13 to 4.86. However, LD did not report a MAAS score. In the second session, SR, PZ, CL, and PP reported realizations and none of these participants dropped out after this session. The MAAS scores ranged from 3, 4.2, 2.86, and 3.2. In the third session, PP, SF, SR, and PW reported realizations, and SR, and PW dropped out after this session. The MAAS score ranged from 3.2, 4.2, and 3. PW did not complete the MAAS survey. In the fourth session, PP, PZ, SM, and CL reported realizations, and they all completed the intervention. The MAAS scores consisted of the following 3.2, 4.2, 4.86 and 2.86.

#### **4.7 Interesting**

Seven participants reported that certain sessions were interesting and/or unique. In the first session, participants Abrumada and RS reported that it was interesting. In the second session, participants RM, PW, and SM reported that it was interesting. In the third session, none of the participants reported it was interesting. In the fourth session, CL and GB reported that the session was interesting. Four of the seven participants who reported certain session were interesting, completed the entire intervention. The remaining three participants of the seven, did not complete the intervention. The participants who completed the entire intervention and reported it was interesting were RM, SM, CL, and GB. Conversely, the participants who reported it was interesting and dropped out are Abrumada, RS, and PW.

Two of the participants who reported it was interesting and completed the entire intervention also reported a combination of positive experiences, and challenges, while

two of the other participants only reported positive experiences. Similarly, from the participants who reported it was interesting and dropped out, one of the participants only reported positive experiences while two of the other participants reported a combination of positive experiences and challenges. The discussion will address why certain participants may have used the word interesting to describe certain sessions.

#### **4.8 Accessibility**

Six of the participants reported that the intervention was accessible in several sessions throughout the intervention. In the first session, the participant CL that the mindfulness practice was accessible, as she could practice in various physical settings. In session two, participants PP and PZ reported the practice was accessible because of the length and the fact that it can be practiced anywhere. In the third session, participants PZ and SF reported it was accessible because it can be practiced anywhere. In the fourth session, accessibility was not mentioned. In session four, the participants RM, PP, and SM reported the online aspect of the mindfulness intervention fostered accessibility.

#### **Conclusion**

This chapter found that participants experienced predominantly positive changes in their ability to cope with stress, negative emotions, gaining insights and skills. The mean of the Mindfulness Attention and Awareness Score (MAAS) increased by 0.12. The findings also indicate that the delivery method of an online intervention was accessible; however, most of the participants did not practice mindfulness on the UCLA Mindful App. The themes that emerged throughout the intervention are the following: challenges, realizations, reflections, interesting, and positive experiences.

## **Chapter Five: Discussion**

This chapter will present the discussion of the findings. The purpose of the study was to examine post-secondary students experiences with an online mindfulness intervention. The goal of the intervention was to provide students with mindfulness practices to enhance their overall well-being. The underlying assumption being made is that online mindfulness practices would provide students with skills to better cope with stress, emotions and enhance their well-being. Previous studies by various authors support this assumption by suggesting that an online mindfulness program is a feasible delivery method to provide changes in mindfulness, self-compassion, worry, and stress (Danilewitz et al., 2018; González-García et al., 2021; Gu et al., 2018; Moore et al., 2020; Spadaro & Hunker, 2021).

### **5.1 Engagement with Mindfulness Sessions**

Throughout mindfulness sessions one to four, the participants consistently reported diverse responses: challenges, positive experiences, interesting/unique experiences, and developed insightful reflections after completing the sessions.

#### **5.1.1 Positive Experiences**

Throughout all four mindfulness sessions, many participants reported positive experiences because they found the sessions relaxing. In total, 14 different participants reported positive experiences when engaged in the intervention. The theme relaxing consistently appeared in every mindfulness session as a reason for their positive experience. In session one, six participants found the session relaxing, in session two, two participants found the session relaxing, in session three, three participants found it relaxing, and in session four, four participants found the session relaxing. Therefore, in

session one, most of the participants enjoyed the session because it was relaxing while four participants enjoyed the session for other reasons. As the sessions progressed, diverse themes that contributed to their positive experiences appeared throughout the sessions. It is possible that as participants' awareness developed from the first session, they were better able to identify other aspects that contributed to their positive experiences in later sessions. This theory is congruent with the literature as other online mindfulness interventions for students observed the same effect (Danilewitz et al., 2018; González-García et al., 2021; Moore et al., 2020; Spadaro & Hunker, 2020). For example, Spadaro and Hunkers' (2020) findings revealed that their participants reported an increased awareness that led to many benefits, such as mindful eating, relaxation, and appreciation of surroundings and people. The other studies also reported how increased self-awareness in their participants led to numerous reported benefits.

It is also likely that certain mindfulness practices are less likely to produce various responses given their nature. For example, the second session on mindful eating may have produced various positive responses, because individuals likely already have unique and established relationships with food that they can explore in more depth. Conversely, in the first session on a breathing and movement meditation, participants were introduced to less aspects of mindfulness than other sessions. The scripts for the first sessions strongly focused on the physical breathing and movement techniques but did not directly introduce concepts of mindfulness such as, gratitude, compassion, and non-judgment. While the breathing meditation of the first session informed the participants how to kindly engage with wandering thoughts, it was only briefly mentioned and did not greatly explore these concepts compared with the other sessions. Two studies in the literature reported similar findings regarding the content of the

mindfulness sessions (Danilewitz et al., 2018; Moore et al., 2020). For example, Moore and colleagues (2020) reported that the content of their intervention appeared to influence participants' interest, and consequent practice. Similarly, Danilewitz and colleagues (2018) reported that the significant positive effect on self-compassion is likely due to the content of some of the modules focused on self-compassion, perfectionism, and self-acceptance. However, the two other relevant studies in the literature did not mention the effect of the mindfulness sessions' content on their participants (Gu et al., 2018; Spadaro & Hunker, 2020).

Specific reasons other than the most consistent response, relaxing, reported for positive experiences differed depending on the mindfulness session that was completed. However, there was some overlap that contributed to the participants' positive experiences throughout the sessions. For example, in the first session, some participants reported how the session enhanced their connection to their body and enhanced how they feel in their body. Similarly, some participants in session three also referenced their mind-body connection. For example, in session three, two participants expressed how focusing on their body enhanced the state of their mind by providing greater focus and lightening their mind.

Finally, the fact that five of the seven participants who completed the entire intervention reported positive experiences and challenges throughout the study should be discussed. This finding suggests that the participants capacity to fully benefit from the mindfulness intervention was not determined by their starting MAAS score but by their willingness to identify, admit, and accept that they may encounter challenges during the mindfulness sessions. It appears that their openness and willingness to continue learning about and practicing mindfulness despite their challenges is the predominant supporter.

However, participants SM and GB were the only participants who completed the entire intervention, but they did not experience challenges. For the participant SM, she may not have experienced challenges because she described herself as “someone who is mindful and practices meditation often” in the first session. GB may not have reported experiencing challenges, but his survey responses were at times vague and brief. Based on GB’s survey responses, it may be possible that GB experienced challenges, but did not report them. For example, for session two, GB said: “I think it helps to concentrate.”

While participants GI, Abrugada, WO all dropped out of the intervention after experiencing positive experiences and challenges, they decided to withdraw from the study after completing a session where they only experienced challenges. Therefore, despite their positive experiences in a previous session, this may not have been encouraging enough for them to continue. However, it is possible that there were external factors that influenced their decision to withdraw that I am unaware of as a researcher. The possible reasons mentioned above for participation retention are not congruent with the literature. Other studies reported the following reasons for withdrawal: time commitment and/or health reasons, sample characteristics, lockdown effects, and intervention features (Danilewitz et al., 2018; González-García et al., 2021; Spadaro & Hunker, 2020). However, the studies carried out by Moore and colleagues (2020), and Gu and colleagues (2018) did not investigate the possible reasons for completion rates.

### **5.1.2 Challenges**

Throughout session one to four, participants consistently reported several consistent challenges: difficulty focusing/staying present, difficulty connecting, and being

distracted. Participants also reported difficulties connecting, and discomfort with certain practices; however, for varying reasons. For example, in session one, some participants reported discomfort because the movement practice was unusual, whereas some participants in session two reported discomfort because of surfacing emotions. The same participants did not consistently report challenges in each mindfulness session. Instead, 10 different participants reported challenges for individual reasons in different sessions.

However, one participant (CL) reported a consistent challenge throughout certain parts of the mindfulness sessions. For example, CL reported being distracted in the first session (phone) and third session (work setting); however, CL did not report any distractions in the second and final session. CL's challenges with external distractions suggests that she likely had a quiet space to practice mindfulness for the sessions that she did not report distraction as a challenge. Conversely, the participants who reported challenges the most throughout the intervention were CL, GI, RM, SF, and PZ; however, their individual reasons for encountering challenges throughout the sessions differed. For example, GI reported challenges focusing in the first session whereas for the second session, GI reported difficulty connecting to the session. Overall, the challenges the participants faced did not greatly affect their capacity to learn and benefit from mindfulness based on their complete survey responses. In fact, four participants (SR, PP, GI, and PZ) who reported challenges were still hopeful and wanted to continue practicing specific mindfulness practices they found difficult. For example, in the second session, SR reported *"I found it even harder to stay present, as perhaps eating is so commonly not mindful and more rote. I also found myself experiencing aspects of guilt and larger emotions and thoughts that were harder to let pass. I'd like to practice this one again."* While it would have been interesting to follow up with these participants to



determine what motivates them to continue practicing mindfulness despite their challenges, I can make several inferences based on other responses they provided. Most of the participants had a solid understanding that mindfulness is a skill; therefore, they likely understand that their challenges are temporary and evolving. In addition, some of the participants had immediate beneficial effects from the practices despite their momentary challenges and have had immediately positive effects from other sessions, which may act as motivator to continue practicing mindfulness.

The challenges reported for practicing mindfulness are congruent with some of the literature findings. For example, some studies reported similar challenges participants faced practicing mindfulness: time constraints, forgetting to practice, stress, not feeling like they need to practice, and not enjoying some of the mindfulness practices (Danilewitz et al., 2018; Moore et al., 2020). Other studies did not address the potential challenges the participants faced while practicing mindfulness (Gu et al., 2018; Spadaro & Hunker, 2020). While Gonzalez and colleagues' (2021) study did not report the challenges participants faced, they built their intervention to address potential challenges the participants may encounter. However, not all findings in the literature reported how challenges affected participants desire to continue practicing mindfulness. From the studies that did so, my findings are congruent with their reports. For example, most of the participants acknowledge the value of mindfulness and continued practicing mindfulness as reported in other interventions (Moore et al., 2020; Spadaro & Hunker, 2020).

While seven of the participants who reported challenges completed the intervention, the remaining five participants who reported challenges dropped out of the study at stages of the intervention. Participants PW, LD, GI, Abrumada, and WO all

reported challenges and dropped out at different times throughout the intervention. All seven participants who stopped attending mindfulness sessions had reported challenges in their previous session. However, participant PW is the only participant who reported a challenge in her first session but dropped out after attending the third session. These findings suggests that these participants may have dropped out because of the specific challenges they reported at the final session they attended.

### **5.1.3 Realizations**

The findings reveal that all the participants who reported realizations had at least a positive experience and/or challenge, when they reported a realization. The MAAS scores did not play a significant role in determining who could experience realizations. While the range of realizations the participants reported throughout the intervention were diverse and depended on the specific mindfulness session, realizations only emerged when the participant reported a positive experience and/or challenge. The participants engagement with realizations also suggests that participants who had realizations were more likely to complete the intervention as 71.4% of the participants who completed the intervention reported realizations. Conversely, only 44.4% of the participants who dropped out of the intervention reported realizations.

The fact that participants only reported realizations if they had also reported positive experiences and/or challenges during the same session, suggests how participants' openness to the experience (i.e., positive experiences and challenges) is correlated with their ability produce a meaningful reflection. It is not possible to conclude that positive experiences and/or challenges cause insightful reflection;

however, it is likely that participants are more likely to discuss a pertinent experience, whether that be positive or challenging.

These findings also suggest the accessibility of mindfulness, as gaining meaningful insights and reflections was not dependent on the participants' MAAS score or the amount of mindfulness sessions they had completed in the intervention, as some participants reported meaningful reflections from their first session. For example, CL said: *"I do this at work sometimes and look weird, but you reminded me even if you feel silly just do it,"* and LD said: *"I have done it more to music previously as I find intensely dancing helps dispel my anxiety and/ or wake me up. Without the music, I was much more conscious of my movement. It made me feel tingle-y afterwards."*

Conversely, five participants who reported positive experiences and/or challenges during the intervention did not report meaningful realizations. It is difficult to say why these participants did not produce reflections. This may be because these participants were not as comfortable and open to exploring why they experienced certain challenges and positive experiences. Their MAAS scores were similar to the participants who did report realizations therefore, this is unlikely a contributing factor. However, participants GI did not complete the MAAS survey.

The findings regarding the emergence of realizations are congruent with some studies in the literature. For example, some studies reported how understandings, realizations, and better understandings of oneself and others emerged within participants (González-García et al., 2021; Moore et al., 2020; Spadaro & Hunker, 2020). Conversely, other studies did not report the emergence of realizations and/or understandings within participants (Danilewitz et al., 2018; Gu et al., 2018). However,

the literature did not report the possible reasons for why certain participants experienced realizations.

#### **5.1.4 Interesting**

The most significant difference of the usage of the word interesting lies in a comparison between the participants who dropped out of the intervention and those who completed the intervention. Three out of the four participants who used the word interesting, used this word to illustrate in greater depth their experience in the session. However, GB, a participant who completed the intervention and used the word interesting, is the only participant who used the word to briefly encapsulate the experience of their session. Conversely, most of the participants who did not complete the intervention and used the word interesting, used this word to briefly describe their session. For example, PW, said, *“I listened to the audio recording as I was unable to attend the live session. It was an interesting experience.”*

In addition, it is worth noting that the word interesting was most frequently used in the second session on mindful eating. Based on the participants’ responses, this is likely because eating is such an automatic habit that is rarely observed, so many participants have never eaten mindfully.

The theme of interesting did not emerge in other studies in the literature (Danilewitz et al., 2018; Gu et al., 2018; Moore et al., 2020; Spadaro & Hunker, 2020).

#### **5.1.5 Accessibility**

Some of the participants’ comments provided insightful findings regarding accessibility. In the third mindfulness session, participant CL expressed: *“I tried doing this in my workplace. there's a lot of distractions so it was challenging.”* Conversely, the

participant SF reported: *“Ignoring it (dishwasher) became surprisingly easy once I began to think about the parts of my body that I don't usually think about.”* Their responses suggests that the participants’ skill level of mindfulness influences the extent of the practice’s accessibility; in other words, in how many different places you can practice mindfulness in.

## **5.2 The Post-Intervention Effects of the Mindfulness Study**

Based on the seven participants who completed the post-intervention survey and the MAAS survey, all the participants benefitted from the intervention and gained mindfulness techniques to integrate into their lives.

Firstly, five of the participants (85.71%) reported improvements regarding their stress coping skills. While four of the participants (57.14%) reported implementing mindfulness techniques to cope with stress, one of the participants (14.28%) did not report changes in their stress coping behaviour, and two of the participants’ (28.57%) responses were unclear if their stress coping mechanisms had changed. However, the behaviour described in the two participants’ uncertain responses suggests that they experienced changes coping with stress.

Secondly, five of the participants (71.42%) reported that mindfulness is important to cope with stress while two of the participants (28.57%) were uncertain of the extent mindfulness is helpful to cope with stress. For example, GB said: *“I believe it helps but not in acute and intense situation, it’s good for regular and routine stuff but not when you have faced with a real and important challenge,”* and RB was doubtful of the effectiveness of mindfulness but will continue practicing. The findings regarding participants’ stress coping skills and perception of mindfulness to cope with stress is

congruent with the literature (Danilewitz et al., 2018; González-García et al., 2021; Moore et al., 2020; Spadaro & Hunker, 2020). For example, Spadaro and Hunker (2020) reported that the participants in their study significantly reduced their stress and perceived mindfulness as useful to cope with stress. Interestingly, Moore and colleagues (2020) reported that most of their participants believed that mindfulness was most useful in acute situations. In this study, only one participant reported that they did not believe mindfulness is useful in acute situations; however, it is unknown if the other participants believe mindfulness is useful in acute situations.

Third, all the participants (100%) gained something from the intervention. Three of the participants (42.85%) learned that mindfulness is a skill while four of the participants (57.14%) gained insight to either better manage external circumstances, interpersonal relationships, or for self-improvement.

Fourth, while all the participants (100%) reported positive changes after completing the intervention, two of these participants (28.57%) also reported aspects that stayed the same. Four participants reported changes in their well-being, one participant reported changes of their focus, two participants reported a changed perspective, and one participant reported changes in their accountability. Conversely, one of the participants (14.28%) reported that his external circumstances stayed the same while another participant reported that she struggled with focusing (14.28%). This finding is congruent with the literature as all studies reported positive changes in their participants (Danilewitz et al., 2018; González-García et al., 2021; Gu et al., 2018; Moore et al., 2020; Spadaro & Hunker, 2021). For example, Moore and colleagues (2020) reported positive and ongoing changes in attitude and behaviour as a result of weekly mindfulness teaching and meditation practices delivered online.

Fifth, the four participants (57.14%) who reported that they experienced negative emotions during the intervention, also reported beneficial mechanisms to cope with negative emotions. Four of the participants (57.14%) reported using physical activity to cope, three participants (42.85%) reported using mindfulness to cope, and two participants (28.57%) reporting talking to cope. This finding is congruent with the literature as other studies reported improvements in emotional regulation (Danilewitz et al., 2018; González-García et al., 2021; Moore et al., 2020; Spadaro & Hunker, 2021). However, Gu and colleagues (2018) study did not report the effects of their study on participants ability to regulate emotions.

Sixth, six of the participants (85.71%) reported supports that will influence them to continue practicing mindfulness while four participants (57.14%) reported challenges that will influence them to continue practicing mindfulness. From the four participants (57.14%) who reported potential challenges, three of the same participants (57.14%) reported supporters that will help them overcome the reported challenges to continue practicing mindfulness. Therefore, most of the participants (85.71%) were able to find solutions to the challenges they may face practicing mindfulness. This finding is congruent with the literature as studies reported that despite participants' challenges to practice mindfulness, most of the participants were willing to overcome these barriers (Moore et al., 2020; Spadaro & Hunker, 2021). For example, Moore and colleagues (2020) reported that despite challenges participants faced, most went on to acknowledge the value of mindfulness and the benefits that they perceived even if their practice was irregular. However, it is unknown if participants reported such barriers to mindfulness practice in Gu and colleagues (2018) study and in Gonzalez and colleagues (2021) study.

Finally, the participants group MAAS scores increased by 0.12, as the pre-intervention score was 3.71 and the post-intervention score was 3.83. Three of the participants scores increased, two of the participants stayed relatively the same, and two of the participants scores minimally decreased. Given the discussion of the findings above, even the participants' scores that decreased minimally or stayed relatively the same, their responses suggests that their overall well-being improved and that they benefitted from the study. It is not possible to compare these scores with the literature because the online mindfulness studies conducted for students did not ask their participants to complete the MAAS survey.

### **5.3 Delivery of the Mindfulness Intervention**

Based on the participants' responses, the online delivery method of the intervention was accessible; however, the UCLA Mindfulness app was not used often by most participants. Three of the participants did not use the app, two participants reported minimal use of the app, and only two participants reported using the app regularly. It is unclear why the participants did not enjoy the app. Secondly, five of the participants reported positive experiences learning about mindfulness while one of the participants reported challenges and another participant was uncertain. The findings regarding the high feasibility and acceptability rate of the online platform to deliver a mindfulness intervention is congruent with the literature (Danilewitz et al., 2018; González-García et al., 2021; Gu et al., 2018; Moore et al., 2020; Spadaro & Hunker, 2021). However, it is not possible to compare this finding with the literature as other online mindfulness interventions for students did not encourage their participants to use a mindfulness application.



#### **5.4 Study Limitations**

The primary limitation in interpreting the findings of this research relates to the nature of the qualitative surveys and inability to ask follow-up questions regarding the participants' responses. There are several instances where it would have been helpful for participants to elaborate on their responses, such as: why they disliked the UCLA app and did not use it often, the significance of certain vague words, such as, interesting, and the reasoning behind participants' beliefs and comments, for example: why a participant believed that mindfulness is not helpful in acute situations. It also would have been interesting to know why participants decided to withdraw from the study and why certain MAAS scores decreased and stayed the same despite the mindfulness benefits the participants reported. Therefore, a physical assessment of the participants' mindfulness level would have been useful to measure, in addition to their written responses and MAAS score, to verify if their perceived benefits aligned with their physical ones.

## **Chapter Six: Conclusion**

The results of the study serve to reinforce the findings of previous research on the benefits of online mindfulness programs. There were two research questions: first, does a web-based mindfulness intervention provide post-secondary students with effective tools to manage stress and support their well-being, and second, is an online mindfulness intervention feasible and acceptable for post-secondary students. Both questions were answered by the methods employed in this thesis.

The participants who completed the entire study reported an improvement in their ability to cope with stress, gained something beneficial, reported positive changes, reported beneficial mechanisms to cope with negative emotions, and reported significant supports that will allow them to continue practicing mindfulness, despite the challenges they may face. The mean MAAS score of the students who completed the entire intervention also increased by 0.12. The results demonstrate the effectiveness of the intervention in achieving the intended outcome, which was to promote the well-being of post-secondary students and give them tools that will allow them to sustain their well-being. Furthermore, the participants who withdrew from the intervention also reported positive responses, and benefits after completing mindfulness sessions; however, most of the participants who dropped out, decided to do so after reporting challenges in their last session. Given that most of the participants who completed the intervention reported hopeful and optimistic responses after reporting challenges, suggests the impact of differing responses and perspectives associated with challenges. Moreover, most of the participants who completed the intervention also reported insightful reflections; therefore, this may have motivated them to pursue the study as well. While participants who completed the entire study likely gained more benefits than the participants who

withdrew, some of the participants who withdrew still gained equally insightful realizations and benefits. Therefore, the participant's ability to benefit from mindfulness is not dependent on the number of sessions they completed or their MAAS score, but their openness.

Feasibility criteria included: 1) ease of recruitment, and 2) program completion rate. The acceptability criteria included: 1) perceived usefulness (helpfulness); 2) intentions to use in case of future mental health problems (likelihood of future use); and 3) relative advantage (preference of web-based versus traditional services). The results of feasibility and acceptability in this study are discussed below.

Regarding feasibility, it took a month to recruit 16 participants; however, only 14 participants decided to participate in the study. Six people inquired about the study but did not enroll. In comparison to other online mindfulness interventions for students, this feasibility component is low. It is possible that students may have been less likely to enroll in this online study because they were already spending most of their time online due to Covid-19 and were experiencing increased stress and discomfort. Online mindfulness studies for students pre-Covid-19 all reported a much higher recruitment rate: Danilewitz and colleagues' study (2018) recruited 52 participants and offered compensation and course credit, Spadaro and colleagues (2020) recruited 26 participants without offering compensation and/or course credit, and Moore and colleagues (2020) recruited 47 participants by first inviting students to a 45-minute lecture describing the project; however, no compensation was offered.

While Gonzalez and colleagues' study (2021) took place during Covid, they recruited a high number of participants: 76 first year psychology students at a university in Spain. It is possible that psychology students may have been more interested in

exploring mindfulness, compared to Kinesiology students and Interdisciplinary graduate students, which were the two main disciplines where the recruitment occurred for this thesis study. The time of the year in which the intervention was offered may also have impacted the recruitment of students. It is difficult to estimate at which time of the year might have been most convenient for participants. While the recruitment rate is low in comparison to other studies, the Covid-19 pandemic, lack of compensation and/or credit, and targeted student population influenced the recruitment process. Therefore, given that 14 participants enrolled in this thesis study, and despite the significant barriers impacting enrollment, the feasibility of an e-mental health intervention suggests that this approach may be translated into practice.

Second, the program completion rate is 7/14. In comparison to similar pre-Covid-19 studies, the following completion rates are the following: Danilewitz and colleagues (2018) reported a completion rate of 71%, Spadaro and colleagues (2020) reported a completion rate of 100%, and Moore and colleagues (2020) reported a completion rate of 72%.

While Gonzalez and colleagues' study (2020) took place during Covid-19, their completion was still very high at 95%. As mentioned above, it is possible that their target recruitment population, psychology students, were more interested in learning about mindfulness, and perceived the intervention as more helpful given that it was curated by professors and consisted of a 400 hour in depth program.

The completion rate of this thesis study suggests feasibility given the COVID-19 pandemic and other unknown external stressors which may have caused participants to stop attending the mindfulness sessions. Despite these external factors, 50% of the sample still completed the intervention. While most participants who stopped attending

the intervention, experienced challenges in their last session, it may be useful for future interventions to create a session designed to address challenges participants may be facing while practicing mindfulness.

Regarding acceptability, the criteria included is: 1) perceived usefulness (helpfulness); 2) intentions to use in case of future mental health problems (likelihood of future use), and 3) relative advantage (preference of web-based versus traditional services). The results of the criteria discussed below suggests that the intervention was acceptable by the participants.

First, the seven participants who completed the intervention found the mindfulness sessions helpful for various reasons, such as the ability of mindfulness to manage and alleviate stress, to gain insight, and cope with negative emotions. From the seven participants who did not complete the intervention, five of these participants reported the intervention being helpful for various reasons, such as how it provided relaxation, enhanced concentration, awareness, gratitude, and overall well-being.

Second, four of the participants who completed the intervention, reported challenges that will influence them to continue practicing mindfulness. However, three of the participants who reported challenges to continue practicing, also reported supporters that will overcome the reported challenges. Therefore, they would likely use a e-mental health service in the future. In addition, six of the participants who completed the intervention reported how the intervention was accessible.

Third, five of the participants who completed the study reported benefits of learning about mindfulness online while one of the participants reported challenges and another participant was uncertain of the online method. However, the participants who did not complete the intervention, did not comment on the online component of the

intervention. Therefore, six enjoyed the online component of the intervention. However, none of the participants who stopped attending the intervention, reported that the intervention was accessible or inaccessible. The participants may have dropped out because they found it inaccessible. Therefore, 42% of the sample found the intervention accessible while 57% of the participants did not comment on the intervention's accessibility.

Based on the criteria evaluated above for the acceptability of the study, the findings suggests that study was perceived as feasible and acceptable by the participants who completed the study; however, it is uncertain to what extent the participants who dropped out of the study found it feasible and acceptable because they did not complete the final post-intervention survey. Based on the criteria evaluated, the results suggest the study is feasible.

To conclude, the study answered the two research questions explored in this thesis, and this online mindfulness intervention served as an effective foundation for exposing post-secondary students to mindfulness.

## **6.1 Recommendations**

I recommend that further research be conducted regarding the preferences and use of mobile mindfulness applications. It was unclear why the participants disliked using the UCLA Mindfulness application despite the positive experiences they reported during the online mindfulness sessions I conducted.

Second, because several participants reported difficulty remembering to practice mindfulness and integrating this practice into their life, I recommend that future mindfulness interventions consider implementing a component on tips and advice

regarding habits. This may help future participants support their mindfulness practice.

Third, future research should explore why certain participants are more likely to complete a mindfulness program while others are more likely to withdraw from the program. Research should not only consider the reasons for withdrawing from mindfulness interventions, but why certain individuals enjoy mindfulness more than others. Based on the discussion of my findings, it appeared, that the participants who were more open regarding their challenges, positive experiences, and reflections were more likely to complete the intervention and appeared to enjoy the intervention the most. However, more research is needed to further explore this topic so that the way mindfulness is introduced and taught is most effective for individuals, especially beginners.

Fourth, based on the research findings, I recommend that educational institutions consider implementing a mindfulness program and/or recommend external mindfulness programs to their students. While mindfulness should not be replaced for students who require specific health services, mindfulness can help alleviate stress and promote relaxation.

Fifth, there were six individuals who requested for the study information document of this thesis study and decided not to enroll. It may be helpful for future researchers to invite potential participants to a videoconference information session for a description of the intervention and study, since mindfulness remains relatively new and unfamiliar to many people.

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## **Curriculum Vitae**

Victoria Lecker

McGill University, *B.A. International Development Studies, Minor Environment Studies*