Development and evaluation of a booster intervention to increase mindfulness practice in adolescents

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Background: Mindfulness (MF) interventions might hold some promise in promoting adolescents’ mental health. However, it is critical that participants continue the practice of MF after the program has finished. To our knowledge, no previous research has examined what predicts continued motivation and practice of MF behaviors after intervention programs.

Objectives: Identify motivational predictors of MF practice, develop a theory- and evidence-based booster intervention to increase maintenance of MF practice after a school-based MF intervention, and test the booster’s effectiveness on MF motivation.

Methods: The current study is a motivational booster to a school-based, mindfulness intervention called Terve Oppiva Mieli (TOM, a nine-week program with three surveys at baseline, nine weeks, and six months) intended to explore how students’ practice could be increased. Analyzing the first wave (N=310) out of four, predictors of MF practice were identified as targets for the booster intervention. A booster intervention was then designed to be implemented during the last two sessions of the TOM intervention, and evaluated in a within-trial cluster-randomized controlled trial (cRCT) within the third wave (N=323) (Control N=164; Booster N=152) of the TOM cRCT.

Results: In the first wave of the TOM intervention trial, only 40% of students reported having practiced MF at home during the past month. Those students who had practiced reported several benefits, including managing stress better (69%), coping better with difficult emotions (77%), sleeping better (79%), and better concentration in class (79%). Descriptive norms were found to be the greatest predictor (B=.121, p=.006) of MF practice. Based on these results, a motivational booster intervention was designed, including behavior change techniques to target descriptive norms and perceived benefits of mindfulness practice. It was embedded in the TOM intervention. In the cRCT, the booster intervention had no statistically significant effects on determinants of MF practice at nine weeks. Nevertheless, results showed a trend towards use of MF to relax increasing more for the booster than control, outcome expectancies decreasing less for the booster than control, and booster participants believing peers practiced more at nine weeks (descriptive norms).

Discussion: While the intervention developed and tested in this study was in line with the theoretical assumptions and available evidence, it did not lead to the hypothesized effects on the theoretical constructs of the MF behaviors. This is at least partially attributable to measurement issues and practical implications in intervention delivery, which were not adequately addressed when conceptualizing the study. The effectiveness of the motivational booster might have been stronger with higher doses or if delivered in the earlier lessons of TOM. Future research should aim at examining predictors of maintenance of independent MF practice post-intervention with longer follow-ups. Furthermore, future research should identify best strategies for this among adolescents with co-creation and participatory action procedures. This brief intervention can act as a starting point for those looking to foster MF practice.
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Chapter One: Introduction

Literature Review

Mindfulness

“Realize deeply that the present moment is all you have.

Make the NOW the primary focus of your life.”

— Eckhart Tolle

Mindfulness is defined as an ability to stay aware in the present moment (Brown & Ryan, 2003). According to meta-analysis by Keng, Smoski & Robins (2011) mindfulness has shown to increase psychological well-being, reduce problematic psychological symptoms and emotional reactivity, and improve behavioral regulation. Mindfulness can be defined also by describing what it is not. Mindfulness is absent when attention is taken by thoughts, emotions, rumination, or fantasy (Brown & Ryan, 2003).

Mindfulness is a process of bringing attention to the immediate, present experience, being it internal or external. It is conscious awareness, together with an attitude of curiosity, openness, and acceptance towards that which is perceived (Bishop et al. 2004). Mindfulness exists when thoughts, emotions and perceptions are observed without habitual or automatic reactivity. In this way mindfulness allows a person to respond to the moment in a conscious and reflective way. (Bishop et al., 2004).

It is relevant to mention that in some Asian languages (such as Mandarin) the words for mind and heart are the same; thus “mindfulness” has also an affectionate and ‘warm’ aspect to it, which is often ignored (Kabat-Zinn, 2003). “Mindfulness” could be as well translated as “heartfulness”. As Jon Kabat-Zinn (2003) writes: "mindfulness includes an affectionate, compassionate quality within the attending, a sense of openhearted, friendly presence and interest". (Kabat-Zinn, 2003).

Kabat-Zinn (2003) defines mindfulness as a deep, penetrative non-conceptual "seeing" into the nature of mind and world. "This seeing requires a spirit of perpetual and persistent inquiry - as in, 'What is this? - toward whatever arises in awareness, and toward 'who is
Mindfulness meditation is a part of traditional Vipassana-meditation, Zen-meditation, MBSR (Mindfulness Based Stress Reduction), and MBCT (Mindfulness Based Cognitive Therapy) approaches, the last two being standardized methods for clinical use (Ospina et al. 2007; Teasdale et al. 2000).

Mindfulness can be useful for more than relaxation or controlling emotions (Ospina et al. 2007). It is first of all a practice of consciousness. This practice can take many forms, from a formal meditation practice that is done on a regular basis to informal practice that aims to develop a continuity of consciousness in everyday life. When one has developed a mindful approach to life, mindfulness can be applied during various moments and activities. It is not limited to a particular technique, even if different techniques are useful and necessary.

Kabat-Zinn (2003) elaborates further why practicing mindfulness is essential: "it is unlikely that such process would be sustained or developed over time in most of us without some element of intentional practice (it is not enough to as a rule to remind oneself to 'just let go', especially when one is little aware of how attached one may be and, also, how blind to being caught up in a habitual patterns of thinking and emotional expression). It is here that the cultivation of the inner orientation is so important. Mindfulness is not merely a good idea such that, upon hearing about it, one can immediately decide to live in the present moment, with the promise of reduced anxiety and depression and heightened performance and life satisfaction, and then instantly and reliably realize that state of being. Rather it is more akin to an art form that one develops over time, and it is greatly enhanced through regular disciplined practice, both formally and informally, on a daily basis."

In the past years the study of mindfulness has grown in popularity. Mindfulness is most often associated with formal meditation, which has its roots in Buddhist tradition. Mindfulness, nevertheless is more than a formal meditation practice. It is an inherent human ability to be present and focus on the here and now (Brown & Ryan, 2003). A person in a state of mindfulness is alert and focused on the present moment and accepts it without judgment or resistance (Kabat-Zinn J., 1990).

Jon Kabat-Zinn (1982), a professor of medicine emeritus at the University of Massachusetts Medical School, brought mindfulness to the awareness of the Western scientific world.
when using mindfulness practices to help his patients suffering from chronic pain. He used the practice of mindfulness meditation in a 10-week Stress Reduction and Relaxation Program to improve patients' self-regulation and to reduce their experience of suffering. After the program, 65% of his patients reported reduction in pain. (Kabat-Zinn, 1982) Mindfulness-Based Stress Reduction (MBSR) has since then grown popular and it’s widely used and studied.

According to a various studies and meta-analysis, MBSR interventions can help individuals to cope with a broad range of psychological and physical problems (Baer 2003; Bishop 2002; Praismann, 2008, Grossman, Niemann, Schmidt, & Walach, 2004). It has been shown that MBSR reduces self-reported levels of anxiety, depression, anger, rumination, general psychological distress, including stress, cognitive disorganization, post-traumatic avoidance symptoms, and medical symptoms (Keng, Smoski & Robins, 2011). In addition, MBSR has been found to improve positive affect, sense of spirituality, sense of cohesion, mindfulness, forgiveness, self-compassion, satisfaction with life, and quality of life among both clinical and non-clinical populations (Keng, Smoski & Robins, 2011).

1.1.1 The mechanisms of mindfulness
Shapiro et al. (2006) have conceptualized some of the mechanisms behind mindfulness interventions and aimed to clarify how increased mindfulness can create positive changes in individuals. Their model is broad, comprehensive, and cited often.

Shapiro et al. (2006) describe three mechanisms of mindfulness: 1. intention, 2. attention, and 3. attitude. They suggest that these mechanisms are behind the positive transformations of mindfulness interventions. According to Shapiro et al. (2006), intention means inner motivation or reason to practice mindfulness. There can be many reasons for taking up the practice of mindfulness. One might want to learn to manage stress, come to terms with chronic pain, learn to regulate emotions, or learn to concentrate. This intention is dynamic and can change when the practice of mindfulness develops. It is this aspect that motivates a person to take up and maintain the challenging practice of mindfulness.
Attention refers to the uninterrupted focus on the here and now experience. By focusing attention on the senses and on both inner and outer experience, a person can become aware of her habitual reactions and learn to develop new, more constructive ways to respond to the present moment. Attention refers to the ability to perceive what happens directly, without interpretation, judgment or inner dialogue. One can learn to observe attentively one's negative emotions as temporal events without unconsciously acting them out or prolonging them through rumination. Attitude on the other hand refers to the way in which one is present and attentive. It refers to the quality of attention; attentiveness is done in a compassionate, warmhearted, and relaxed way. One can observe her inner and outer experiences without evaluating, judging, or interpreting them and practice kindness and openness towards oneself and others also when experiences might be different from one’s wishes or expectations. (Shapiro et al. 2006)

Intention, attention, and attitude (IAA) are not separate processes or stages. They are different aspects of the same process which happening in the present moment. Shapiro et al. (2006) suggest that mindfulness is 1. intentional, 2. attentional, and 3. having as a background an attitude of openness and non-judgmentality. This open, non-judgmental and intentional attitude leads to a significant shift in one's perspective, which they name re-perceiving. Through mindfulness, a person can detach from the content of her consciousness (e.g., thoughts) and observe her experience with lucidity and objectivity.

Instead of being identified with one’s personal story, a person can step back and only witness and observe her own experience. Re-perceiving is defined by Shapiro et al.(2006) as turning of the consciousness: that which before was perceived as a subject becomes now an object. In this way one can achieve increased ability to observe her own experience more objectively, without identifying with it. Through re-perceiving individual detaches from her thoughts, emotions, sensations, pain or fear, and learns to observe all of these experiences when they manifest in the field of one’s awareness, instead of being controlled or defined by them (Shapiro et al. 2006). According to Shapiro et al. (2006) re-perceiving creates a new meta-perspective towards one's experience. Through this shift of a perspective, one's
identification with the content of consciousness (that which can be observed and perceived) changes into the consciousness itself (that which observes and perceives).

In a recent review and meta-analysis (2015) Gu et al. systematically reviewed mediation studies on mechanisms of MBCT and MBSR and identified psychological mechanisms underlying the effects of mindfulness-based interventions (MBI). Quantitative synthesis using two-stage meta-analytic structural equation modeling (TSSEM) was used to examine whether the found mechanisms mediate the effects of MBIs on clinical outcomes. Authors identified strong and consistent evidence for cognitive and emotional reactivity (which is similar with the concept of non-reactive attention in Shapiro’s model), moderate and consistent evidence for mindfulness, rumination, and worry, and preliminary evidence for self-compassion and psychological flexibility (which overlaps with the concepts of attitude and attention in Shapiro’s model), as mechanisms underlying MBIS. TSSEM showed evidence for mindfulness, rumination, and worry as significant mediators of the effects of MBIs on mental health outcomes. (Gu, Strauss, Bond, & Cavanagh, 2015).

A study conducted by Heeren and Philippot (2011) investigated whether the potential reduction in psychopathology symptoms following mindfulness training is mediated by a reduction in maladaptive rumination, which in turn can lead to more adaptive mental functioning. They studied 29 participants who took part in the mindfulness program and found out that mindfulness training decreased maladaptive rumination and increased adaptive rumination compared to inactive control group. Changes in ruminative mode of thinking were found to mediate the impact mindfulness training has on the general level of psychopathology. These results are in line with the results obtained by Gu et al (2015).

1.1.2 Mindfulness-Based Stress Reduction
Mindfulness-Based Stress Reduction (MBSR) is a clinically standardized program created in 1979 as a way to integrate Buddhist mindfulness meditation within modern clinical and psychological practice (Kabat-Zinn, 1990; Kabat-Zinn, 2003). It is a systematic approach to mindfulness training that aims to reduce stress and increase healthy regulation of emotions. Even though it was originally developed for patients suffering from chronic pain (Kabat-
Zinn, 1982) during the past two decades it has been used as a treatment for many other
diseases as well (e.g., fibromyalgia, cancer, anxiety disorder, depression, and various other
stresses) (Fjorback et al., 2011).

MBSR teaches people how to approach stressful situations “mindfully” so they can learn to
respond to situations consciously instead of reacting to them unconsciously. The primary
focus of MBSR is to teach simple mindfulness techniques that improve the ability to
become aware of one’s thoughts and feelings and to change one's approach to them.

Exercises are used to develop a new perspective towards one’s own experiences (similar to
Shapiro’s concept of re-perceving, which was conceptualized later) so that emotions,
thoughts and sensations can be perceived as mental, temporary events and not as stable
aspects of the self (Kabat-Zinn et al, 1984). Through systematic practice a person can learn
to detach from thoughts and feelings during stressful or painful situations, instead of being
captured in worry and anxiety.

There are many different kinds of techniques that are used in MBSR programs. One of the
basic ones is a simple sitting meditation where one focuses attention to the flow of
breathing. Breathing is always happening in the present moment, so bringing and
maintaining the attention upon breath is a classical way to “anchor” the awareness in the
present moment. Whenever mind is wandering away, it is gently but immediately directed
back to the breath. Appearing thoughts, feelings, and sensations are let to appear with
acceptance and let to pass without holding on to them, while attention is brought back to its
initial object of concentration. The intention is to observe and accept thoughts or sensations
when they appear, without making judgments, evaluations, or further elaborations about
them (Kabat-Zinn, 1984). This kind of practice teaches participants to observe thoughts and
feelings in a detached way, as mental events, with no value other than that which person
gives to them. There is no attempt to change, refuse or escape anything: neither to hold on
or to prolong anything. Other techniques within MBSR, like body scan, are taught in a
similar way, with a different object of focus to concentrate upon to maintain the attention
upon the present moment. (Kabat-Zinn, 1984)
The standardized MBSR program consists of 8 to 10 weekly group sessions. Single weekly sessions are usually 2.5 hours with an additional session being a full day ‘retreat’ (Kabat-Zinn, 1982; Kabat-Zinn 1990). Each session teaches particular exercises and topics related to mindfulness. The lessons include different forms of mindfulness meditation practice, mindful hatha yoga practice and mindfulness during stressful situations and social interactions. Participants also commit themselves to 45-minute homework that involves practicing mindfulness techniques, both formal exercises as well as informal mindfulness during daily activities. Participants are provided with audio files to support them through some of the exercises. (Kabat-Zinn, 1990; Camody & Baer, 2008)

Originally MBSR was developed to treat stress and mental and physical disorders. Less attention has been given to the benefits it might have on healthy participants. During the last decade, interest has developed in applying MBSR as a prevention program for healthy individuals, especially in the context of stress reduction and emotional self-regulation. (Kabat-Zinn, 2003, Chiesa & Serreti, 2008).

The present study took place within the context of the Healthy Learning Mind Project (Terve Oppiva Mieli), which is based upon the .b-program. The .b program is a MBSR derived intervention program developed in the UK that is conducted in the schools and designed for adolescents. The .b program consists of teaching mindfulness skills to the students in the classroom. It is designed after the MBSR program, but it doesn't include the hatha yoga practice or one day retreat as traditional MBSR programs do. (The .b program will be described in fuller detail closer to the end of this chapter.)

According to the systematic review of 21 randomized controlled trials (RCT) made by Fjørback, Arendt, Ornbol, Fink and Walach (2011), MBSR improves mental health and reduces symptoms of stress, anxiety and depression in clinical and non-clinical samples. A meta-analysis of ten RCT performed with healthy participants, partially using same database as Fjørback et al. (2011), by Chiesa and Serreti (2008) indicates that MBSR can reduce stress and enhance spiritual values among healthy adults compared to an inactive control group. Furthermore Chiesa and Serreti (2008) conclude that MBSR is able to reduce
ruminative thinking and trait-anxiety and to increase empathy and self-compassion among healthy adult population.

Thirteen years ago it was noted that despite the growing interest and popularity of MBSR interventions, the research was suffering from methodological problems, like inappropriate or inadequate use of statistics, the use of measures that had not been validated, failure to control for concurrent treatments that might affect the outcome variables, and arbitrary determination of clinical responses (Bishop, 2002). In his critical review, Bishop (2002) claimed that there is no evidence that MBSR enhances a state of mindfulness. He advised that research needs to clarify whether mindfulness exercises produce a form of altered awareness, that can be called “mindfulness” or whether mindfulness is simply another way to relax. Bishop (2002) stated that it is essential to conceptualize structures of mindfulness, that appropriate measurements of mindfulness have to be developed, and that the mediating role of mindfulness has to be investigated.

There has been some research to answer Bishop's suggestions during the last 13 years. The study of mindfulness has expanded and several self-report measures have been developed to measure the general tendency of mindfulness in daily life (Baer et al., 2004; Brown and Ryan, 2003). These measures have been shown to significantly correlate with each other. Baer et al. (2006) have developed the Five Facet Mindfulness Questionnaire (FFMQ) which assesses five elements of mindfulness that show good internal consistency and correlations with concepts related to mindfulness. In their 2008 study, Carmody and Baer studied a sample of 174 adults, aged 19-68, and investigated whether participation in an eight-week long MBSR would lead to changes in levels of mindfulness measured by the FFMQ. They showed that levels of mindfulness increases significantly from pre - to post-MBSR. Results also show that the extent of home practice during the intervention was significantly correlated with the degree of changes in most facets of mindfulness. Increases in mindfulness were shown to mediate the relationships between meditation practices and psychological symptoms and perceived stress, suggesting that the improvements in mindfulness that seem to result from regular practice are related to a significant reduction in psychological distress and perceived stress. These findings provide support for the claim

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that regular practice is necessary for improving mindfulness skills in everyday life. Better mindfulness skills in turn leads to improved psychological functions such as symptom reduction, reduced stress, and enhanced well-being (Carmody & Baer, 2008).

1.1.3 Mindfulness interventions with Youth

Mindfulness meditation and MBSR programs have been shown to be beneficial for adults as a treatment for variety of mental health and physical health outcomes (Fjorback et al., 2011; Keng, Smoski & Robins, 2011) but only few meta-analyses have been conducted on mindfulness interventions with youth.

Zoogman et al. (2014) conducted a meta-analysis of the literature of mindfulness meditation with youth, published between 2004 and 2011. They found mindfulness interventions with youth overall helpful, with the primary omnibus effect size (del) in the small to moderate range (0.23, \( p < 0.0001 \)), indicating that the mindfulness treatments were superior over the active control groups. A significantly larger effect size was found with psychological symptoms compared to other dependent variable types. A larger effect size was also found for studies made with clinical samples. Dependent variables included measures of psychological symptoms like anxiety and depression, measures of general functioning like social skills and quality of life, and measures of mindfulness and attention. Zoogman et al (2014) conclude that mindfulness appears as promising intervention method for youth, especially for clinical populations. Even though mindfulness interventions for adolescents are at the moment mainly thought in the schools, these studies highlight their usefulness for clinical youth population as well.

Black et al. (2009) have conducted a literature review of treatment efficacy for sitting-meditation for youth, including studies that used transcendental meditation, MBSR, MBCT as well as other adaptations of mindfulness meditation. Authors conclude that sitting meditation seem to be an effective intervention in the treatment of physiological, psychological, and behavioral conditions among youth (Black et al 2009)
There are many mindfulness projects that have been developed for schools. Susan Kaiser Greenland has developed various mindfulness programs for schools and for different age groups in US. Flook et al. (2010) reviewed her 'Inner Kids' -mindfulness-skills program taught around the world. They concluded based on a randomized control study of 64-second- and third-grade children, age 7-9 years that the program produces improvements in executive functions, behavioral regulation and meta-cognition in children pre- to post-intervention, compared to a control group, which consisted of a silent reading period.

'Learning to BREATHE' is another MBSR-derived mindfulness program developed in US. Broderick and Metz (2009) studied 120 students from a private girls’ school, 17 to 19-year of age, who participated to the program as part of their health curriculum. They concluded that relative to controls, participants reported decreased negative affect, tiredness, and pains and increased feelings of calmness, relaxation, self-acceptance, emotional regulation, awareness, and clarity after participating to the program.

In a rather recent meta-analysis Zenner, Herrnleben-Kutz and Walach (2014) reviewed the existing mindfulness-based programs for schools and summarized the data available on the effects of mindfulness-based interventions for children and youth in a school environment. They identified 24 studies and concluded that mindfulness-based training in a school context has effects that are seen mainly in the cognitive domain (improving attention and learning), but also in psychological measures of stress, coping, and resilience. They suggested to train school teachers in mindfulness, who can then promote mindfulness through teaching in a mindful way and acting as examples of mindful living.

Kuyken et al. (2013) studied the effectiveness of the Mindfulness in Schools Program through a non-randomized controlled feasibility study and provided evidence of its impact on depressive symptoms, both immediately following the program and at 3-months follow-up, and found promising evidence of its efficacy in reducing stress and enhancing well-being. Students’ general well-being and mental health, including stress scores and depression scores were measured at a baseline, at post-intervention, and after three months. Student's ongoing use of mindfulness exercises was assessed after three months. As in many other studies young people who engaged more with the mindfulness practice were
found to report better outcomes. Mindfulness in Schools Program (MiSP) has been
developed as a universal nine-week intervention for young people in secondary schools.
MiSP is an intervention that teaches mindfulness as a way of dealing with everyday stresses
and experiences, and it is designed to fit into school curriculum.

The benefits of mindfulness training are well known. Very little, however, is said about the
difficulties of taking up and maintaining the practice of mindfulness. Most of the
mindfulness-based programs last less than ten weeks, which can be sufficient time for
learning the simple exercises, but is not yet enough to establish a ‘mindful’ approach to life.
After the program finishes individuals have to maintain their practice of mindfulness in
order to develop this new health promoting behavior. As with learning any other new skill,
practicing mindfulness requires patience, determination, motivation, effort and sacrifice of
time. One needs to focus on the object of concentration, whether being breathing, bodily
sensations or one’s thoughts and emotions, and bring the attention back every time it
wanders. Many studies show that the ones practicing home in addition to participating to
the program receive biggest benefits. (Huppert & Johnson, 2010; Kuyken at al., 2013;
Carmody & Baer, 2008). Currently there is very little if any studies shedding light to what
motivates students to practice the learned mindfulness exercises at home, outside the
intervention curriculum.

1.1.4 The importance of home practice within MBSR programs

Carmody and Bayer (2008) investigated the relationships between home practice of
mindfulness and levels of mindfulness, psychological symptoms, perceived stress and
psychological well-being in a sample of 174 adult participants. Their results show that time
used in home practice of formal mindfulness exercises was significantly related to
improvements in various facets of mindfulness and measures of psychological symptoms
and improved well-being. Their findings provide support for the idea that regular
mindfulness practice cultivates mindfulness skills, which in turn lead to improvements in
psychological functioning and well-being. Kuyken et al (2013) found that the degree to
which students (N= 242) practiced mindfulness after they had received nine weeks
mindfulness intervention in schools was associated with better well-being ($p<0.001$) and less stress ($p=0.03$) at 3 months follow up. Huppert and Johnson (2010) were comparing measures on mindfulness, resilience and psychological well-being between intervention and control groups ($N=155$) in a sample consisting of adolescent boys in a classroom setting. They didn’t find any significant differences between the groups, but they did however observe a significant positive association between the individual practice time outside the classroom and improvement in psychological well-being ($p<0.05$) and mindfulness ($p<0.05$).

These studies underline the idea that it is essential to know how to facilitate people, both adults and adolescents, to take up and maintain the practice of mindfulness after the mindfulness-based interventions are over. In the existing mindfulness literature there is scarce empirical evidence regarding how to promote practice of mindfulness independently, in unsupervised settings. To gain insight into what makes people adapt to new health supporting behaviors it is necessary to turn to the existing literature regarding health behavior change.

1.2 Health Behavior Change

Health can be promoted by healthy behavior, such as physical exercise, high-quality nutrition, adequate sleep, and mindfulness-training. Health behavior change refers to the motivational, volitional, and actional process of abandoning health-risking behaviors and adopting and maintaining health-promoting behaviors (Leventhal, Rahn, Leventhal, & Burns, 2001).

Health behavior change encompasses a variety of social, emotional and cognitive factors. Research has aimed to identify the factors that allow for the best prediction and explanation of health behavior change. A distinction is made between stage models and continuum models. Continuum models assume that a person's behavior is the outcome of a conscious intention. Intention is seen as being determined by beliefs and attitudes (Fishbein & Ajzen, 1975, Armitage & Conner, 2001). The aim is then to identify a set of predictors that include constructs like perceived barriers, subjective norms and perceived self-efficacy. The most prominent theories of this kind are the Theory of Reasoned Action, Theory of Planned
Behavior, which is an extension of the previous one, and the Protection Motivation Theory (for an overview see, e.g., Abraham & Sheeran, 2000 or Conner & Norman, 2005). The main emphasis of these theories is to determine the constructs that predict intention, which in turn is thought to predict the health behavior.

Typically continuum models do not account for the post-intentional phase in which intention and goals are turned into action. In a post-intentional phase, various factors can however hinder or facilitate the translation of intentions into action, like maintenance of self-efficacy and recovery self-efficacy as well as action planning and coping planning (Armitage & Conner, 2001). More advanced continuum models include factors that help to bridge the gap between intention and behavior. It is assumed that there are at least two processes of health behavior change, a motivational one that leads to intention, and a volitional one that leads to the successful performance of the desired health behavior (Schwarzer, 2008).

Stage theories on the other hand propose a number of qualitative stages of health behavioral change. One of the most popular theories of this kind is The Transtheoretical Model of Behavior Change (TTM) that implies that different interventions are appropriate at different stages of health behavior change. TTM model describes five different stages of health behavior change (pre-contemplation, contemplation, preparation, action and maintenance) and assumes that different factors are responsible for transforming one stage to another (Schwarzer, 2008).

Another model that explicitly includes post-intentional factors is the Health Action Process Approach (HAPA). This model suggests a distinction between pre-intentional motivation that leads to intention and post-intentional volition that leads to action and the actual health behavior. Within these two distinct stages different social-cognitive predictors are present. Risk perception, positive outcome expectancies and self-efficacy are seen as important in the motivational phase where the intention is formed and are thus in line with the TPB. After this, intention has to be turned into action. Once action has been initiated it has to be maintained through self-regulatory skills and strategies. Planning and recovery self-efficacy are crucial in the post-intentional phase. Individuals pass through different mindsets when
they are in the process of changing behavior. According to HAPA interventions might be most efficient when they are taking the different needs of these stages into consideration. HAPA has received lot of empirical support (Schwarzer, 2007).

1.2.1 The Theory of Planned Behavior
The theory of planned behavior (TPB) (Ajzen & Fishbein, 1969) has for long been one of the most influential theories for predicting social and health behaviors. According to Fishbein & Ajzen, behavior is guided by three kinds of beliefs; beliefs about the likely consequences of behavior (behavioral beliefs), beliefs about the normative expectations of other people (normative beliefs) and beliefs about the presence of factors that may further or hinder behavior (control beliefs). Behavioral beliefs produce positive or negative attitudes toward the behavior, normative beliefs results in perceived social pressure and subjective norms, and control beliefs create perceived behavioral control, the perceived belief regarding individual’s possibilities to perform the desired behavior. Perceived behavioral control is close to the construct of self-efficacy (Ajzen, 2002). Attitude, subjective norm and behavioral control form together intention, which in turns leads to the desired health behavior. According to the TPB the more positive people's attitudes and subjective norms, the stronger their perceived behavioral control, and thus the more likely they are to intend to perform that behavior. The stronger people's intentions, the more likely they are to perform the respective behavior.

Accumulated evidence indicates that attitudes, subjective norms, and perceived behavioral control are reliable predictors of intention to perform new health behaviors and generally account for 40%-50% of the variance in meta-analytic reviews (e.g. Armitage & Conner, 2001; Sheeran & Taylor, 1999). Meta-analysis show that intentions and perceived behavioral control typically explain between 20% and 40% of the variance in health behaviors in respective studies (e.g. Armitage & Conner, 2001; Sheeran & Orbell, 1998).

Rivis & Sheeran (2003) suggested an additional predictor to the theory of planned behavior. A meta-analysis shows that descriptive norms increased the variance explained in intention by 5% after attitude, subjective norm, and perceived behavioral control has been taken into
account. The authors suggest the inclusion of descriptive norms (i.e. what significant others themselves do) as an additional predictor for the TPB. A moderation analysis indicated that younger samples were associated with stronger correlations between descriptive norms and intentions. This is not surprising as it’s known that adolescents and young adults are especially sensitive to the social pressures associated with social norms (e.g. Pasupathi, 1999). Rivis & Sheeran (2003) suggest that interventions should be created taken the specific needs of adolescents into account. One application of this is to use peers as role models for promoting health behavior change.

Figure 1

*Ajzen and Fishbein’s Theory Applied to Mindfulness Practice*

Fishbein and Ajzen updated their theory 2011 and wrote a book called *Predicting and Changing Behavior: The Reasoned Action Approach* (Fishbein & Ajzen, 2010). New version of the theory conceptualizes norms in two ways, alike Rivis and Sheeran proposed (2003): injunctive norms are perceptions of what others consider to be correct behavior:
and descriptive norms are perceptions of what others are actually doing. In addition the authors argue that if one knows the elements to successfully predict intentions and behaviors, then those same elements can and should be used when designing interventions to change intentions and behavior. According to the authors when designing a health behavior change intervention one needs to first identify which of the determinants are to be targeted and only after that design the actual intervention. (Fishbein & Ajzen, 2011). This is what the current study aimed to accomplish in creating a theory- and evidence-based booster intervention within the Terve Oppiva Mieli-program.

**Self-Determination Theory and the Importance of Intrinsic Motivation**

Self-Determination Theory (SDT) is a theory of motivation. The theory was originally developed by Edward Deci and Richard Ryan (1985; 1991). The theory is relevant within health behavior studies as motivation is a central factor in producing health behavior change. SDT emphasizes humans’ inherent tendencies toward personality development, behavioral self-regulation, developing skills, mastering challenges and integrating new experiences into a coherent sense of self. According to SDT, social environment can either support or challenge person’s tendency toward development and psychological growth by either supporting or threatening individuals’ psychological needs. (Deci & Ryan, 1985; 1991)

People are often motivated by external factors such as rewards, evaluations or social pressure, but as often they want to act because of the simple joy and enthusiasm for the action, without needing external reasons for motivation. The intrinsic motivation is the type of motivation that is self-created and self-sustained. It refers to a healthy human motivation that is agentic, inspired and directed towards learning and improving. Cognitive evaluation theory (CET) is a sub-theory within SDT (Deci & Ryan, 1985) that explains variability in intrinsic motivation. CET suggests that social environment can strengthen or weaken intrinsic motivation by supporting or threatening people's psychological needs. According to CET, conditions supporting individuals’ experience of autonomy, competence and relatedness empower intrinsic motivation and creativity. Autonomy refers to the feeling of being the central source of one's own actions, so that person's actions reflect and express
his/her sense of self. Autonomy means acting from personal interest and personal values. 
*Competence* refers to the experience of being able to fulfill one's actions efficiently with the 
help of one’s capacities. Competence is thus related to the feeling of self-confidence and 
self-efficacy. *Relatedness* refers to the feeling of being connected with others, being cared 
for and being caring towards other people and one's community. It is a sense of belonging 
with others. (Ryan & Deci, 2000).

According to SDT extrinsically motivated action can become self-determined as individuals 
identify with and assimilate their regulation. Thus, through internalization individuals can 
be externally motivated and still be committed (Ryan & Deci, 2000). Organismic 
Integration Theory (OIT) is another sub-theory within SDT (Deci & Ryan, 1985). It focuses 
on the different forms of extrinsic motivation and the contextual factors that either promote 
or hinder internalization and integration of extrinsically motivated behavior. OIT 
emphasizes autonomy and competence as central to internalization of extrinsic motivation. 
One of the reasons why a person might initially perform extrinsically motivated actions is 
because the behavior is modeled, or valued by significant others. Relatedness is therefore 
also important for internalization of motivation (Ryan & Deci, 2000).

SDT is central when designing interventions that aim for health behavioral change for 
youth. The more intervention manages to support adolescents' needs for autonomy, 
competence and relatedness, the more it supports internal motivation and internalization of 
the originally external motivation for the desired behavior. In this study we applied the 
ideas from SDT when designing the booster intervention, and aimed to take students’ needs 
for autonomy, relatedness and competency into consideration. Students were asked to think 
about the benefits of mindfulness practice they themselves would like to achieve, and 
choose the techniques that could help them to achieve their goals (autonomy). The benefits 
of mindfulness were discussed in small groups and peers were used as role models to model 
to desired health behavior (relatedness). Students’ were shown videos of other adolescents 
describing the benefits of mindfulness practice and told what kind of benefits their own 
peers had received from practicing mindfulness. This hopefully was giving them a stronger
sense of competency, belief in their own abilities to practice mindfulness through enhancing social norms.

.b Program

One relevant health behavior change program for youth is called the .b-program (standing for 'Stop, Breath and Be'). It is a nine-week mindfulness course designed for young people aged 11-18, including 10 lessons (see Table 1) and homework, delivered in the classroom or in small groups. Each lesson teaches a distinct mindfulness skill through presentation, visual materials, films, and practical exercises (see table 1 for a description of each lesson). Learned exercises include learning to sit still and observe the breath, awareness of different body parts, walking and eating mindfully, and becoming more aware of how the body feels under stress. .b-program aims to help young people to experience greater well-being, to improve concentration and focus, to work with difficult mental states (e.g., depressive, ruminative, and anxious thoughts), and to cope with everyday stresses of adolescent life. It has been developed in UK by school teachers Richard Burnett and Chris Cullen, co-founders of the Mindfulness in Schools Project. At the moment .b-program is being taught in 12 different countries, including Finland.

A UK-based study on the .b the Mindfulness in Schools Project's .b pilot curriculum was carried out by Huppert and Johnson (2010) who reported the outcomes of a short control trial. Mindfulness training was administered to adolescent boys aged 14-15. A total of 173 students were participating. Six of the classes were allocated to the mindfulness intervention, and five classes were normally taught and acted as controls. The intervention lasted four weeks consisting of one lesson a week of basic mindfulness training. It was shown to produce statistically significant effects on mindfulness, ego-resilience, and well-being among students who regularly did 10 minutes of home practice daily in addition to participating in the intervention at school.
# Table 1

*The Ten Lessons in the .b Program*

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson 0: An Introduction</td>
<td>An introductory lesson persuades young people that mindfulness is worth learning about by making it relevant to their lives.</td>
</tr>
<tr>
<td>Lesson 1: Playing Attention</td>
<td>Lesson One introduces students to this thing we call our “attention” which, like a puppy, needs to be trained.</td>
</tr>
<tr>
<td>Lesson 2: Taming the Animal Mind</td>
<td>Lesson Two explores different mind states and teaches that ‘anchoring’ attention in the body, alongside the cultivation of curiosity and kindness, can be calming and nourishing.</td>
</tr>
<tr>
<td>Lesson 3: Recognising Worry</td>
<td>Lesson Three explains the tricks our mind plays that lead to stress and anxiety, and gives us techniques to deal with them.</td>
</tr>
<tr>
<td>Lesson 4: Being Here Now</td>
<td>Lesson Four comes to the heart of mindfulness and teaches us how to respond, rather than react, to whatever happens in our lives.</td>
</tr>
<tr>
<td>Lesson 5: Moving Mindfully</td>
<td>Lesson Five shows us that mindfulness is not just something we do sitting or lying down. It also looks at high performance in sport.</td>
</tr>
<tr>
<td>Lesson 6: Stepping Back</td>
<td>Lesson Six offers us a new way of relating to our thoughts. We don’t have to let them carry us away to places we’d rather not be.</td>
</tr>
<tr>
<td>Lesson 7: Befriending the Difficult</td>
<td>Lesson Seven deals with the greatest challenge of all: dealing with difficult emotions.</td>
</tr>
<tr>
<td>Lesson 8: Taking in the Good</td>
<td>Lesson Eight focuses on gratitude and the ‘heartfulness’ of taking in &amp; savouring what is ‘good’ in life.</td>
</tr>
<tr>
<td>Lesson 9: Putting it all together</td>
<td>Lesson Nine consolidates the key techniques from .b and inspires students to use what they have learned in the future.</td>
</tr>
</tbody>
</table>

*Note.* Information retrieved from the .b program website: [http://mindfulnessinschools.org/what-is-b/nine-lessons/](http://mindfulnessinschools.org/what-is-b/nine-lessons/) The last lesson has been recently added and is not yet part of the Finnish version.
Terve Oppiva Mieli

Terve Oppiva Mieli (Healthy Learning Mind) research project is a cluster randomized controlled trial on the comparative effectiveness of a school-based mindfulness and relaxation program on stress resilience, cognitive function, mental health and well-being. The trial was derived from the .b-program and adjusted to the Finnish language, society, and school environment. The recruitment process involved 247 schools in Southern Finland being contacted. Out of 247 schools, 56 schools agreed to participate to the study. They were randomized according to background variables, e.g., language used for teaching, grade and school location. Two thousand nine hundred forty students, aged (at baseline) 12-15 years, are participating in the program and are followed up from 6 months to 1 year on primary outcomes of stress resilience, mental health, and well-being. The secondary outcomes include e.g. students’ cognitive function (e.g. attention and academic achievement), health behavior, social relationships, self-compassion, schools social climate and mindfulness skills. Terve Oppiva Mieli (TOM) has had three waves and the fourth one will be collected during spring 2016. The first two waves were administered during spring and autumn 2014, and the third wave during spring 2015. (Volanen et al., 2016)

Schools were randomly allocated to a mindfulness intervention (Total classes, \(N=85\)), control (Total classes, \(N=79\)), or waiting-list-groups (Total classes, \(N=28\)). Data has been collected at baseline, immediately after the nine-week intervention, and 6 months after baseline from children, their parents and teachers. Students will also fill a follow-up questionnaire 1 year after the intervention. To the authors’ knowledge it’s the first one to conduct systematic, methodologically adequate comparative randomized research of this scale among study population formed of school-aged children. (Volanen et al., 2016)

Introduction of the Present Study

The idea of the current study was conceived when the team conducting the cluster-RCT of the TOM were wanting to increase students level of mindfulness practice. Consequently, the current study designed and then evaluated a booster intervention, which aimed to increase students’ intention to practice the mindfulness exercises they had learned during the Terve Oppiva Mieli, and after their mindfulness practice. First, the problem was
defined by analyzing data from TOM’s first wave in spring 2014 to assess what percentage of students were practicing the learned mindfulness skills. Next the data was analyzed to discover the main predictors or determinants of practice. With this knowledge, targets were identified for the booster intervention that would be implemented into the TOM program to increase youth’s intention to practice mindfulness exercises in their own time. The booster intervention was designed based upon the data analyses. The initial analyses were guided partly by the Theory of Planned Behavior (TPB). The booster was delivered in the classrooms during the 8th and 9th sessions of the third wave of the TOM program.

Research Objectives

The aims of the thesis are as follows:

➢ 1. Identify factors from theory, from analyzing what predicts mindfulness practice, and from what the participants report as reasons for not practicing.
➢ 2. Build and conduct a theory- and evidence-based booster intervention to increase students’ intention and mindfulness practice, by targeting the found predictors.
➢ 3. Evaluate whether the intervention is effective in changing intention and practice of mindfulness exercises.

Chapter Two: Analyzing Predictors of Practice within TOM

Research Objective I

Chapter two deals with the first of the three research objectives:

➢ Identify factors from theory, from analyzing what predicted mindfulness in the first TOM wave, and from what the participants report as reasons for not practicing.
Methods

Figure 2

*Timeline of the Current Study*

**Participants**
Using a previous wave of the Terve Oppiva Mieli, the intervention arm (n=310) was analyzed (see Table 2 for demographic information). The control arm, which received relaxation training and no mindfulness training, was not relevant for the current study’s purposes.

**Procedure**
Survey data from baseline, nine weeks, and six months, which had been already collected by TOM during the first wave, was analyzed to discover what factors contributed to practice.
Table 2

Demographics of the intervention arm of Terve Oppiva Mieli in its first wave

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>134</td>
<td>43</td>
</tr>
<tr>
<td>Boys</td>
<td>137</td>
<td>44</td>
</tr>
<tr>
<td>Missing</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td><strong>Mother Tongue</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finnish</td>
<td>258</td>
<td>83</td>
</tr>
<tr>
<td>Swedish</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Missing</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>310</td>
<td>100</td>
</tr>
</tbody>
</table>

Measures

*Use of a Mindfulness Exercise to Relax*
Another germane item available both in baseline and nine week surveys was presented in a list of possible relaxation activities. Participants were queried with the stem, “How often do you do the following activities to relax?” The pertinent item was phrased, “I do a mindfulness exercise”, and on a four-point Likert scale the possible reasons were, “Not at all”, “Seldom”, “Sometimes”, and “Often”.

*Lesson Attendance (during the program)*
Lesson attendance during the main intervention program was asked with the stem “How many lessons did you participate in? (Circle just one number)” on the nine-week survey. Respondents were given the numbers one through nine.

*Outcome Expectancy, Subjective Norms, and Self-efficacy at Nine Weeks*
Three predictors at nine weeks based on the Theory of Planned Behavior were operationalized in this way: Outcome expectancy was measured by a mean of six items on
a five-point scale ranging from “Totally disagree” to “Totally agree” with an additional option of “I don’t know”, which was omitted in the current study’s analyses. The item stem was: “What do you think about the following sentences? The ability to relax and calm my mind when I’m stressed, nervous or anxious…” The items were as follows: “1. Can help me feel better”, “2. Can help me be healthier”, “3. Can help me learn”, “4. Can help me perform better (e.g. in sports)”, “5. Does not help me in any way”, “6. Takes time from other important things”. The last two items were reversed-scored, and all items were averaged into a mean score for outcome expectancies.

Subjective norms were measured by a mean of three items on a five-point scale ranging from “Totally disagree” to “Totally agree” with the item instructions “Read the following sentence and tick the box that fits best” and consisting of: “1. My friends do some of the exercises we learned”, “2. My friends think that it’s OK that I do the home exercises”, “3. My parents think that it’s OK to do the exercises I have learned”. Notably, the first item requests information about descriptive norms specifically, and were be analyzed by itself as well, while the latter two describe injunctive norms. These items were also averaged into a mean score for subjective norms.

Self-efficacy was measured by a mean of four items on a four-point scale ranging from “I’m sure I cannot” to “I’m sure I can”. The question and item stem were: “Do you think that you can calm your own mind in most situations, when you experience stress, time pressure or get nervous? I think I can calm my mind, even when…” “1. I have an important test or speech in school”, “2. I’m stressed or in a bad mood”, “3. I have to perform in sports, music etc. outside school”, “4. I have quarreled with someone/some people who are close to me”. A mean score was again calculated by averaging these items.

**Intention**

To examine intention, the mediator in the Theory of Planned Behavior, it was also operationalized in the current study. The item, taken from the nine-week survey, was as follows: “During the next months, I will use the exercises I have learned to relax and calm
my mind.” Respondents were given a seven-point scale ranging from “Totally disagree” to “Totally agree”.

**Practice at home at six months**

Amount of practice was assessed by averaging four items on a five-point scale ranging from “Not once” to “Almost every day or every day”. The four items asked about mindfulness practice in the past month at home: “1. Short breathing exercises that lasted under 10 minutes (e.g., breathing 7/11)”, “2. Long breathing exercises that lasted over 10 minutes”, “3. Movement relaxation (e.g. the Move in the wind – exercise, walking mindfully)”, and “4. Mindfulness in everyday tasks (eating, brushing teeth etc.)”.

**Self-Reported Reasons for Lack of Practice**

Self-reported reasons for lack of practice were one measure used to formulate the intervention. Respondents to the six month survey had the option of checking seven reasons for non-practice, after the item introduction, “If you have not done any mindfulness exercises during the past half year, what do you think are the reasons for this? You can choose several options”: “1. I didn’t find them helpful”, “2. The exercises were too difficult”, “3. I have forgotten to do the exercises”, “4. I have been too busy to do the exercises”, “5. I think the exercises are boring”, “6. I have not needed the exercises”, “7. Some other reason, please specify on the line below”.

**Statistical Analyses**

First data was analyzed to find precisely how many participants reported practicing after six months and if those participants reported experiencing benefits. Factor analyses were performed on theoretically-grouped items to justify their formation into a mean score. Hierarchical linear multiple regression analyses were then used to find the predictive power of self-efficacy, outcome expectancy, and subjective norms (nine weeks) on mindfulness practice six months after the onset of the Terve Oppiva Mieli program. Intention was investigated as a mediator. Non-normal variables were recoded into categorical variables and tested in a chi square analysis to discover if there were any changes in significance. In addition, frequency of self-reported reasons for non-practice were analyzed.
Results
It was found that 60% of the students reported no practice at all after six months. However, of those who did practice at least once in the past month, after six months, 79% reported better concentration while in class, 76% reported better concentration in their hobbies, 69% have reported managing stress better, 77% reported coping with difficult emotions (e.g., fear, aggression, anxiety) better, 79% reported sleeping better, 75% have reported getting better grades, 84% have reported getting along better with family members, and 85% have reported getting along better with friends.

Means, Standard Deviations, and Factor Analyses
Means, standard deviations, and Cronbach’s alphas are presented in Table 3. Overall, the reliability of the measures was good, with Cronbach’s alphas ranging from .875-.671. The only Cronbach’s alpha under .70 was subjective norms, which is not surprising as it was only comprised of three items, and they are theoretically distinct. Consequently, in the subsequent analyses, each subjective norm item was analyzed separately in addition to as an averaged mean score as indicated in the measures section. Owing to the Cronbach’s alpha scores, it was deemed justifiable to create mean scores for the other measures. Needless to say, one-item-measures do not have a Cronbach’s alphas.

Examining TPB constructs as predictors of MF practice
The first hierarchical multiple regression analysis predicting practice of mindfulness exercises uses a mean of the subjective norm items (see Table 5). In the first analysis, all tolerance values exceeded .10 and VIFs remained below 10 indicating no problems with multicollinearity (Meyers, Gamst and Guarino, 2006). Also, the largest correlation (see Table 4) between predictors was .58 (see table 4), less than .8, the heuristic figure suggesting possible multicollinearity (Meyers, Gamst and Guarino, 2006). This correlation was between subjective norms and intention. In block one, mindfulness practice at home in
Table 3  
Means, Standard Deviations, and Factor Analyses (N=310)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>SD</th>
<th>Cronbach’s α</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of a Mindfulness Exercise to Relax Baseline</td>
<td>1.40</td>
<td>.58</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Lesson Attendance</td>
<td>8.08</td>
<td>1.20</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Outcome Expectancy</td>
<td>3.59</td>
<td>.86</td>
<td>.875</td>
<td>6</td>
</tr>
<tr>
<td>Subjective Norms</td>
<td>3.14</td>
<td>.86</td>
<td>.671</td>
<td>3</td>
</tr>
<tr>
<td>Descriptive Norms</td>
<td>2.39</td>
<td>1.08</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Injunctive Norms, Peer</td>
<td>3.42</td>
<td>1.04</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Injunctive Norms, Parent</td>
<td>3.68</td>
<td>1.09</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>2.96</td>
<td>.62</td>
<td>.847</td>
<td>4</td>
</tr>
<tr>
<td>Intention</td>
<td>3.41</td>
<td>1.90</td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>Practice at Home 6 Months</td>
<td>1.32</td>
<td>.64</td>
<td>.869</td>
<td>4</td>
</tr>
</tbody>
</table>

the past month six months after the start of the program was regressed on gender, using a mindfulness exercise to relax at baseline, and number of lessons attended at nine weeks.

The R² of .002 was not significant; F(3, 164) = .113, \( p = .953 \). In block two, self-efficacy, subjective norms, and outcome expectancy were added to the regression analysis. The change in R² was .132; F(6, 161)=4.077, \( p = .001 \). Subjective norms’ standardized coefficient was significant, \( \beta = .387, t = 4.738, p < .001 \). In block three, intention was

---

1 All measures, with the exceptions of Use of a Mindfulness Exercise to Relax at Baseline and Practice at Home at 6 Months, are from the nine-week survey.
Table 4

Correlations with Undifferentiated Subjective Norms

<table>
<thead>
<tr>
<th></th>
<th>GENDER</th>
<th>USE OF A MINDFULNESS EXERCISE TO RELAX</th>
<th>LESSON PARTICIPATION</th>
<th>OUTCOME EXPECTANCY AT 9 WKS</th>
<th>SELF-EFFICACY AT 9 WKS</th>
<th>SUBJECTIVE NORMS AT 9 WKS</th>
<th>INTENTION AT 9 WKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRACTICE AT HOME IN THE PAST MONTH AFTER 6 MONTHS GENDER</td>
<td>.042</td>
<td>.020</td>
<td>-.005</td>
<td>.087</td>
<td>.048</td>
<td>.336***</td>
<td>.378***</td>
</tr>
<tr>
<td>USE OF A MINDFULNESS EXERCISE TO RELAX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LESSON PARTICIPATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTCOME EXPECTANCY AT 9 WKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELF-EFFICACY AT 9 WKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBJECTIVE NORMS AT 9 WKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.576***</td>
</tr>
</tbody>
</table>

Note. *p < .050, **p < .010, ***p < .001 (1-tailed)

added. The change in $R^2$ was .193; $F(7, 160)=5.454, p < .001$. Similar to subjective norms’ standardized coefficient, intention’s standardized coefficient was significant, $\beta = .308, t = 3.470, p = .001$. The post hoc statistical power for this analysis was high at 1. Because subjective norms were significant and because its Cronbach’s alpha was low, another hierarchical multiple regression analysis was performed to parcel out any differences between the types of subjective norms: descriptive and injunctive by peers or parents.

When intention was added to the analysis, the regression coefficient and p-value of subjective norms decreased (See Table 5 above). As this may indicate that intention mediates the relationship between subjective norms and practice at six months (confirming its role in the Theory of Planned Behavior), the Sobel test was performed to discover if intention did indeed mediate. A mediation effect was found ($t=1.325, p<.001$).
Table 5

*Hierarchical Multiple Regression Analysis Predicting Mindfulness Practice at Six Months with Undifferentiated Subjective Norms*

<table>
<thead>
<tr>
<th>Step</th>
<th>Predictor</th>
<th>b</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender</td>
<td>.044</td>
<td>.040</td>
</tr>
<tr>
<td></td>
<td>Use of a Mindfulness Exercise to Relax at Baseline</td>
<td>.014</td>
<td>.016</td>
</tr>
<tr>
<td></td>
<td>Lesson Attendance</td>
<td>-.003</td>
<td>-.007</td>
</tr>
<tr>
<td>2</td>
<td>Gender</td>
<td>.102</td>
<td>.093</td>
</tr>
<tr>
<td></td>
<td>Use of a Mindfulness Exercise to Relax at Baseline</td>
<td>-.013</td>
<td>-.014</td>
</tr>
<tr>
<td></td>
<td>Lesson Attendance</td>
<td>-.042</td>
<td>-.093</td>
</tr>
<tr>
<td></td>
<td>Outcome Expectancy</td>
<td>-.028</td>
<td>-.042</td>
</tr>
<tr>
<td></td>
<td>Subjective Norms</td>
<td>.252</td>
<td>.387***</td>
</tr>
<tr>
<td></td>
<td>Self-Efficacy</td>
<td>.021</td>
<td>.023</td>
</tr>
<tr>
<td>3</td>
<td>Gender</td>
<td>.126</td>
<td>.115</td>
</tr>
<tr>
<td></td>
<td>Use of a Mindfulness Exercise to Relax at Baseline</td>
<td>-.018</td>
<td>-.019</td>
</tr>
<tr>
<td></td>
<td>Lesson Attendance</td>
<td>-.041</td>
<td>-.090</td>
</tr>
<tr>
<td></td>
<td>Outcome Expectancy</td>
<td>-.062</td>
<td>-.093</td>
</tr>
<tr>
<td></td>
<td>Subjective Norms</td>
<td>.149</td>
<td>.230*</td>
</tr>
<tr>
<td></td>
<td>Self-Efficacy</td>
<td>.039</td>
<td>.041</td>
</tr>
<tr>
<td></td>
<td>Intention</td>
<td>.092</td>
<td>.308**</td>
</tr>
</tbody>
</table>

*Note. *p < .050, **p < .010, ***p < .001*
In the second analysis, all tolerance values exceeded .10 and VIFs remained below 10 indicating no problems with multicollinearity (Meyers, Gamst and Guarino, 2006). Also, the largest correlation between predictors (See Table 6 below) was .782, less than .8, the

Table 6

**Correlations with Differentiated Subjective Norms**

<table>
<thead>
<tr>
<th>Practice at Home in the Past Month After 6 Months</th>
<th>Gender</th>
<th>Use of a Mindfulness Exercise to Relax</th>
<th>Lesson Participation</th>
<th>Outcome Expectancy at 9 Wks</th>
<th>Self-Efficacy at 9 Wks</th>
<th>Descriptive Norms at 9 Wks</th>
<th>Peer Injunctive Norms at 9 Wks</th>
<th>Parent Injunctive Norms at 9 Wks</th>
<th>Intention at 9 Wks</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td>.040</td>
<td>.029</td>
<td>-.005</td>
<td>.087</td>
<td>.050</td>
<td>.413***</td>
<td>.183**</td>
<td>.184**</td>
<td>.376***</td>
</tr>
<tr>
<td>USE OF A MINDFULNESS EXERCISE TO RELAX</td>
<td>.151*</td>
<td>-.006</td>
<td>-.052</td>
<td>.040</td>
<td>.037</td>
<td>-.232**</td>
<td>-.164*</td>
<td>-.156</td>
<td></td>
</tr>
<tr>
<td>LESSON PARTICIPATION</td>
<td>.146*</td>
<td>.131*</td>
<td>.019</td>
<td>.192**</td>
<td>.100</td>
<td>.063</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTCOME EXPECTANCY AT 9 WKS</td>
<td>.187**</td>
<td>.063</td>
<td>.071</td>
<td>.277***</td>
<td>.242**</td>
<td>.147</td>
<td>.147</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELF-EFFICACY AT 9 WKS</td>
<td>.263***</td>
<td>.204**</td>
<td>.335</td>
<td>.354*</td>
<td>.347**</td>
<td>.347**</td>
<td>.347</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DESCRIPTIVE NORMS AT 9 WKS</td>
<td>.150*</td>
<td>.100</td>
<td>.010</td>
<td>.03</td>
<td>.03</td>
<td>.03</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEER INJUNCTIVE NORMS AT 9 WKS</td>
<td>.238**</td>
<td>.180*</td>
<td>.534**</td>
<td>.534**</td>
<td>.534**</td>
<td>.534**</td>
<td>.534**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARENT INJUNCTIVE NORMS AT 9 WKS</td>
<td>.782***</td>
<td>.398*</td>
<td>.398*</td>
<td>.398*</td>
<td>.398*</td>
<td>.398*</td>
<td>.398**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *p < .050, **p < .010, ***p < .001

This relatively high correlation was between two social norms items: one asking about peer acceptability of mindfulness practice and the other about parental acceptability of mindfulness practice and the other about parental acceptability. In block one, practice at home in the past month six months after the start of the program was regressed on gender, using mindfulness exercises to relax, and number of lessons attended. The $R^2$ of .002 was insignificant; $F(3, 163) = .119$, $p = .949$. In block two, self-efficacy, outcome expectancy,
and the three differentiated subjective norms items were added to the regression. The change in $R^2$ was .191; $F(8, 158)=4.727, p < .001$. Peer practice’s standardized coefficient was significant, $\beta = .401, t = 5.284, p < .001$. In block three, intention was added. The change in $R^2$ was .031; $F(9, 157)=5.030, p < .001$. Moreover, the standardized coefficient of intention was not statistically significant. Besides peer practice, intention’s standardized coefficient was also significant, $\beta = .231, t = 2.490, p < .05$. The post hoc statistical power for this analysis was also high at 1. (See Table 7 below for all regression coefficients.)

Table 7

*Hierarchical Multiple Regression Predicting Mindfulness Practice with Differentiated Subjective Norms*

<table>
<thead>
<tr>
<th>Step</th>
<th>Predictor</th>
<th>$b$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender</td>
<td>.039</td>
<td>.036</td>
</tr>
<tr>
<td></td>
<td>Use of a Mindfulness Exercise to Relax at Baseline</td>
<td>.024</td>
<td>.025</td>
</tr>
<tr>
<td></td>
<td>Lesson Attendance</td>
<td>-.004</td>
<td>-.009</td>
</tr>
<tr>
<td>2</td>
<td>Gender</td>
<td>.066</td>
<td>.061</td>
</tr>
<tr>
<td></td>
<td>Use of a Mindfulness Exercise to Relax at Baseline</td>
<td>-.053</td>
<td>-.056</td>
</tr>
<tr>
<td></td>
<td>Lesson Attendance</td>
<td>-.027</td>
<td>-.059</td>
</tr>
<tr>
<td></td>
<td>Outcome Expectancy</td>
<td>-.018</td>
<td>-.027</td>
</tr>
<tr>
<td></td>
<td>Self-Efficacy</td>
<td>-.006</td>
<td>-.007</td>
</tr>
<tr>
<td></td>
<td>Descriptive norm, Peer</td>
<td>.207</td>
<td>.407***</td>
</tr>
<tr>
<td></td>
<td>Injunctive norm, Peer</td>
<td>.023</td>
<td>.043</td>
</tr>
<tr>
<td></td>
<td>Injunctive norm, Parents</td>
<td>.058</td>
<td>.116</td>
</tr>
<tr>
<td>3</td>
<td>Gender</td>
<td>.095</td>
<td>.087</td>
</tr>
<tr>
<td></td>
<td>Use of a Mindfulness Exercise to Relax at Baseline</td>
<td>-.049</td>
<td>-.052</td>
</tr>
<tr>
<td></td>
<td>Lesson Attendance</td>
<td>-.030</td>
<td>-.066</td>
</tr>
<tr>
<td></td>
<td>Outcome Expectancy</td>
<td>-.046</td>
<td>-.069</td>
</tr>
<tr>
<td></td>
<td>Self-Efficacy</td>
<td>.013</td>
<td>0.014</td>
</tr>
<tr>
<td></td>
<td>Descriptive norm, Peer</td>
<td>.151</td>
<td>.293**</td>
</tr>
<tr>
<td></td>
<td>Injunctive norm, Peer</td>
<td>.014</td>
<td>.027</td>
</tr>
<tr>
<td></td>
<td>Injunctive norm, Parents</td>
<td>.038</td>
<td>.077</td>
</tr>
<tr>
<td></td>
<td>Intention</td>
<td>.069</td>
<td>.231*</td>
</tr>
</tbody>
</table>

Note. *$p < .050$, **$p < .010$, ***$p < .001$
Again, when intention was added to the analysis, the regression coefficient and p-value of descriptive norms decreased (See Table 7). As this may indicate that intention mediates the relationship between descriptive norms and practice at six months (confirming its role in the Theory of Planned Behavior), the Sobel test was performed to discover if intention did indeed mediate. A mediation effect was found ($t=2.51, p=.01$).

**Investigation of Non-normally Distributed Variables**

Two of the main variables in these analyses were found to have skewness and/or kurtosis scores greater than .8 or less than -.8, violating the assumptions of normal distributions. Intention had a kurtosis score of -1.22 and a bimodal distribution, and practice at six months had a skewness score of 2.82 and a kurtosis score of 10.13. Therefore these variables were recoded into categorical variables and chi square and discriminant analyses were conducted to investigate whether the results changed. Because intention and practice at six months were both recoded into categorical variables, a chi square analysis was conducted with them. It was found that those who practiced did not differ by low or high intention: $\chi^2(1, N = 310) = 1.07, p = .302$. As self-efficacy, subjective norms, descriptive norms, and outcome expectancies were distributed normally, they were not recoded and remained continuous. Consequently, to analyze them with the recoded categorical practice at six months variable, discriminant analyses were conducted. Outcome expectancies were not found to significantly predict practice $\chi^2(1, N = 226) = .457, p = .499$. Self-efficacy was not found to significantly predict practice $\chi^2(1, N = 245) = .018, p = .893$. Subjective norms were found to significantly predict practice $\chi^2(1, N = 245) = 6.751, p = .009$. Finally, descriptive norms were found to significantly predict practice $\chi^2(1, N = 245) = 19.683, p < .001$. In other words, subjective norms and descriptive norms were also found to be the predictors of practice, although there was no statistically significant finding for intention and practice.

**Self-Reported Reasons for Non-Practice**
The most frequently reported reason for not practicing mindfulness was not finding the practice helpful (32% of respondents). The next frequently chosen reasons were having forgotten (22%) and not needing the exercises (21%). It was possible for participants to
choose more than one option. Students were also able to write other reasons for not practicing in an open-ended form. Only 15 students wrote other reasons, which all fit within the other categories given. Seven students said they did not want or were not interested in practicing, four of them said they did not need the exercises, one said the exercises were not useful, one did not remember to do the exercises, one said she couldn’t focus upon the exercises, and one had not been in the school while the intervention had taken place. See Table 8 for percentages of all given reasons.

Table 8

*Frequency and Percentages of Given Reasons for Non-Practice (N=213)*

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Helpful</td>
<td>100</td>
<td>32.3</td>
</tr>
<tr>
<td>Exercises Too Difficult</td>
<td>4</td>
<td>1.3</td>
</tr>
<tr>
<td>Forgot to Do Exercises</td>
<td>67</td>
<td>21.6</td>
</tr>
<tr>
<td>No Time to Do Exercises</td>
<td>50</td>
<td>16.1</td>
</tr>
<tr>
<td>Exercises Were Boring</td>
<td>43</td>
<td>13.9</td>
</tr>
<tr>
<td>No Need for Exercises</td>
<td>66</td>
<td>21.3</td>
</tr>
<tr>
<td>Other Reason</td>
<td>15</td>
<td>4.8</td>
</tr>
</tbody>
</table>

*Note.* Those who practiced would not have chosen a reason, but are still included in the percentages. This is not a percentage of only those who did not practice due the way in which the item was phrased.

**Conclusion**

From analyzing the first wave of the TOM program, it was found that subjective norms, and more specifically descriptive norms, predicted mindfulness practice during the past month at six months follow-up. Intention was shown to mediate this relationship, which is in accordance with the Theory of Planned Behavior. The other determinants in the Theory of Planned Behavior, self-efficacy and outcome expectancies, as operationalized into a scale of items, were not found in this analysis to predict practice. However, it was additionally found that “Not helpful”, another operationalization of the outcome
expectancies, was the most frequently reason chosen for lack of practice. In summary, descriptive norms and perceived benefits resulted as the biggest predictors of practice.

Chapter Three: Creating the Booster Intervention

Research Objective II
➢ Develop a theory- and evidence-based booster intervention to increase students’ intention and mindfulness practice, by targeting the found predictors.

Study Objective
The behavior change objective of this booster intervention is to increase students’ intention to practice the mindfulness exercises they had learned, as well as their mindfulness practice at least to practicing a mindfulness exercise once per week, at 9 weeks.\(^2\)

Intermediate Targets
The analysis of the data from the previous intervention wave described in chapter two led to two main targets for the booster intervention to increase practice. Descriptive norms and perceived benefits emerged as the two most significant determinants of practice.

Descriptive Norms
While it was first hypothesized that subjective norms in general would predict mindfulness practice, upon further analysis it was found that only descriptive norms predicted practice. This is in line with the updated version of TPB that has included the distinction between injunctive and descriptive norms, as also stated by Rivis and Sheeran (2003). The Theory of Planned Behavior also predicts that intention would mediate the relationship between descriptive norms and practice as was affirmed by the Sobel test. However, self-efficacy, which is related to perceived control from the Theory of Planned Behavior, and outcome

\(^2\) Although in the beginning the goal was to analyze the data after 6 months to evaluate the efficacy of the booster intervention upon the student’s practice, in the end the 6 month data was not received on time, and thus only the survey taken right after the intervention (9 weeks) was included into the study.
expectancy, which is related to attitude from the Theory of Planned Behavior did not significantly predict practice. Descriptive norms then, in the end, were chosen to be one of the main targets of the booster intervention to increase intention and practice.

Perceived Benefits
As noted above, participants chose “Not helpful” (“en ole kokenut niiden auttavan”) most frequently as the reason they did not practice mindfulness. For this reason, the benefits of mindfulness practice are presented and are included in the activities of the booster intervention to target the perceived benefits of mindfulness practice. It is worth noting that perceived benefits is theoretically related to outcome expectancies as a construct but outcome expectancy item in this data did not statistically predict practice or intention. “Perceived Benefits” is used to differentiate the reason for non-practice from the outcome expectancy-labelled items.
Components of the Booster Intervention³

Table 9

*Booster Activities, Theoretical Determinants, and Associated Behavior Change Techniques*

<table>
<thead>
<tr>
<th>Session</th>
<th>Booster Intervention Activities</th>
<th>Targeted Theoretical Determinants</th>
<th>Behavior Change Techniques⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>~PowerPoint presentation of data about peer practice and MF benefits ~Video of interviews with practicing peers explaining some MF benefits</td>
<td>TPB: Descriptive Norms and Outcome Expectancies SDT: Autonomy</td>
<td>~5.1. Information about health consequences ~5.3 Information about social consequences ~5.6 Information about emotional consequences ~6.1 Demonstration of the behavior ~15.1 Verbal persuasion about capability ~16.3. Vicarious consequences</td>
</tr>
<tr>
<td>9</td>
<td>~Mindfulness benefits discussed with cards in a group activity ~Benefit and mindfulness exercise matching sheet</td>
<td>TPB: Descriptive Norms and Outcome Expectancies SDT: Autonomy</td>
<td>~1.1 Goal setting (behavior) ~1.3 Goal setting (outcome) ~5.2 Salience of consequences</td>
</tr>
</tbody>
</table>

³ Materials can be found in the appendix.
⁴ Using the Behavior Change Technique taxonomy by Michie et al. (2013), the behavior change techniques (BCT’s) are identified and listed above for Session Eight and Session Nine.
**Description**

*Overview*

Table 10

*Intervention Description following the TIDieR Checklist (Johnston, 2014)*

<table>
<thead>
<tr>
<th>Item number and label</th>
<th>Booster Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Brief name</td>
<td>A motivational booster intervention to increase students’ mindfulness practice</td>
</tr>
<tr>
<td>2. Why</td>
<td>Too few participants actually begin to practice MF. The Theory of Planned Behavior, and Self-Determination Theory provided suggestions for how to increase practice.</td>
</tr>
</tbody>
</table>
| 3. What materials     | ➢ Slides on what benefits practicing peers receive  
                       ➢ [Mindfulness: Youth Voices video](#)  
                       ➢ Cards with benefits associated with mindfulness practice written on them  
                       ➢ Mindfulness Benefits and Exercises Matching Sheet |
| 4. What procedures    | One session explaining benefits peers who practice receive and one session encouraging participants to choose benefits and exercises for themselves |
| 5. Who provided       | Four facilitators who administered the intervention had a background in mindfulness and practiced themselves. Training for the booster intervention: They had attended a two-hour training session delivered by a behavioral scientist, and received a manual with scripts to use when addressing the students and assigning the task. |
| 6. How                | Mode of delivery: face-to-face, group |
| 7. Where              | Schools in southern Finland |
| 8. When and how much  | ➢ 2 sessions  
                       ➢ one week interval between the sessions  
                       ➢ 5 minutes in the first and 10-20 in the second |
| 9. Tailoring          | As with the main intervention, the booster was tailored to a Finnish school environment. Most notably, all materials were translated into Finnish. Finnish subtitles were added to the video, although the audio was still in English. |
| 10. Modifications     | Although it was originally planned for ten minutes, the second session was given 21 minutes by the one facilitator who provided feedback |
| 11. How well-planned  | Facilitators were given a checklist and an open-ended comment box to fill in with the materials. Additional, more specific questions were asked nine months after. |
| 12. How well actual   | None replied to the form given to them at the time of the booster. Only two out of four facilitators have replied to follow-up emails at 8 and 12 months. |
Session 8
Only five minutes were available for the present booster intervention in Session 8. It consisted of two parts: a PowerPoint presenting peer benefits and a motivational video showing peers’ experience of mindfulness practice. (See Table 9 above.)

Peer Benefit Slides
The first part of the booster intervention in session eight was a PowerPoint presentation explaining the percentages of peers who had practiced mindfulness at least once after the intervention. Presentation included the received benefits of the peers who had practiced: 79% have reported better concentration while in class, 76% have reported better concentration in their hobbies, 69% have reported managing stress better, 77% have reported coping with difficult emotions (e.g., fear, aggression, anxiety) better, 79% have reported sleeping better, 75% have reported getting better grades, 84% have reported getting along better with family members, 85% have reported getting along better with friends. This presentation was designed to target both descriptive norms, i.e., that they have peers who are practicing, and perceived benefits, i.e., that there are many benefits to mindfulness practice.

Peer Benefit Video
The second part was a video from Kelty Mental Health Resource Centre called “Mindfulness: Youth Voices” (KeltyMentalHealth, 2013). The video presented peers (or adolescents slightly older) commenting on their own experiences of mindfulness and the received benefits. In this way, both descriptive norms and perceived benefits were again targeted. According to the Self Determination Theory (SDT) people are more likely to adopt values and behaviors promoted by those to whom they feel connected and in whom they trust. Using peers to describe the benefits of mindfulness might thus have fostered students’ need for relatedness and thus help to internalize the information and enhance self-determination and motivation (Deci & Ryan, 2000).
Session 9
Ten minutes were originally available for the present booster intervention in Session 9. The booster intervention consisted of two parts: a mindfulness-benefits group card activity and delivering a benefits and practice matching sheet.

Card Activity
This card activity targeted both descriptive norms (showing that peers were intending to practice) and perceived benefits (through discussing and sharing about the benefits). The first part of the booster intervention in session nine was the card activity completed in small groups of five. The students were divided into smaller groups, and each group was given an identical set of cards, each card naming a benefit of mindfulness practice. Cards were color-coded for different categories (focus, positive emotion, acceptance, life-management, relationships and other). Students were asked to choose 1-3 cards that described the benefit they would like to receive from their mindfulness practice. After choosing the cards, each group shared their choices with the rest of the class. A similar card activity task has been used successfully in Let’s Move It behavior change intervention trial to promote physical activity and reduce sedentary behaviors among vocational school adolescents in Finland (Hankonen et al., 2016)

Benefits and Practice Matching Sheet
The Benefits and Practice Matching Sheet targeted perceived benefits by listing the known benefits, and allowed the students themselves to define their own goals and ways to achieve these goals. Benefits and Practice Matching Sheet task was aimed in this way to also increase students’ need for autonomy. According to SDT autonomy is one of the aspects fostering people’s intrinsic motivation.

On the left side of the sheet were boxes describing the benefits of mindfulness practice (color coded like in the card activity) and on the right side are boxes naming the different mindfulness exercises students had learned during the past 9 weeks. The sheet had instructions asking the students to choose 1-2 benefits they would like to receive from the mindfulness practice and connect them with a line to the exercises they themselves though
most useful for the purpose of gaining the chosen benefits ('jos haluan'.... 'niin teen näitä harjoituksia'). Students were encouraged to take the sheet home and place it somewhere visible to remind them of their personal goals.

Benefits and Practice Sheet is an adaptation of the volitional help sheet (VHS), which is a tool designed to enhance the construction of effective implementation intentions (Armitage, 2008). VHS has been used successfully in interventions aiming to protect against health risk behaviors, like smoking (Armitage, 2008) or drinking (Armitage & Arden, 2012) or to increase health promoting behaviors, like increased physical activity (Armitage & Arden, 2010).

Chapter Four: Evaluation of the Booster Intervention

Research Objective III

➢ 3. Evaluate the effects of the booster intervention in changing intention and practice of mindfulness exercises.

Introduction

This chapter describes the evaluation of the booster intervention to increase students’ mindfulness practice. The evidence-based development and content of the booster intervention was described in detail in Chapter Three. The intervention used a PowerPoint presentation, motivational video, card activity and benefit and practice matching sheet in order to target predictors of mindfulness practice: descriptive norms and perceived benefits.

With only the data from nine weeks, immediately post-intervention, only some determinants of practice can be assessed at this time. See Table 11 on the next page for availability of measures at baseline and nine weeks.
Table 11

*Availability of Measures at Baseline and Nine Weeks*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Nine Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive Norms</strong></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Outcome Expectancies</strong></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Reasons for Not Practicing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motivation for Learning to Relax and Calm One’s Mind</strong></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Intention</strong></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Use of a Mindfulness Exercise to Relax</strong></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Practice at Home</strong></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Research Aims and Stated Hypotheses

The booster intervention aimed to increase the targeted determinants of practice and optimally practice as well. The specific hypotheses are stated below:

❖ Booster intervention influence on Determinants of Practice
  ➢ Participants in the booster intervention group will, compared to the control group,
    ■ have a higher descriptive norms mean score at nine weeks. (These descriptive norm scores were not available at baseline.)
    ■ have a higher increase in outcome expectancies from baseline to nine weeks.\(^5\)
    ■ report greater intention to practice mindfulness at nine weeks.
    ■ have a higher increase in motivation to learn to relax and calm the mind from baseline to nine weeks.

❖ Booster intervention influence on Practice\(^6\)
  ➢ Participants in the booster intervention group will have a higher frequency of practice of mindfulness at home than participants in the control group at nine weeks.

---

\(^5\) As a reminder, the concept of outcome expectancies was measured both by a scale of items and by the choice of “Not Helpful” among reasons to not practice. Refer to the explications of measures in Chapter Two. The scale of outcome expectancy items was not found to be a predictor, although “Not Helpful” was the most frequently chosen reason for not practicing and so it was still targeted. At nine weeks, there are no items about reasons for not practicing; only the scale is available. Therefore only the scale could be used in the evaluation.

\(^6\) Practice at home and use of a mindfulness exercise in the nine week survey were assessed only one week after the eighth session and with no time after the ninth session. This means that the student had only received half of the booster intervention (session eight) after which they had one week time to practice before filling the surveys in the end of session nine. Practice at home and use of a mindfulness exercise to relax could not realistically be expected to increase greatly in only one week after the eighth session and with no time after the ninth session; nevertheless a small increase was hoped for.
➢ Participants in the booster intervention group will have a higher increase in the use of a mindfulness exercise than participants in the control group from baseline and nine weeks.

Methods

Participants
Participants were students from classes that had been randomized to the intervention arm of the third wave of the Terve Oppiva Mieli program ($N=316$). See Table 12 for demographic information.

Design
The evaluation of the booster intervention was conducted as a within-trial cluster randomized controlled trial. Twelve classes of the third wave of the main intervention were included from three different schools and four different TOM facilitators. The classes were stratified by class size and TOM facilitator, and randomized by a centralized statistics office to either the booster intervention arm ($N=152$ from 12 classes) and the control arm ($N=164$ from 12 classes).

Procedure
The idea of creating a booster intervention to increase intention and practice was conceived at the start of the third wave. During the first 7 weeks of the intervention, the first wave’s data was analyzed (Chapter Two) and the booster intervention was designed (Chapter 3). The baseline survey had already been administered. Four facilitators already familiar with mindfulness practice, who were already providing the main intervention, were trained, given the materials and instructed on how to deliver them. They were randomly assigned to three groups each. Eight weeks after the start of the third wave, the first session of the booster intervention was administered during the eighth session of the main intervention. At nine weeks, the second session of the booster intervention was administered during the ninth session, and the nine-week survey was proctored immediately following. Due to time limitations the booster intervention was only able to be administered at the end of sessions eight and nine for five and twenty-one minutes respectively. Those in the control group received extended time in the main intervention.
Table 12

Demographics in the intervention arm of Terve Oppiva Mieli in wave three

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls</td>
<td>148</td>
<td>46.8</td>
</tr>
<tr>
<td>Boys</td>
<td>128</td>
<td>40.5</td>
</tr>
<tr>
<td>Missing</td>
<td>40</td>
<td>12.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mother Tongue</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finnish</td>
<td>265</td>
<td>83.9</td>
</tr>
<tr>
<td>Swedish</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>2.8</td>
</tr>
<tr>
<td>Missing</td>
<td>42</td>
<td>13</td>
</tr>
</tbody>
</table>

Total          316       100

Measures
Some of the same measures used to identify the booster intervention’s targets were used to evaluate the booster intervention. Namely, outcome expectancy, subjective norms, descriptive norms, self-efficacy, intention, and use of a mindfulness exercise to relax were used in both analyses. The measures used are the relevant ones available at baseline and nine weeks.

Motivation for Learning to Relax and Calm One’s Mind
One applicable variable available both at baseline and nine weeks concerns motivation for learning to relax and calm one’s own mind. Participants were asked about this motivation
with the item stem, “Read the following sentence and tick the box that fits best. I would like to learn to relax and calm my own mind better.” They were given responses on a five-point Likert scale, “Disagree”, “Disagree a little”, “Neither agree nor disagree”, “Agree a little”, or “Agree”.

**Outcome Expectancy at Baseline and Nine Weeks**

At baseline, there were only four available items, while nine week’s survey had an additional two (the reverse-scored items). To keep outcome expectancy’s measurement consistent from baseline to nine weeks, the same four items were used in the following analyses and the additional items at nine weeks were omitted. Consequently, outcome expectancy was measured by a mean of four items on a five-point scale ranging from “Totally disagree” to “Totally agree” with an additional option of “I don’t know”, which was omitted in the current study’s analyses. The item stem was: “What do you think about the following sentences? The ability to relax and calm my mind when I’m stressed, nervous or anxious…” The items were as follows: “1. Can help me feel better”, “2. Can help me be healthier”, “3. Can help me learn”, and “4. Can help me perform better (e.g. in sports)”.

**Practice at Home at Nine Weeks (during the program)**

Practice at home at nine weeks was used to operationalize the targeted behavior. Respondents were asked how often they practiced the home exercises, with the item stem “I practiced…”: “1. Counting breaths in one minute”, “2. FOFBOC (seated body-scan)”, “3. Breathing 7-11”, 4. Beditation (body-scan)”, “5. Mindful breathing (paying attention to sensations of breath)”, “6. Mindful eating”, “7 .b (pausing and breathing)”, “8. Walking mindfully”, “9. Watching thoughts pass by as if they were traffic”, “10.Seeing thoughts as clouds passing through the mind”, “11. Feeling my feet on the floor (when I feel stressed or anxious)”, “12. Breathing relaxation (e.g. the Balloon-exercise)”, “13. Relaxation through imagery (e.g. the Beach-exercise)”, “14. Movement relaxation (e.g. the Move in the wind-exercise)”. The six-point scale ranged from “Many times a day” to “Not once” and was reversed scored. These items were averaged into a mean Practice-at-Nine-Weeks score.
**Statistical Analyses**

The effectiveness of the booster intervention was tested using between- and within-groups t-tests and Mixed ANOVA tests where longitudinal data was additionally available. Items combined into a mean score were analyzed in a factor analysis to justify their combination. Then those who completed the relevant nine week survey items were compared to those who did not complete the relevant nine-week items using baseline data to see if there could have been a non-completion effect. Next baseline comparisons were made between groups to access whether the two groups were equal prior to the booster intervention on the relevant variables (using independent t-tests). Afterwards, within-booster-intervention-group changes (paired t-tests) and time-by-group analyses (Mixed ANOVAs) were assessed with measures for which there was both baseline and nine-week data. Finally, nine-week comparisons (using independent t-tests) were made between the booster intervention and control groups to include measures not available at baseline. Lesson attendance was controlled for in every analysis in which nine-week data was used. Non-normally distributed variables were retested in two ways: (a) they were recoded into categorical variables and tested for any differences in results in a chi square analysis and (b) they were tested by non-parametric tests where possible.

**Results**

**Factor Analyses**

Overall, the reliability of the measures was good, with Cronbach’s alphas ranging from .924-.972. Specifically, at baseline, the only mean score variable used in the evaluation was outcome expectancies with four items (Cronbach’s α = .928). At nine weeks, the mean score variables used were outcome expectancies with four items (Cronbach’s α = .924) and

---

7 As the reader may recall, it was originally the predictors of six month practice that were searched for and used to build the booster. With six month data unavailable, it was of interest to go back and analyze what the predictors of nine week practice were in the first wave. The same predictors were found using nine week practice with the addition of parental injunctive norms.

8 Again variables were found to violate the assumptions of normality. Therefore, the most non-normal variables were recoded into categorical variables with as equal numbers in each category as possible and tested in Chi square analyses. No differences were found except that intention was .01 higher for the booster, although it was not significant. (It is lower for the booster without recoding.)
practice at home with fourteen items (Cronbach’s α = .972). As a result, it was deemed justifiable to create mean scores for these items.

Completers and Non-completers Analysis

In case some participants did not answer the relevant items at both time points, it is important to check whether there could have been a difference at baseline between those who completed and those who did not at nine weeks. Of the variables measured at both time points, outcome expectancies was the only measure with a discrepancy between those who answered at baseline but not at nine weeks. The p-value was slightly below .05 indicating that non-completers were marginally different from completers. See Table 13 for statistics.

Table 13

<table>
<thead>
<tr>
<th>Variable</th>
<th>Completed Measures at Both Time Points</th>
<th>Completed Measures at Baseline Only</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Outcome Expectancies</td>
<td>3.97</td>
<td>.85</td>
<td>205</td>
</tr>
<tr>
<td>Motivation to learn to relax and calm one’s mind</td>
<td>3.25</td>
<td>1.18</td>
<td>278</td>
</tr>
<tr>
<td>Use of a Mindfulness Exercise</td>
<td>1.76</td>
<td>.85</td>
<td>273</td>
</tr>
</tbody>
</table>

Baseline Comparisons: Randomization check

Of the four pertinent variables available at baseline, there were no significant differences between the booster and the control groups, although statistical power for these tests was low. See Table 14 on the following page. Therefore the randomization was statistically successful (although it leaned toward favoring the control).
Table 14

Baseline Independent Samples T-test

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>d</th>
<th>1-β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Expectancies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>142</td>
<td>3.97</td>
<td>.84</td>
<td>1.04</td>
<td>276</td>
<td>.30</td>
<td>.14</td>
<td>.20</td>
</tr>
<tr>
<td>Booster</td>
<td>122</td>
<td>3.85</td>
<td>.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motivation to Learn to Relax and Calm One’s Mind</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>144</td>
<td>3.23</td>
<td>1.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Booster</td>
<td>134</td>
<td>3.28</td>
<td>1.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Use of a Mindfulness Exercise to Relax</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>148</td>
<td>1.61</td>
<td>.80</td>
<td>1.15</td>
<td>265</td>
<td>.25</td>
<td>.15</td>
<td>.24</td>
</tr>
<tr>
<td>Booster</td>
<td>119</td>
<td>1.50</td>
<td>.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Within Booster Intervention Group Changes**

Of the variables presented above, only one showed significant changes in the booster intervention group from baseline to nine weeks. For outcome expectancies, baseline values were significantly higher than at nine weeks. For motivation to learn to relax and calm the mind, baseline values were not significantly different from nine weeks values. For use of mindfulness exercises to relax, baseline values were statistically significantly higher from nine weeks and was the only test with high statistical power. See Table 15 below for statistics.
Table 15

*Paired Samples t-tests Examining Changes in Study Variables from Baseline to Nine Weeks for Booster Intervention Recipients*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>d</th>
<th>1-β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Expectancies</strong></td>
<td>92</td>
<td>3.93</td>
<td>.90</td>
<td>.744</td>
<td>91</td>
<td>.46</td>
<td>.08</td>
<td>.11</td>
</tr>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nine Weeks</td>
<td></td>
<td>3.84</td>
<td>.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motivation to Learn to Relax and Calm One’s Mind</strong></td>
<td>106</td>
<td>3.27</td>
<td>1.12</td>
<td>.204</td>
<td>105</td>
<td>.84</td>
<td>.01</td>
<td>.04</td>
</tr>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nine Weeks</td>
<td></td>
<td>3.25</td>
<td>1.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Use of a Mindfulness Exercise to Relax</strong></td>
<td>101</td>
<td>1.52</td>
<td>.66</td>
<td>-3.064</td>
<td>100</td>
<td>.003</td>
<td>-.30</td>
<td>.84</td>
</tr>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nine Weeks</td>
<td></td>
<td>1.80</td>
<td>.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It would be important to control for the participants’ attendance at sessions eight and nine; however, that data is not available. There was a measure of total lesson attendance. To see if attending all lessons (and therefore ensuring presence at both booster sessions) affected the results, only the participants who were present at all sessions were analyzed. The only change observed was that use of a mindfulness exercise to relax did not significantly increase (t(30)=-1.88, p=.07) for the booster (N=32) from baseline (M=1.55, SD=0.68) to nine weeks (M=1.90, SD=0.91), possibly explained by the decrease in sample size. The change in outcome expectancies and motivation to relax and calm one’s mind stayed non-significant: Outcome expectancies for those who attended all sessions (N=30) was not significantly different from baseline (M=4.03, SD=0.62) to nine weeks (M=3.86, SD=0.68); t(29)=1.28, p=.21). Motivation to relax and calm one’s mind for those who
attended all sessions \((N=31)\) was not significantly different from baseline \((M=3.22, SD=1.07)\) to nine weeks \((M=3.34, SD=1.10)\); \(t(31)=-.45, p=.66\).

**Mixed ANOVA**

Table 16

*Mixed ANOVA Analyses Comparing the Booster and Control at Baseline and Nine Weeks*

<table>
<thead>
<tr>
<th>Time Point</th>
<th>Control</th>
<th>Booster</th>
<th>P-value</th>
<th>(d/\eta^2)</th>
<th>1-(\beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome Expectancies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>4.00 (.83)</td>
<td>3.91 (.91)</td>
<td>0.352</td>
<td>.01</td>
<td>0.06</td>
</tr>
<tr>
<td>(N=104)</td>
<td>(N=86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nine Weeks</td>
<td>3.87 (0.73)</td>
<td>3.87 (0.69)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(N=104)</td>
<td>(N=86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motivation for Learning to Relax and Calm One’s Mind</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>3.16 (1.19)</td>
<td>3.30 (1.13)</td>
<td>0.383</td>
<td>.004</td>
<td>0.05</td>
</tr>
<tr>
<td>(N=120)</td>
<td>(N=100)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nine Weeks</td>
<td>3.28 (1.21)</td>
<td>3.24 (1.18)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(N=120)</td>
<td>(N=100)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Use of a Mindfulness Exercise to Relax</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>1.56 (0.72)</td>
<td>1.54 (0.67)</td>
<td>0.574</td>
<td>.002</td>
<td>0.05</td>
</tr>
<tr>
<td>(N=119)</td>
<td>(N=94)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nine Weeks</td>
<td>1.80 (0.85)</td>
<td>1.85 (0.92)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(N=119)</td>
<td>(N=94)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mixed ANOVAs were used to compare the trajectories of two groups over time. Using these analyses with lesson attendance as a covariate, there were no significant changes detected (see table 16 above). Outcome expectancies did not significantly change. Motivation to learn to calm and relax the mind did not significantly change. Use of a mindfulness exercise to relax, which had been significant without the control, was no longer significant. However, looking at the trends shown in Figure 4, outcome expectancies did decrease less for the booster intervention than for the control, and use of mindfulness did increase more for the booster intervention than for the control.
Figure 4

*Trends in Outcome Expectancies and the Use of a Mindfulness Exercise*

![Chart showing trends in outcome expectancies and use of mindfulness exercise](chart.png)

*Note. Standard deviations and p-values are available in Table 15 below.*

**Other Results at Nine Weeks**

The table below shows between-group t-test results between the control and booster at nine weeks for variables where no baseline data was available in addition to the Mixed ANOVA results. There were no statistically significant differences detected and statistical power was low. The investigation of the trends indicates that descriptive norms, outcome expectancies, and motivation for learning to relax and control one’s mind were higher for the booster arm than for the control at nine weeks. Notably, descriptive norms and outcome expectancies, the targets of the booster intervention, show the greatest positive difference from the control.
Here again it would have been important to control for the participants’ attendance at sessions eight and nine. Consequently, again only the participants who were present at all sessions were analyzed. There were still no statistically significant results, although the trends in means changed: Descriptive norms became slightly higher for the control (N=48, M=2.46, SD=1.20) than for the booster (N=39, M=2.44, SD=1.14; t(83)=0.89, p=0.93). Intention stayed higher for the control (N=49, M=3.69, SD=2.08) than for the booster (N=39, M=3.64, SD=2.19): t(80)=0.115, p=0.91. Lastly, practice became higher for the booster (N=39, M=1.93, SD=1.18) was not significantly different from nine weeks (N=50, M=2.14, SD=1.36): t(76)=-0.751, p=0.46.

Investigation of Non-normally Distributed Variables
Four of the main variables in these analyses had skewness and/or kurtosis scores greater than .8 or lower than -.8, violating the assumptions of normal distributions. Outcome expectancies at baseline had a skewness score of -1.086 and a kurtosis score of 1.727. Use of a mindfulness exercise to relax at baseline had a skewness score of 1.179 and a kurtosis score of .84. Use of a mindfulness exercise to relax at nine weeks had a skewness score of 1.05 and a kurtosis score of 1.48.

Investigation of Non-normally Distributed Variables
Four of the main variables in these analyses had skewness and/or kurtosis scores greater than .8 or lower than -.8, violating the assumptions of normal distributions. Outcome expectancies at baseline had a skewness score of -1.086 and a kurtosis score of 1.727. Use of a mindfulness exercise to relax at baseline had a skewness score of 1.179 and a kurtosis score of .84. Use of a mindfulness exercise to relax at nine weeks had a skewness score of 1.05 and a kurtosis score of 1.48.

Table 17

Independent T-tests Comparing Booster and control participants at Nine Weeks

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Booster</th>
<th>P-value</th>
<th>d/ $\eta^2$</th>
<th>1-$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive Norms</strong></td>
<td>2.31 (1.05)</td>
<td>2.40 (1.08)</td>
<td></td>
<td>0.477</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>N=142</td>
<td>N=132</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intention</strong></td>
<td>3.72 (1.98)</td>
<td>3.61 (2.08)</td>
<td>0.673</td>
<td>.05</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>N=144</td>
<td>N=134</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Home Practice of Mindfulness Exercises</strong></td>
<td>1.99 (1.06)</td>
<td>1.97 (1.13)</td>
<td>0.827</td>
<td>.02</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>N=145</td>
<td>N=134</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
.855, but as the histogram looked. Intention had a kurtosis score of -1.34 and a bimodal distribution. Practice at six months had a skewness score of 2.13 and a kurtosis score of 3.88. Finally, lesson participation had a skewness score of -1.48 and a kurtosis score of 3.23. Therefore these variables were recoded into categorical variables and chi square tests were conducted to investigate whether the results changed. (Change scores were first calculated for retesting the Mixed ANOVA variables before they were recoded into categorical variables.) Non-parametric tests (Mann-Whitney U Tests) were conducted where possible as a second verification of the results.

For baseline comparisons, outcome expectancies at baseline were not significantly different between the booster and control $\chi^2(1, N = 316) = 1.261, p = .532$. A non-parametric test of the same comparison was also non-significant $p = .317$. Use of a mindfulness exercise to relax at baseline was not significantly different between the booster and control $\chi^2(1, N = 316) = .671, p = .413$. A non-parametric test of the same comparison was also non-significant $p = .457$. Motivation to relax and calm’s one’s mind was normally distributed so it was not necessary to check. Consequently, the baseline-comparison randomization check remained successful.

For the booster’s change from baseline to nine weeks, outcome expectancies were not statistically different $\chi^2(1, N = 152) = 21.856, p = .348$. However, a non-parametric test of the same comparison was significant $p = .042$. Use of a mindfulness exercise to relax was not statistically different $\chi^2(1, N = 152) = .998, p = .318$. However, a non-parametric test of the same comparison was significant $p = .004$. Motivation for learning to relax and calm one’s mind was normally distributed at baseline and nine weeks so it was not reanalyzed. Here it had been found that use of a mindfulness exercise to relax had significantly increased and outcome expectancies had not significantly decreased, but the chi square and non-parametric tests’ results were inconsistent with each other.

For the Mixed ANOVA tests, the change in outcome expectancies was significantly different for the control versus the booster $\chi^2(1, N = 323) = 12.227, p = .016$, perhaps indicating that the trends seen in Figure 4 would have been significant if the outcome
expectancies had been normally distributed. The change in use of a mindfulness exercise to relax was not significantly different for the control versus the booster $c^2(1, N = 323) = 4.471, p = .613$. (Again, motivation for learning to relax and calm one’s mind was normally distributed at baseline and nine weeks so it was not reanalyzed.) As a result of controlling for non-normality in the Mixed ANOVA tests, significance changed for outcome expectancies, but not use of a mindfulness exercise to relax.

For the nine week analyses, descriptive norms were not significantly different between the booster and control $c^2(1, N = 323) = 1.194 p = .275$. A non-parametric test of the same comparison was also non-significant $p = .361$. Intention was not significantly different between the booster and control $c^2(1, N = 316) = 1.09, p = .580$. A non-parametric test of the same comparison was also non-significant $p = .680$. Practice at nine weeks was not significantly different between the booster and control $c^2(1, N = 316) = .042, p = .838$. A non-parametric test of the same comparison was also non-significant $p = .519$. Lesson participation was not found to be significantly different between the booster and control $c^2(1, N = 323) = 1.18, p = .556$. A non-parametric test of the same comparison was also non-significant $p = .339$. In other words, there were no differences in significance when controlling for non-normality.

For the most part then, the same results were found when the non-normality was accounted for. The prominent exception was there was a significant different between time and group for outcome expectancies as the trends in Figure 4 would indicate.

**Conclusion**

The hypotheses stated in the beginning of the chapter were divided into determinants, mediators, and finally practice. For determinants, it was hypothesized that descriptive norms would be higher at nine weeks for the booster than the control; descriptive norms were found to be higher, but not statistically significantly. It was also hypothesized that the determinant outcome expectancy would have a higher increase for the booster than the control from baseline to nine weeks; both groups’ outcome expectancies ended up decreasing, but the booster’s decreased by less, although not statistically significantly.
However, the tests that accounted for non-normality indicated that this buffering effect was significant.

For meditators, it was hypothesized that intention would be higher at nine weeks for booster participants than for the control; however, it was found that intention was statistically non-significantly lower for booster participants. Motivation for learning to relax and calm the mind was hypothesized to increase more for booster participants than for control participants from baseline to nine weeks; however, motivation for learning to relax and calm the mind increased (statistically non-significantly) more for the control.

In terms of practice, booster participants were hypothesized to have a higher frequency of practice of mindfulness at home than control participants at nine weeks; however, control participants reported higher frequency of practice at home at nine weeks (statistically non-significantly). Booster participants were also hypothesized to have a higher increase in use of a mindfulness exercise from baseline to nine weeks than control participants; the data revealed that booster participants did report a higher increase, although it was statistically non-significant.

**Chapter Five: Discussion**

The beneficial effects of mindfulness interventions are established in controlled settings by previous research. However, if the mindfulness interventions fail to make people maintain practice of mindfulness after the interventions are over, it is impossible to analyze the health benefits of long-term mindfulness practice. The current study adds to the existing research of school-based mindfulness interventions with the focus of investigating what motivates students to maintain practice at home after the intervention is over. The existence of national curricula across schools can provide a platform to teach mindfulness to adolescents so that the benefits of mindfulness will become available to everyone at an early age. However research has to first deepen the current knowledge regarding the determinants of students’ intention and practice.
Analyzing Predictors of Practice within TOM
The present study began with analyzing the first wave of the Terve Oppiva Mieli (TOM) from baseline to nine weeks to six months. From this analysis and from the Theory of Planned Behavior, two targets were identified: descriptive norms and perceived benefits, determining students’ mindfulness practice. The initial analyses did not find other constructs of TPB, i.e., self-efficacy and one operationalization of outcome expectancies, to predict student’s practice. This might be due to the wording of the phrases in the survey that were used to measure students’ self-efficacy and outcome expectancies. The relationship between practice at six months during the past month and both subjective norms in general and descriptive norms specifically was mediated by intention.

The current study adds to the existing mindfulness research by statistically mapping the predictors of mindfulness practice within a large sample from an adolescent population. Interventions are potentially more efficient when the known predictors of the desired behavior are taken into account and targeted during the interventions (Riebl et al., 2015, Hardeman et al., 2002, Chatzisarantis & Hagger, 2005). The current study is filling in a void in the existing research regarding the predictors of mindfulness practice. The initial analyses were guided mainly the TPB. Within the youth population of the study descriptive norms (‘what the significant others themselves do’) and perceived benefits of mindfulness practice were found to be the main predictors of adolescents’ mindfulness practice. It was expected that successfully targeting these determinants would increase students’ intention to take up the practice of mindfulness at least to once per week.

To the authors knowledge there is no previous quantitative research regarding the predictors of mindfulness practice among adult or youth population. Previously students’ motivation to practice mindfulness during and after school-based mindfulness program has been the focus of at least one qualitative master’s thesis (Masheder, 2013). According to that study, students’ self-efficacy beliefs, their motivation to engage in self-care and experiences regarding the rewards of practice were seen as the most crucial factors in sustaining their practice (Masheder, 2013). Outcome expectancies/perceived benefits and self-efficacy overlap between the present thesis and Masheder’s (2013), but the qualitative
thesis found self-efficacy to be more pertinent to practicing mindfulness while the current quantitative thesis found perceived benefits but not self-efficacy to predict practice. Naturally no generalizations can be made from a qualitative interviews with few students. However, the study underlines the usefulness of qualitative approach alongside the quantitative research to understand the studied phenomena better. Only the students and adolescents themselves can directly tell what they find motivating, inspiring and useful when learning mindfulness exercises.

Self-efficacy beliefs and outcome expectancies (as measured by one scale in the survey) were not found to be significant predictors like TPB would suggest. It is possible that also other significant predictors of practice were present, but were not surveyed or analyzed in the first phase of the study; there might have been other factors explaining the student’s practice, or lack of practice, that were not noticed in our initial analyzes. The analyses were largely guided by the TPB, which however was not fully replicated by this study among these participants. The items in the survey however were not specifically taken from a TPB questionnaire and were not designed to directly target TPB constructs. Currently there is no validated TPB based questionnaire for mindfulness practice.

The wording of the phrases in the survey measuring outcome expectancies, self-efficacy and intention to practice were not ideal in tapping into the constructs of OE, SE and intention from the TBP. Outcome expectancies were measured with item stem: “…The ability to relax and calm my mind when I’m stressed, nervous or anxious…” The stem refers to the ability to calm one’s mind when being stressed, nervous or anxious. Mindfulness however is not necessarily defined as an ability to calm one’s mind in stressful situations, but can be defined as an ability to observe the content of one’s mind in different situations without identifying with it. The goal is not to try to modify one’s mental state, but to learn to accept and observe whatever arises in the field of awareness. The benefits of mindfulness practice extend beyond managing stressful events. However, there were no items in the survey asking any about other types of outcome expectancy like acceptance or increased awareness. In addition, the last two items, which importantly provide negative outcome expectancy options, were not available at baseline. The outcome expectancy
items in the survey can be considered relatively poor. This might have been a reason why outcome expectancies were not found to statistically predict mindfulness practice as TPB would suggest.

Same applies for the item measuring self-efficacy. The item stem was “Do you think that you can calm your own mind in most situations, when you experience stress, time pressure or get nervous? I think I can calm my mind, even when…” Self-efficacy regarding mindfulness was measured only using self-efficacy beliefs regarding the ability to calm one’s mind in different, potentially stressful situations. There were no items measuring students’ self-efficacy regarding the practice of the learned mindfulness exercises, or regarding mindful perception in other moments of life, neither items measuring the ability to observe in a lucid way one’s surroundings or the content of one’s mind. Again it’s possible that the existing SE items did not sufficiently tap into students self-efficacy beliefs regarding mindfulness practice, and thus were not found to statistically predict practice as the TPB would suggest. Ajzen and Fishbein (1980) guide items to be worded as to tap into Time, Action, Context, and Target (TACT) specifying to exactly what is meant to be measured.

In the survey to examine intention, the mediator in the TPB, the item was as follows: “During the next months, I will use the exercises I have learned to relax and calm my mind.” Again here only the goal behavior to relax and calm one’s mind was used. There was no item measuring the intention to use the learned exercises for other purposes than calming one’s mind.

Previous studies, meta-analyses and literature reviews have been conducted studying the prediction of different types of health-related behavior with the TPB, e.g., physical activity and nutrition-related behavior (Riebi et al., 2011, McEchan et al., 2010). These studies show all the components of TPB, (attitudes related to outcome expectancies, perceived behavioral control or self-efficacy and subjective norms), to be relevant in predicting intention, and intention to be the main predictor of behavior. Based on the previous
research there is a reason to suspect that in the current study the constructs of TPB were not sufficiently operationalized due to the limitations of the available surveys.

There was no data available regarding students’ perception of the mindfulness intervention, their motivation to practice, or teachers’ perceptions regarding the ways the TOM intervention was received by the students in the first wave. Sufficient previous qualitative research with interviews with students, teachers, and even parents could have yielded valuable information regarding students’ motivation and ways to design an efficient motivational booster to increase the practice of mindfulness.

Creating the Booster Intervention

With descriptive norms and perceived benefits derived from theory and the statistical analysis of the first wave of Terve Oppiva Mieli, the current study was continued by creating a booster intervention (with a control) for implementation in the third wave. The two sessions involved a peer benefit presentation and a motivational video, a group activity choosing mindfulness benefit cards and a benefit and mindfulness exercise matching sheet. Similar behavior change techniques (BCTs) have been used successfully in other health behavioral interventions; benefit cards in a Finnish school-based intervention ‘Let’s Move it’ (Hankonen et al., 2016), and matching sheet in various interventions aiming to increase exercise (Armitage, 2008, Armitage & Arden, 2010, Armitage & Arden, 2012).

Hynynen et al. (2015) conducted a systematic review of school-based interventions targeting physical activity (PA) and sedentary behavior (SB) among older adolescents, and evaluated the effectiveness of school-based interventions to increase PA and decrease SB. In addition to other characteristics they investigated whether used BCTs were related to intervention effectiveness. Interventions that increased PA included a higher number of BCTs and used specific BCTs, among which Information about social and environmental consequences and Goal setting (Behavior) were also used in the current booster intervention. The booster intervention did not show to have significant effect upon students’ intention to practice or practice at nine weeks. This might have more to do with study’s limitations, than the chosen BCTs. More research is needed to know if other types
of intervention components could better target the determinants of adolescents’ mindfulness practice. In the future qualitative research and co-design can offer valuable information regarding what type of techniques students themselves would choose as motivating or interesting for them.

**Evaluation of the Booster Intervention**

To evaluate the booster in the current study, data was only available from baseline and nine weeks. Working with the available data, it was found that at nine weeks descriptive norms were higher for the booster than for the control although the findings were not statistically significant. There was no available descriptive norm information available at baseline.

Outcome expectancies by contrast had been surveyed at baseline and nine weeks so there was accessible longitudinal information. Outcome expectancies decreased for both the booster and for the control, albeit the booster’s outcome expectancies decreased less, possibly having buffered by the booster (not statistically significant until non-normality was accounted for). Why did outcome expectancies decrease? Perhaps after trying the mindfulness exercises in the class the students came to notice the difficulties related to mindfulness practice. It is not easy to focus upon the object of concentration while maintaining a relaxed, open and detached attitude. It is possible that students became frustrated when not experiencing immediate results from the learned exercises. This might have resulted to the decrease of outcome expectancies. Qualitative interviews combined with quantitative approach could give more depth in understanding how the students perceived the exercises and practice in the classroom.

At nine weeks, there was no significant difference between the booster and control’s intention levels, which is unsurprising as descriptive norms and outcome expectancies did not increase. Related to intention, motivation for learning to relax and calm one’s mind, which was also available at baseline and nine weeks, did not show any significant changes.

Use of a mindfulness exercise to relax increased for both the control and the booster from baseline to nine weeks and the increase was even greater for the booster, but these findings, too, were statistically insignificant. Practice at home at nine weeks also did not resulted in
any statistically significant changes, likely owing to the timing of the nine week survey. It was filled out right after the ninth session; therefore there was little time for the internalization of the information. Students had only one week after the eighth session to increase their practice at home. The second survey would preferably be given at a later time point, e.g., ten weeks, but for practical reasons, was now given at the end of the ninth session.

According to the tests of statistical significance, the null hypotheses were correct, i.e., that the booster did not have an effect on what the students believed about their peers, what they thought the perceived benefits are, on their intention or motivation to practice, or on their practice. Perhaps students would need a stronger impetus to practice mindfulness. However, it is possible that the trends seen in outcome expectancies and use of a mindfulness exercise to relax do show that the booster had some positive effect and that a higher dose could have resulted in significant effects.

Due to funding constraints, six month data was not available to analyze, thus it is not currently possible to evaluate booster intervention’s effects upon the students’ practice of mindfulness. The six-month survey will provide more longitudinal data in addition to revealing whether the booster was internalized.

As far as the authors could find, there are no previous mindfulness interventions among youth that have been created and evaluated using the constructs of TPB. However other types of health behavior interventions for youth have been designed utilizing the constructs of TPB (Riebl et al., 2015, Hardeman et al., 2002, Chatzisarantis & Hagger, 2005). In a meta-analysis, Riebl et al. (2015) investigated how the TPB has been applied in studying youth’ dietary behaviors and evaluated which constructs of the theory were associated with dietary behavioral intentions and behaviors in youth. Study included 34 articles, including three intervention studies. Attitudes (related to outcome expectancies) were most often predicting dietary behavioral intention while intention was the most common predictor of behavior. Eight studies found perceived behavioral control (PBC) (related to self-efficacy) to be the strongest predictor of intention, and four studies found social norms to predict
intention the best. PBC were found to be the strongest predictor of behavior in two studies. In two of the intervention studies the TPB model was extended to include implementation of intentions (IIs) with success showing that the effectiveness of TPB interventions can be enhanced with IIs. (Riebl et al., 2015).

In the current study, students’ self-efficacy beliefs were not directly targeted, as they were not found to be statistically significant predictors of practice. As mentioned earlier, this might have been due to the wording of the items in the survey. Perhaps the booster intervention could have been more efficient in changing students’ intention, and ultimately practice, if all the known constructs of TPB would have been targeted. Another missing aspect was the lack of implementation of intention in the booster. There were no elements in the booster focused upon action planning; asking students to plan when, where and how they will practice the learned exercises. Action planning was one of the BCTs found to be used often in successful health behavior interventions in the review made by Hynynen et al. (2015). Based upon previous studies adding implementation of intentions to motivational intervention could yield better results in behavior change, i.e., practice.

As Fishbein and Ajzen (2005) suggest the TPB is best suited to explain intentions and not necessarily health behavior. According to TPB positive outcome expectancies, self-efficacy beliefs and descriptive norms lead to a positive intention to carry out the desired action, but not yet necessarily to the actual behavior. Targeting TPB constructs successfully in an intervention can lead to a higher intention among participants, but not necessarily into desired behavior. As postulated by the HAPA-model, many aspects can hinder the translation of intentions into action (Schwarzer, 2007). TPB is a motivational theory that does not include volitional aspects that facilitate desired behavior. As mentioned above adding volitional techniques such as implementation of intentions into booster intervention could facilitate translating the intention to practice mindfulness into the actual practice of mindfulness exercises.

Terve Oppiva Mieli is a preventative program, aiming to teach the students mindful awareness and self-regulation of thoughts and emotions. The students participating in TOM
were not found to report significant mental health problems. Perhaps this is one reason why they did not find the learned techniques helpful or useful. Often life crises motivate people to learn new skills to find solutions and ways of coping. As mentioned in the introduction previous meta-analysis conducted by Zoogman et al. (2014) found mindfulness interventions with youth overall helpful, with a significantly larger effect size found with psychological symptoms and with clinical samples. Zoogman et al. (2014) concluded mindfulness interventions for youth to be especially promising for clinical populations.

Preventative health care can be considered superior to treating psychological or physical symptoms. One challenge for preventative mindfulness programs is to find and develop efficient methods to motivate participants to practice mindfulness.

As part of the intervention evaluation, we collected feedback from facilitators. Formal feedback questionnaires directly after the sessions were not received, although informal feedback from session eight was positive. Eight months later another feedback questionnaire was sent, but only two of four facilitators responded. Again a year after the sessions were given, the facilitators were contacted again, but no responses were received. Nevertheless, from the two responses at eight months, both facilitators who responded independently stated that session eight went well with students becoming interested and enthusiastic following the presentation and video. The facilitators stated that they were very efficient taking little time but also producing amazed reactions and inspiring conversation regarding the effects of mindfulness. Session nine on the other hand took more time and were uninteresting to some of the students. The students did not focus as well and the matching sheet was confusing to some. This qualitative information, although incomplete, is valuable to know how the students responded to the activities. For example, there could have been an opinion leader who influenced the group’s attitudes (a problem concomitant with cluster-randomization). It also highlights the need to test intervention components beforehand with test groups similar to intended recipients and involve the students in the process of designing the intervention. The nine week survey was taken directly after the ninth session so the more negative responses to it could well have affected students’ responses and left a lasting impression to the program (recency effect).
Limitations and Strengths

Some other limitations should be acknowledged. Regarding fidelity, one facilitator stated that the time spent on session nine was twenty-one minutes while it had been thought that there would only be ten minutes’ time for session nine. This information questions the fidelity of the booster intervention, although the facilitators did not return the forms on fidelity so not much more is known.

Another potential limitation is that the allotted time for sessions may well have been too short; it could reasonably be that the students need longer and/or more frequent sessions to really build lasting and credible descriptive norms of peer practice and to absorb the information about the benefits of mindfulness practice. The current project was conceived around the time the concurrent wave started. Therefore, the booster intervention was only possible during the last two sessions of the main intervention, although it would have been more fitting to implement during the beginning of the main invention to increase motivation while the students are first learning and practicing mindfulness. For the same reason, there was scant time to design and implement the booster intervention.

There are also potential limitations resulting from the planning of the booster and control. The control was given extended time in the main intervention which meant more time to learn the exercises and perhaps about benefits. Seeing their peers practicing would have influenced descriptive norms. Because of this, it may not have sufficiently worked as a “control”. The booster arm received less training in terms of time in mindfulness exercises than the control. It would have been preferable for the control and the booster to receive the same amount of time in the main intervention; then while the booster intervention was been given additionally to the cluster-randomized participants, the control participants would receive equivalent presentations, videos, activities about an unrelated subject, e.g., nutrition. Finally, attendance during sessions eight and nine was not taken; there is only a measure of the total number of lessons attended available.

Finally, the surveys themselves have some conceivable shortcomings. Firstly, they were 24 to 29 pages long and could reasonably have contributed to participant fatigue. This fatigue
could have affected the current study’s relevant responses, which were towards the end of the survey. Secondly, the questions themselves posed some problems. Some principal measures were not present at each time point (e.g., the reasons for not practicing) and others were worded and/or composed of different numbers of items differently at different time points (e.g., outcome expectancies as mentioned earlier and practice at home at nine weeks, which was composed of 14 items [see pp.43-44] and practice at home at six months, which was composed of four items [see p. 24]). While participants were asked about use of a mindfulness exercise at baseline, it is unclear whether participants even knew what mindfulness was at that time point; it would have been informative to know about prior knowledge of mindfulness. It could also have been beneficial to have objective measures of the meditation recordings provided to participants. The authors did not have much control over the design because the booster was only an addition to an intervention already in progress.

In spite of its limitations, this study also has several important strengths. This study is a longitudinal, randomized controlled trial with active controls, applying theory in both analyzing the predictors of practice as well as in planning and evaluating the booster intervention. The facilitators were intrinsically motivated mindfulness practitioners. All TPB components were operationalized and analyzed. Measures were taken to both access changes between and within groups. Detailed description of the intervention components, including all the used BCTs, are explained. This study adds on the research of application of TPB to design health behavior change interventions. It also serves as a way for future researchers to estimate the effects of a minimal booster intervention on changes in mindfulness practice and sample size calculations, which the current study could not do without previous research.

Of immediate interest to further investigations is the results of the six month data. Due to funding constraints, it is indefinitely unavailable. When it does become available, long term effects can be assessed and more informative analyses can be initiated. Effects of the ninth session on practice for example are still unknown as are participants’ self-reported reasons for not practicing. The six month survey will also provide longitudinal, between-
group data where there was no baseline data and augment where there was baseline data to better understand what effects the booster intervention may have had.

**Future Research**

Nevertheless, as it stands now with only the data from baseline and nine weeks, it seems future booster interventions can extrapolate some guiding points from this trial. It would be pertinent to look into the optimal length and number of a booster intervention sessions as this intervention was only composed of two sessions totaling fifteen minutes. Future research could also be cognizant of and try to replicate the results from the current study’s preliminary analyses that descriptive norms are the greatest predictor of mindfulness practice among adolescent population and that participants who do not practice cite low perceived benefits most frequently as the reason for not practicing. It would be useful to develop more interventions that target descriptive norms and perceived benefits among adolescent population, and combine targeting these constructs with implementation of intentions to have a potentially greater effect to both students’ intention and practice, as well as study whether the determinants of mindfulness practice differ among different age- and ethnic groups.

Future research could build from this study in several other ways. For one, session eight, which received positive feedback, could be used again. Session nine could be modified so that it still actively involves the participants but it is better at engaging. It would be interesting to test whether longer sessions and placing the booster at the beginning would produce more of an effect. Having more time in advance to plan a motivational booster will be conducive to planning a better booster intervention. Additionally, it should be ensured that the control does not receive a prolonged session that could also be influencing practice and its determinants.

Finally, as this booster and its seminal intervention are only a first introduction of mindfulness practice into schools in Finland, there is yet a void of research in the area. There is a need for more research targeting this demographic in different cultures especially in regards to predictors of practice and how to make practice at home a habit. One efficient
way to motivate students to practice mindfulness could be to have school teachers themselves practice mindfulness successfully. Teachers who are established in mindfulness could act as examples of mindful living through everyday actions and interactions with the students. Mindfulness training could therefore be a useful addition to teachers’ training and in turn motivate youth to adapt a more mindful approach to life.

Based upon the findings and observations of this study, we suggest mindfulness teachers and mindfulness program designers further investigate the theoretical determinants of practice (descriptive norms and perceived benefits of mindfulness practice in particular) within the school-based mindfulness interventions.

“You can't stop the waves, but you can learn to surf.”

– Jon Kabat-Zinn
References


Masheder, J. J. (2013). What factors motivate and support an 8-week mindfulness course participants to establish and maintain a mindfulness practice?


Appendix: Materials
Session 8:

Peer Benefit PowerPoint
https://docs.google.com/presentation/d/1Uo7_IDJweEvdq6rhfwNnzkwg0ZxcA2LaOuNQ1s2aS5k/edit?usp=sharing

Peer Benefit Video
https://www.youtube.com/watch?v=kk7IBwuhXWM
Session 9:

Card Activity
Me kaikki haluamme elämän olevan mukavaa ja miellyttävää. Asiat eivät kuitenkaan aina mene suunnitelman mukaisesti ja silloinkin kun elämä on hyvin, asiat voivat aina olla paremmia. Joissakin tilanteissa tietoisen läsnäolon harjoituksen seottavat auttavat ylittämään vaikeuksia ja tekiin elämästä merkittävämpää ja nautinnollisempaa.

Ailla (vasemmalla) on luotettu myönteisiä päämääriä, ja (oikealla) lista tietoisen läsnäolon harjoituksista, jotta voimme käyttää saavuttaaksenne näitä myönteisiä päämääriä.

Valitse nyt myönteisellä 1-2 sivuille tärkeintä päämääriä (vasemmankuukausia listasta), jotka haluaisit myönteisen muutoksen, ja VIOITSE nyrivällä tietoisen läsnäolon harjoituksen (oikealla), joka voi auttaa sinua aikaansaaman haluamasi muutoksen. Paperi jät sinulle – voit laittaa sen halutessasi vaikka huoneesi seinälle miututtuaesi.