

# The Cascade Effect of an Eight-Week smartEducation Program for Educators: An Inductive Qualitative Content Analysis

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## ABSTRACT

Interest in integrating mindfulness-based interventions (MBIs) into primary and secondary education systems to reduce educator burnout and attrition is rapidly increasing at a policy level. However, most MBIs focus on delivering mindfulness to students over educator wellbeing, leaving little resources for wellness-focused training. Additionally, MBI research to date has focused on effectiveness through quantitative approaches, resulting in the omission of subjective perspectives. In the current study, we examined a complementary program—Stress Management and Resiliency Techniques Education (smartEducation)—which focuses on developing mindfulness skill-sets in educators. Through a retrospective inductive qualitative content analysis of 86 participants' reflections, we sought to clarify educators' perspectives on the effects of the program and the potential mechanisms of change through which the program had these effects. We found that (a) smartEducation participants experienced positive program effects and acquisition of mindfulness skills that affected individual wellbeing as well as producing a significant “cascade effect” downstream (e.g., students, colleagues) and (b) found support for four potential mechanisms of change. The smartEducation program represents a preventative mental health initiative tailored to educators. With the current levels of burnout and attrition amongst educators, further research, policies, and implementation of complementary approaches are more vital than ever to bolster educational communities.

## KEYWORDS

Education; implementation; mental health; mindfulness; qualitative; retention; wellbeing

## Introduction

Primary and secondary school educators play an essential role in the social-emotional development, academic success, and wellbeing of students (Damico et al., 2018). Cultivating an emotionally responsive environment not only enhances teacher-student relationships but also promotes effective classroom management, ultimately benefiting both teacher and student wellbeing (Oliver & Reschly, 2007; Rupprecht et al., 2019). However, teaching and education is identified in the literature as a highly stressful field (Lomas et al., 2017), with approximately 30-50% of North American, South American, and European educators leaving the profession during the first 5 years of their career (Karsenti & Collin, 2013; Stewart et al., 2021; Van den Borre et al., 2021). There is recognition of the need for preventative approaches to mitigate mental health difficulties

for educators (George et al., 2013). It has been argued that group-based interventions aimed at protecting against factors such as stress are less stigmatizing and more accessible (Lomas et al., 2017). One approach to cultivating emotionally responsive educators' is through mindfulness, which has also emerged as a major educational policy priority with the aim of enhancing student academic performance (Zimmerman, 2018).

Defining the phenomenon of mindfulness is a nuanced challenge, as the term has a long global history, with roots in numerous cultural contexts (Shapiro & Weisbaum, 2020). With that in mind, we employ the definition from the 2015 UK-All Parliamentary Report on Mindfulness, which is "paying attention to what is happening in the present moment in the mind, body, and external environment, with an attitude of curiosity and kindness" (Hyland, 2016). This has led to mindfulness being posited as one of the desired professional characteristics to foster effective teaching (Jennings & Greenberg, 2009). For example, educators that are mindful are often better able to identify, express, understand, regulate, and skillfully interact with their own internal emotions and by extension the emotions of those around them (Meiklejohn et al., 2012). This puts mindful educators in a better position to cultivate an effective educational environment that fosters social, emotional, and self-regulated learning, along with being better prepared to embody and model mindful awareness for their students (Brackett et al., 2010; Garner et al., 2013).

Although mindfulness-based interventions (MBIs) have yet to be highlighted prominently within mainstream education and curricula, interest is rapidly developing at the policy level, with the goal to integrate MBIs into mainstream education (Hyland, 2016). Programs such as *MindUP* and *Mindful Schools* demonstrate a promising range of mental health and learning benefits (e.g., social, attention, emotion regulation (ER), mood, anxiety) (Crooks et al., 2020; Maloney et al., 2016). That said, the majority of these MBIs primarily focus on training teachers to deliver mindfulness curriculum to students rather than on developing the educator's own personal mindfulness practice (Kennedy et al., 2023). Educator training has often focused on academic achievement over educator wellbeing, leaving little time and resources. Limited resources allocated toward educator wellbeing are compounded by a myriad of additional stressors (e.g., lack of classroom preparedness, strict educational policies that stress the importance of standardized test scores) (Oliver & Reschly, 2007).

### ***SMART-in-education and smartEducation***

One MBI that was designed to address the needs of primary and secondary educators, professional support staff, and mental health professionals is called Stress Management and Resiliency Techniques in Education (*SMART-in-EDUCATION*) (Cullen & Wallace, 2010). This 11 session, 36-h MBI for educators involves training in attention, awareness, ER, compassion, and other mindfulness practices (Jennings & DeMauro, 2017). *SMART-in-Education* has shown in two empirical randomized control trials (RCTs) (Benn et al., 2012; Roeser et al., 2013), improvements in mindfulness, attention, self-compassion, empathy, forgiveness, and reducing occupational stress, burnout, and anxiety. With empirical findings supporting the efficacy of *SMART-in-Education*, a briefer 8 week, 20-h Canadian adaptation called "smartEducation" was developed. Similar to *SMART-in-Education*, *smartEducation* aims to support participants' ability to better manage work-related stress and to cultivate emotional balance and resiliency *via* mindfulness-based stress reduction, with additional social-emotional and compassion based conceptual framing. To study this abbreviated program, Ragoonaden (2017) conducted a mixed-methods pilot of 60 Canadian educators who partook in *smartEducation*. Preliminary findings suggested improvements in mindful awareness, ER, educational practice, and personal wellbeing (Ragoonaden, 2017).

## ***A call for qualitative inquiry and theoretical rationale***

While Ragoonaden (2017) employed a mixed-methods design, the majority of mindfulness-based research to date has been concentrated on intervention effectiveness, relying heavily on quantitative methodology and self-report data (Frank & Marken, 2022). As a result, the majority of mindfulness research has omitted subjective perspectives that could help to identify possible mechanisms of change. In an attempt to improve the research quality, emphasis has been placed on intensification of qualitative mindfulness practice research (QMPR) (Frank & Marken, 2022), which has the potential to elucidate mechanisms of change that explain effects of mindfulness practices (Hölzel et al., 2011).

Building on Ragoonaden's (2017) pilot work, the theoretical foundation for the current study comes from Roeser and colleagues' (2012) model of hypothesized mindfulness training effects on teachers, classroom environments, and students. This model includes both effects of mindfulness training and potential mechanisms of change for MBIs with educators (Roeser et al., 2012). Roeser et al. (2012) theory posits that MBIs for educators (e.g., *SMART-in-Education*) leads to increased mindfulness and adjacent skills (e.g., ER, self-compassion), and that the cultivation of these mindfulness and habits of mind skills help improve educator resilience, occupational engagement, and prosocial disposition. In addition, it is posited that the improvement of these skills help to further benefit the educators' (Klingbeil & Renshaw, 2018; Roeser, 2016). This model presents a series of empirical questions requiring scientific scrutiny, including a gap in the research that we are addressing (do MBIs for educators result in educators acquisition of mindfulness and adjacent skills). Due to the relative novelty of this field, future research that focuses on phenomena finding (Roeser et al., 2012).

While previous research has offered some insights into the subjective process of change that is experienced by educators, relatively few studies have investigated mechanisms of change associated with MBIs for educators (Tsang et al., 2021). Moreover, further QMPR is required in order to provide a deeper understanding of the mechanisms of change of MBIs for educators. To that end and in response to Roeser et al. (2012) call, we set out to investigate the specific mechanisms of change associated with mindfulness and habits of mind *via* qualitative inquiry. Through obtaining retrospective, experiential reflections from educators who participated in smartEducation training, we sought to analyze these qualitative data to (a) elucidate educators' perspectives on the effects of the program and (b) elucidate the potential mechanisms of change through which *smartEducation* had these effects.

## **Materials and methods**

### ***Study design***

To elucidate the study questions, a qualitative analysis of smartEducation post-program (opened) educator reflections was conducted utilizing an inductive qualitative content analysis methodology. Purposive sampling, a widely used technique in qualitative research (Patton, 2002), occurred from a list of individuals who partook in the smartEducation program, between January 2018 and April 2019. Purposive sampling was employed for maximum variation to ensure representativeness and diversity of perspectives (e.g., professional background, gender, grade taught, group timing) and to identify important common themes that cut across variations (Duncan, 1989; Palinkas et al., 2015). The sampling was done by an individual who was not part of the clinical or data analytic team.

### ***Participants and data collection***

The sample consisted of 86 educators, including 66 primary and secondary public-school teachers (77%) and 20 educators who were not teachers (33%) (e.g., social worker, psychotherapy

consultant, educational assistant, child and youth worker, guidance counselor, principal, special education, occupational therapist). Eighty-six individual reflections were reviewed for this study. Study participants included educators (e.g., teachers, educational assistants, principals) from multiple school boards across Ontario, Canada.

Seventy-four participants were women (86%), and 11 were men (13%). One participant did not disclose their gender. Forty-two participants (48%) reported working with students in kindergarten to the sixth-grade level, 32 participants (37%) reported working with middle-school or high-school students, 11 participants (13%) reported working across both age cohorts, and one participant left the item blank. Fifty-six participants (65%) reported paying out-of-pocket for the *smartEducation* program, whereas 30 participants (35%) reported receiving full or partial funding (e.g., school board, educational enhancement grant) to cover training-related expenses.

## Program

*smartEducation* integrates teachings, practices, and research from mindfulness-based stress reduction (MBSR), emotion theory, and compassion training to address the specific needs and challenges of helping professions. Each in-person, synchronous, group-based session consists of didactic presentation, group discussion, and mindfulness-based experiential practices (Ragoonaden, 2017). *smartEducation* is delivered in a group workshop setting and consists of eight 120-minute sessions, a 4-hour silent retreat, and weekly home practice done by participants between the weekly sessions. Participants received a participant workbook and additional handouts that were relevant to the sessions. *smartEducation* program facilitators are required to have a mature personal mindfulness practice, attend regular retreats, and complete a 100-h training program, including certification in MBSR (level one) and *smartEducation* (level two).

This study was done in collaboration with *Mindfulness Everyday*. *Mindfulness Everyday* is a registered charitable organization that provides mindfulness programs for students, parents, and educators in Ontario, Canada. Following research ethics approval at the *SickKids Research Institute* in Ontario, Canada, a *smartEducation* facilitator provided the research collaborators with de-identified *smartEducation* participant program reflections. Participants were asked to, “Write a two-page single spaced paper reflecting on what you learned,” answering the following, (a) whatever understanding you have gained as a result of participating in this course, (b) any behavior changes you or others noticed in yourself as a result of this course, (c) my awareness of how your level of mindfulness or presence influenced your work in schools.”

## Data analysis

Data analysis followed an inductive qualitative content analysis approach. Inductive qualitative content analysis allowed for a systematic classification of the data to identify categories based on patterns (Elo & Kyngäs, 2008; Sandelowski, 2010). Inductive data analysis moves from specific (micro) participant data responses to combining data to develop condensed and broad inferences (macro) conceptual models (Elo & Kyngäs, 2008). By not imposing a preexisting coding schema, inductive content analysis allows for novel insights and understanding from the perspectives of professionals, grounded closely in the participants’ lived experience (Elo & Kyngäs, 2008). This approach aims to illuminate the rich meaning, intentions, critical processes, and context inherent in qualitative data (Cavanagh, 1997). This method’s flexible and content-sensitive design is particularly ideal for this study which seeks to understand human behavior and generate nuanced data description (Harwood & Garry, 2003; Krippendorff, 2018).

De-identified reflections were reviewed individually by two trained research team members (N.W. and J.H.) to develop a thorough understanding of the data. The inductive content analysis process was performed simultaneously and iteratively by N.W. and J.H., who together generated a

set of preliminary codes through open coding (Elo & Kyngäs, 2008). To develop trustworthiness, the reflections were coded individually by N.W. and J.H. and emerging codes were compared and reviewed until consensus was achieved. Following this, a code book consisting of themes and sub-themes was developed (see Appendix 1). Previously coded reflections were recoded as needed to incorporate newer codes. A third and fourth research team member (S.A.K. and E.W.) reviewed all final codes to achieve a reliable, in-depth understanding of the data (Tracy, 2010). Through a process of abstraction, categories were compared and analyzed with all research team members, to derive higher-level categories and develop a process-based model of mindfulness based on the findings (Elo & Kyngäs, 2008).

Results

Two primary interrelated themes were identified showing that participants that took part in the *smartEducation* program reported the program fostered: (1) positive changes in teachers/educators’ relationship to themselves; and (2) the development of mindfulness as an ongoing daily life-style. These two themes are the basis of the proposed logic model (Figure 1) illustrating what we refer to as a “cascade effect” of mindfulness training: when behavioral and lifestyle changes occur at the individual level, it naturally impacts or “cascades out” how one effectively interacts with others. Several sub-themes were also identified that support both primary themes.

Theme 1: Positive change in teachers’/educators’ relationship to themselves

Participants’ reflections identified four categories—potential mechanisms of change—that shifted their relationship to themselves over the *smartEducation* program. These include: (1) greater awareness of the mind/body connection; (2) learning to be present or in the moment; (3) the ability to better regulate strong emotions; and (4) recognizing the importance of self-compassion. After taking the *smartEducation* program, participants “show up” differently in everyday situations, indicating that the training fosters positive change outside the program sessions. For example, participant 15 notes that, “Another powerful realization was ‘Who is the self who goes to school every day? It is a continued realization that I can impact on others in either a

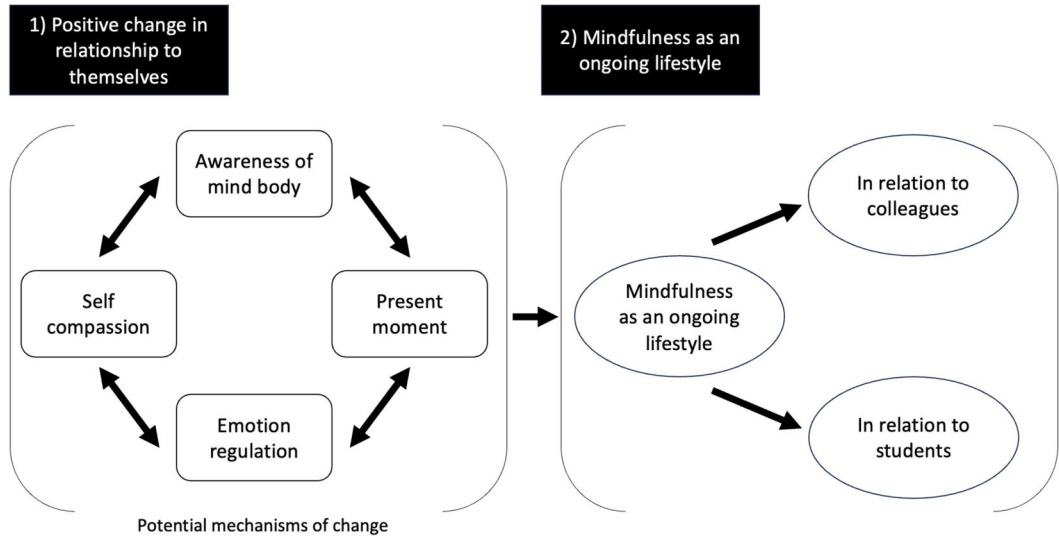


Figure 1. Logic model illustrating the “cascade effect” of the *smartEducation* program.

supportive or detrimental way.” This realization allows them to pause and decide how they want to interact with and respond to their environment in a day-to-day, or moment-to-moment, manner.

### ***Awareness of the mind-body connection***

A consistent realization of smartEducation participants is the connection between the mind and body. Participants account that through the program they gain greater awareness of the ways their emotions are the physical manifestations of their response to various stimuli (e.g., challenging behavior from students, colleagues). Participants also note gaining a new awareness and appreciation for how the body feels and responds when engaging in mindfulness practices (e.g., sitting practice, body scan, mindful eating, mindful movement) (Ragoonaden, 2017). Participant 12 shares: “I learned how emotions make me feel physically. I felt it very helpful to make connections in how my emotions create tingles and a tightness in my chest where I can barely talk because I am so worked up.” Participant 51 also describes the physicality of smiling and how this impacts their mood: “I’ve made the intention to remind myself to smile as I enter the school. I find it has a very positive response.” These accounts highlight how our physiological experiences can directly impact our emotional/psychological experience. Participants express that having a greater awareness of this connection is beneficial, as it allows them to have both increased awareness of their current emotional state (e.g., noticing signs like tightness in the chest as an indicator of stress) and to make behavioral choices in relation to physical experience (e.g., smiling before entering the school) which can positively benefit their emotional experience.

### ***Being in the moment***

Another prominent change participants note is the increased ability to purposefully focus their attention on the present moment, as opposed to unconsciously worrying about the future or dwelling on the past. Participants reflect on the novelty of being more aware of the present moment, with participant 84 sharing that, “By doing this [deep breathing] I am able to be more present rather than living in the moments of my stress.” Participant 44 shared how present moment awareness helps them to be more efficient in daily tasks:

I’m actually more productive when I’m doing activities—focusing on one activity at a time means I get it done more efficiently. I’m not procrastinating like I used to—I think this is because when I am doing a mindful practice, watching my thoughts, I start to notice what needs to get done sooner. It’s almost like being mindful helps me prioritize!

The ability to take a moment before responding to stressful or emotionally provoking experiences is cited as a major takeaway from the program. Participant 36 reflects that, “By taking time to pause, I respond to things more rationally rather than emotionally and without thought. This has had a large effect on my relationships both personally and professionally.” Participant 24 writes about the benefit of being in the present moment: “Being more present also influences my conversations with people. When speaking to someone now, I try to be more aware of how I listen to someone by using eye contact and by being fully attentive to the other person.” The reflections illustrate how the adaptive coping skills gained in smartEducation, such as focusing on the present, cascade into their relationships with both students and colleagues.

### ***Emotion management and self-regulation of emotions***

Many participants reflect on having greater emotional management, with participant 84 commenting:

I am learning to better identify the emotions I am feeling. To feel them as they come and let them be here. Rather than bury feelings and holding on to them only to have them explode in moments of high stress.



Anger is perceived as an emotion that they are now able to better manage. Part of this management seems to be rooted in self-awareness, or the ability to recognize behaviors, interactions, and/or contexts that trigger anger and then learn modalities to help regulate their emotions. Participant 63 writes:

Documenting my triggers ... helped me identify what those triggers are and what those reactions are ... It's funny because my husband and my children wait for me to yell or scream or be upset with them and I don't, I now walk away.

Participants note the anger diary exercise as helping to highlight patterns in one's behavior, as it pertains to emotional stimuli, with participant 29 sharing:

The anger diary helped me see that I get angry for the smallest things. Some things are better just left alone and in the hands of the universe. For example, there is no reason to be angry about traffic or lineups. Sometimes you need to be in traffic, so you have time for yourself. To be by yourself and in silence.

This quote reflects a pattern seen across several participants' data showing that, through skill-sets gained in the smartEducation training, there is an increased ability to reframe situations which would have previously elicited an angry reaction. By reframing the situation, participants seem to better manage their emotions or reactions. Engaging in self-regulation also led many participants to regulate daily challenges and exhibit resilience. Participant 44 recognizes: "I am still a very sensitive person, but triggers can more easily roll off my back." Participant 61 shares:

I found this course has been a great learning experience in understanding not only mindfulness practices but general human behavior, but most importantly how to roll with what life offers you while celebrating joys (little or big) and coping with life's potential hardships (death, illness, depression, etc.).

While participants' context did not change, the increase of ER impacts how they respond to and cope with challenges that are an inherent part of their occupational environment. This is exemplified by participant 8: "I have noticed my mood has changed at work. The stress level has not changed, however my way of dealing with everyone and with the situation has shifted."

### ***Self-compassion and self-care***

Participants link their mindfulness training to an increase in kinder actions and perceptions (e.g., internal dialogue) toward themselves. In particular, educators think about themselves in more compassionate ways and the program encourages them to value investing time in "self-care." Participants' reflections speak to their newfound understanding of the importance of taking care of themselves and finding time to rest. They also illustrate that valuing and finding time for "self-care" can feel in contrast with expectations of their occupational environments and wider societal contexts. Participant 56 explains: "This course has been a positive and timely reminder that I need to be constantly looking out for myself and doing what I need to in order to bring wellness and health to my life." Some participants note that self-care allows them to be a better caregiver, more compassionate and less frustrated as the time for oneself is regenerative. Participant 84 notes, "I identify as an introvert. Mindfulness has reaffirmed this belief since I have noticed how mindful time with myself re-energizes me."

A recurrent theme is educators giving themselves permission to do less and therefore reframe their understanding of what it means to be productive. By taking breaks and time away from one's daily work responsibilities, a form of self-compassion, participants protect themselves from burnout. Setting boundaries around time and having more time to yourself allows for greater productivity. Participant 77 describes the changes they have embraced as follows: "Now I give myself permission to do nothing, or rather to give myself time to breathe, not think so much, or do so much, to just be." Participant 74 explains: "I have become more productive. I was surprised to find that by taking time away, I got more done" and participant 66: "This course at its core has taught me to slow down and take time to enjoy what is going on around me rather than

trying to complete each task as quickly as possible.” Whereas multitasking once seemed to be the most desirable method of approaching work, participants now view pauses/breaks as being preferable for their productivity and wellbeing, with participant 20 sharing:

Now, even though the amount of things I have to do hasn’t changed, the way I approach these things has changed because I am not stressing out to finish. I am taking my time to approach what needs to be done and then I do it.

Participants note being able to give more to their educating roles, a clear example of how the smartEducation program indirectly benefits students.

## ***Theme 2: Mindfulness as an ongoing lifestyle***

The post-program reflections illustrate how participants plan to continue to incorporate the skill-sets gained through the smartEducation program into both personal and professional contexts. The data shows that the mindfulness practices introduced within the program have become embedded into participants’ daily lifestyles, beyond just being distinct or formal activities. For example, many educators highlight the following mindfulness activities as ones they intend to continue practicing in daily life: mindful eating, mindful walking, body scan, intention setting, gratitude journaling, and the PAUSE practice. Embedding mindfulness practices into daily routines is shown in the data in both educators’ personal lives and within school settings. For example, participant 48 reflects:

I learned new techniques ... to help myself throughout the day. I find myself taking a pause, mindfully eating, or mindfully exercising when I need to. As a result, I have been less stressed at work, and I have been able to turn around some difficult situations.

Like many skillsets, to embed mindfulness into daily routine participants highlight that it is an ongoing process and practice that requires maintenance. As participant 74 shares, “Mindfulness is something I have to consciously put an effort toward each day.” Educators also recognize mindfulness need not be compartmentalized or viewed as a practice with distinct start and endpoints. Participant 29, elaborates, “My perspective on mindfulness and awareness of myself has developed into a lifestyle. I learned mindfulness doesn’t have to be in a set time or manner but can be done in various moments of the day.” Participant 3 comments, “I am aware that this is an ongoing journey that does not end after this set of classes but something that must continue and must be cultivated.” While most describe the desire to continue incorporating mindfulness into daily life, some reflections note barriers or limitations to mindfulness as an ongoing lifestyle. Specifically, some state concerns about the authenticity of mindfulness training, while others describe perceived resistance from their social circle and questions around their new behaviors and outlooks.

## ***Relationship to students***

There are numerous ways in which educators’ embodiment of mindfulness teaching positively impacts students. Analysis of the data shows that students experience the effect of the smartEducation program both implicitly (e.g., through more positive/regulated interactions with their teachers and educators), as well as explicitly (e.g., through mindfulness concepts and practices brought into and practiced in the classroom). Participant 20 notes how mindfulness has been incorporated in multiple levels:

I have brought mindfulness into my classroom both at a personal and professional level. Personally, when students do things that annoy or upset me, I tell them I need to take some time to breathe and calm down before I can respond. This seems to be working well for me because I do not raise my voice at my students as much as I used to. They also seem to be responding in a positive way and give me those few seconds to calm down.



This excerpt demonstrates how teachers can model mindful practices in the classroom (e.g., requesting a moment to pause and breathe). This teacher explains how their behavior in the class has changed because of taking the smartEducation program, being able to regulate their emotions when student behavior is causing them to feel stress. Educators note that to support their students learning and wellbeing in the classroom, they first need to ensure that their mental and physical health is looked after:

I wondered how I could, as an educator and trusted adult, support the well-being of my students. Before long, I felt burnt out and concluded that first I would need to focus on myself before I could help the students...I truly believe that my attitude and how I treat a child impacts their growth as capable, competent learners.

Mindfulness practices were also brought into the classroom in more formal ways. Teachers incorporate techniques such as PAUSE, deep breathing, visualizations, and moments of quiet. Participant 79 details how mindfulness is incorporated into the school day:

At school, when I notice students are unsettled, noisy and not ready to learn, I naturally incorporate some mindfulness activities. They are usually yoga practices that involve movement. In particular I have been asking students to find their mountain pose and feel their weight ... During recess, when students ask for help in resolving conflicts, I invite them to trace their hand and breath in and out.

Other participants note that starting the day with a mindfulness practice creates a welcoming atmosphere for students and gives them the opportunity to settle and regroup before starting the curriculum for the day. Most participants account that most students look forward to the daily mindfulness practice and moments of quiet. However, some students do choose not to take part in mindfulness but are respectful of those who participate. Setting up mindfulness practice as an optional invitation can make it accessible and safe for everyone in the classroom to support one another in their engagement with mindfulness. The cascade effect of teaching students the practices from smartEducation are evident in participant 63's reflection:

Many [students] have taken this home and taught their parents about different emotions and levels of anger, happiness, and sadness. They said that it helps them have conversations because they will wait until they are not at the height of the emotion to have a conversation.

In teaching their parents about ER, students bring the teachings of smartEducation from the classroom to the home setting. Participant 18 shares:

What's amazing is that most...students not only practice mindfulness in the classroom but take it home with them and teach their siblings, cousins and even their parents. I have had numerous parents approach me to inquire about what 'magic' was happening at school because their kids were calmer and happier at home.

### *Relationships to colleagues*

The data shows a positive shift in interactions with colleagues after taking the program. The way one approaches their professional role trickles down to interactions with both colleagues and students. This cascade effect of mindfulness moves from the individual to their broader social and professional circles. It is evident in the many example's educators provide about ways that they support their colleagues who need to be shown kindness, forgiveness, a moment to pause or a sense of security. Participant 49 remarks on the understanding they now exhibit toward their coworkers: "I am more compassionate toward the other adults walking around the school in the same boat and am not assuming that they are coping any better or worse than I am." The transmissible nature of bringing mindfulness into the school environment is exemplified by participant 77 who describes an interaction with a colleague:

Just recently a colleague asked why I was so full of energy, and I shared my intention with him. He remarked that it shows and to keep it up. I can now see that I unconsciously carried through with my intention and it can be contagious.

Many educators note improvement in their communication with colleagues. They describe engaging more often in active or purposeful listening or listening to understand vs. listening simply to hear and respond impulsively. They also account the benefits of sharing mindfulness techniques or strategies with their colleagues. This knowledge exchange is another example of the cascade effect of a program that focuses on developing the skillset of mindfulness beyond a curriculum to be embodied by the educator themselves.

## Discussion

This study sought to fill a qualitative mindfulness practice research (QMPR)-based gap in the literature by exploring the perspectives of educators following a MBI. Building on Ragoonaden's (2017) pilot of *smartEducation*, we offered empirical support for Roeser et al. (2012) theory and logic model (see Figure 1). In line with the theory, educators perceived that the 8-week program fostered significant positive change, allowing them to acquire *mindfulness and habits of mind* through *smartEducation*. Participants specifically perceived the acquisition of these skills as positively affecting individual educator wellbeing, while also having a "cascade effect" downstream. The current study also found support for four potential mechanisms of change associated with, and we posit that there is a strong argument for educators' participation in mindfulness-based interventions (MBIs) that enhances these mechanisms of change.

### The "cascade effect" of the 8-week *smartEducation* program

Participants reported self-care helps to decreased feelings of agitation, fostered kinder, gentler actions toward themselves and increase their capacity to care for others. This finding is in line with recent neuroimaging research that indicates that the cultivation of self-compassion activates neural regions associated with overall compassion (e.g., increased compassion for others) (Neff & Pommier, 2013). Caring is essential to successful teaching and pedagogy, as greater caring is associated with improved student wellbeing and self-esteem (Tarrasch et al., 2020). Yet, self-care has been identified as being understated in education literature (Tarrasch et al., 2020) and, in our sample, most educators paid out of pocket for the *smartEducation* program. This finding highlights the limited funding for complementary programming despite educator desire and benefit.

In our sample, educators perceived the importance of being able to first practice self-care and embodiment of mindfulness to develop the foundation for a mindful classroom. A personal practice may be particularly important, as systematic practice has been theorized to be necessary for educators to hone mindfulness capacities (Hirshberg et al., 2020). Further, educators who model a healthy social-emotional way of being affect learning outcomes in more authentic ways than standardized testing preparation (Damico et al., 2018). Reflections highlight the importance of embodiment and embedded nature of mindfulness skills in educators' lifestyle, rather than teachings being separate behaviors. *smartEducation* facilitates the cultivation of this foundation through sessions and sustained personal practice.

During the *smartEducation* program, participants reported embedding mindfulness into their daily lifestyle which then naturally permeated or "cascaded" across their interactions in both their personal and professional lives. Participants shared the importance of modeling "self-care" and ER. These behavioral changes impact educators' attitudes and enhance teacher-student interactions, with the potential to enhance student growth and development (Rasuli et al., 2023). Educators who do not prioritize self-care risk student wellbeing as much as they do their own (Shapiro et al., 2016). By practicing self-care, *smartEducation* participants perceived being able to give more of themselves to their educational role. Previous studies have shown that students benefit from "indirect" effects of teacher training in mindfulness programs, which is supported by the present findings (Mackenzie et al., 2020).

Participants share how their integration and application of (1) present moment awareness and (2) pausing before responding to students fostered improved interactions. Participants report being better able to model healthy ER while helping students navigate socially and emotionally difficult situations (Eva & Thayer, 2017). Since mindfulness improves teacher-student interactions by helping to foster skills of relating to themselves and others, self-aware educators are more capable of providing quality student care without distorting or avoiding their pupils' needs (Shapiro et al., 2016). Providing educators with tools to foster their social-emotional competence is essential, as present moment-focused classroom environments are thought to be vital to foster a social-emotionally competent and prosocial classroom (Mackenzie et al., 2020).

Increased attention also was perceived to have an effect downstream, which enhanced participants' conversations with students and colleagues. In contrast to neutral attention, educators who receive mindfulness training have been found to adopt attitudes (e.g., acceptance, warmth, non-judgment) that are likely to bolster relationships (Kabat-Zinn, 2005; Segal et al., 2013). As observed in the current study, mindfulness training can improve the classroom communication and environment, with educators encouraging these skills in students indirectly through modeling mindful ways of being (Fernández-Aguayo et al., 2017). Educators who have increased presence and body awareness are better equipped to mitigate crisis situations in the classroom, which has positive secondary impacts on student learning and wellbeing (Damico et al., 2018; Jennings & Greenberg, 2009).

It is also important that educators teach mindfulness in a enjoyable and digestible manner, since students perception of mindfulness as enjoyable, appropriate, and optional is key for uptake (Shapiro et al., 2016). Our qualitative findings indicate that *smartEducation* participants provide appropriate mindfulness teachings to their students, with most students reflecting to educators reporting that they enjoy the formal mindfulness practices. As a secondary impact, students subsequently modeled and taught family members mindfulness, emotion regulation (ER), and social-emotional skills. Caregivers and students reflected to educators on the effectiveness of this cascade effect, which reportedly led to improved communication between parents and their children.

Sharing *smartEducation* information with colleagues also had a positive impact on educators' community. Cynicism has been found to easily infiltrate educators conversations, with a need to address the challenging relationships between colleagues (Burrows, 2011). Programs such as *smartEducation* present a promising approach to successfully foster equanimous educational environments. Since embodiment has a parallel effect on other educators, it may help others to realize that there are other more effective and healthy ways of being (Zimmerman, 2018).

## **Potential mechanisms of change**

### **Present moment awareness**

Study participants reported being able to better focus their attention on the present moment with reduced task shifting and leading to increased efficiency. In line with this, the ability to be mindful and focus on one task at a time has been shown to be less taxing (Kaff, 2004; Wenzel et al., 2023). Participants also indicate the importance of cultivating present moment awareness and taking a minute before responding to affectively salient experiences, consistent with the findings of another recent qualitative study (Mackenzie et al., 2020). Increased awareness is associated with reduced affective reactivity, positive coping techniques in the face of stress (Mackenzie et al., 2020; Sharp & Jennings, 2016) and is key to cultivating a prosocial classroom (Jennings, 2015; Jennings et al., 2013). We hypothesize that *smartEducation* allows participants to foster increased meta-cognitive and decentering abilities, two central tenants of MBIs with decentering mediating the association between mindfulness and ER (Berkovich-Ohana et al., 2020; Norman, 2017).

### **Emotion regulation**

Participants also perceived that *smartEducation* led to improvements in ER and adaptive coping skills (Damico et al., 2018). The ability to regulate emotions plays a mediating role between mindfulness and wellbeing, with anxiety and depression being positively correlated with deficiencies in ER (Garnefski & Kraaij, 2006; Gross & John, 2003). ER has been found to play a mediating role in the relationship between mental health and self-compassion, with both ER and self-compassion being proposed as key mechanisms of change (Neff & Dahm, 2015; Tsang et al., 2021). Improved educator ER capacities are recognized as a protective factor against chronic stress, ER deficiencies, and burnout (Brackett et al., 2010; Molloy Elreda et al., 2019).

### **Self-compassion**

Participants perceived a relationship between improved self-compassion capacities and reduced perceived stress, improved productivity as well as an increased capacity to dedicate toward their educational roles. Prior research has found a positive association between self-compassion and self-improvement characteristics (e.g., increased sense of competence, reduced fear of failure) (Neff et al., 2005), a negative relationship with procrastination, and a general overall motivation toward self-improvement (Breines & Chen, 2012). Participants' approach to workload also changed, seeing pauses in the workday as more productive than more taxing approaches to work (e.g., multitasking) (Kaff, 2004). Time pressure is a key contributing factor of stress for educators, and is strongly associated with burnout (Skaalvik & Skaalvik, 2017). While educators require enhanced coping techniques when working in conditions with time pressure, they face reduced capacities, with ongoing difficulties with compassion fatigue (Koenig et al., 2018). We posit that by becoming more compassionate toward oneself, *smartEducation* enhances self-efficacy, resulting in increased efficiency, resiliency, and professional capacity.

### **Mind-body awareness**

Participants reported increased awareness of the dynamic ways in which the body and mind interact to influence emotions. Body sensations underlie and influence the majority of affective experiences such as daily work-related stressors (Craig, 2015). When educators become aware of internal and external stimuli, the potential to pause and assess the situation reflexively before choosing how to respond to ones' environment becomes available (Stanley, 2007). Participants also indicated an increased capacity for interoceptive awareness—the ability to perceive bodily sensations—following the program (Barrett et al., 2004). Past researchers have found the integrative role and connection between introspective awareness and ER, with introspective awareness and mental health difficulties being negatively correlated (Khalsa & Lapidus, 2016). Programs that enhance interoceptive ability and body awareness have been associated with improved health and have notable potential to reduce educator burnout (Mehling et al., 2011).

### **Additional implications**

Early intervention and professional-development may afford greater benefits to educators working with the most academically at-risk students and high-risk settings (Jennings et al., 2013). Complementary approaches such as *smartEducation* could help reduce overall attrition rates by bolstering educators social-emotional competence and resiliency (Garner et al., 2018; Meiklejohn et al., 2012). *smartEducation* provides high-quality educator training, which is essential for fidelity and efficacy of MBIs in the classroom (Rawana et al., 2018). Offering and funding cost-effective, feasible, and proactive approaches to educator wellbeing is the most advisable approach from an economic, health, and educational policy standpoint (Carsley et al., 2018). This may be

particularly true for pre-service educators, as the early years have been posited as a sensitive period for cultivating coping skills and preparedness for classroom success (Soloway, 2016).

*smartEducation* appears to support in-class independent practice, helping participants internalize what they learned and translate this to other contexts. This program provided a deeper, more embodied level of learning, above and beyond a rudimentary cognitive understanding and vocabulary, that helped the educators not only “talk the talk” of mindfulness, but also “walk the walk” (Brown, 2017). Educators were able to successfully implement *smartEducation* skills in the classroom because they adapted the program teachings to meet the context and needs of their unique school setting. This suggests that for MBIs to be implementable and sustainable in the classroom, particularly in low-resource settings, adaptation is necessary for it to succeed.

Reallocating resources and early investment in educators, through programs like *smartEducation* is essential, as the cost of teacher turnover has been cited as a five billion dollar annual national expense (Barnes et al., 2007). In addition, increased attrition issues have been on the rise, with educator enrollment dropping significantly and teacher shortages being of significant concern (Sutcher et al., 2016). Supporting early-career educators during their first 3 years has been posited to lead to overall noteworthy savings, which could be reallocated to other educational priorities (Damico et al., 2018). These early investments could lead to reduced burnout, reduced attrition rates, and increased promotion of healthier and more academically successful classroom (Damico et al., 2018).

### **Limitations and future directions**

The way participants incorporate *smartEducation* and reflect on their use of practices varied. Future mixed-methods QMPR is needed to build on our findings and further elucidate best practices in service of program development (Sharp & Jennings, 2016). In addition, further research should be conducted to explore and validate the *smartEducation* mechanisms of change. We did not do a qualitative comparative analysis in the current study, as focus was more on identifying possible mechanisms. Future work could explore comparisons amongst different groups with focused attention on sample for that purpose. Future research should also explore the psychological and physiological effects of the program and ways in which participants implement mindfulness into the classroom. This will assist in better understanding how teaching mindfulness to educators can be integrated into the classroom setting.

This study relied solely on qualitative data gathered through written reflections. Future research should consider the use of additional data sources to support triangulation. That said, inductive content analysis studies with more than 30 participants allow for conclusions beyond hypothesized statements (Mayring, 2019). Based on the theory of information power, our sample also has high information power, as each participants reflection contributed a uniquely relevant insight to our research question (Malterud et al., 2016). In addition, our study used the strategy of thick description by providing adequate detailed participant accounts to allow readers to consider the transferability—assess similarities, applicability, and relevance—between the study findings and whether they can be extrapolated to alternative situations or contexts (Younas et al., 2023). The large sample size, thick description, high information power, and purposive sampling increases the validity of the current study findings (Malterud et al., 2016; Miller-Day & Dodd, 2004). Nonetheless, future research should examine a more diverse sample of educators and perspectives (e.g., students, colleagues), and could benefit from utilizing specific thick description protocols such as the “MIRACLE” framework (Younas et al., 2023).

Uptake of mindfulness curricula has been criticized as being a potential method to increase productivity without consideration of systemic or political issues that perpetuate employee burnout (Purser & Milillo, 2015). Programs have been critiqued for the additional burden they place on educators to teach added programming and be solely responsible for their own ER (Forbes,

2019). In response to this, smartEducation provides a vital alternative to curriculum-focused programs, by offering a complementary training that focuses on educator mindfulness and wellbeing. Educators who complete the smartEducation program benefit not only in their teaching, but also in their broader professional and personal lives.

## Disclosure statement

Heidi Bornstein is a Founder of Mindfulness Everyday which offers smartEducation. Heidi played no role in the analysis of data. All other authors declare that they have no conflicts of interest.

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## Appendix 1. Codebook

Code/Theme 1. Positive change in relation to themselves.

Subtheme	Quotations
Awareness of the mind-body connection	<p>"I learned how emotions make me feel physically. I felt it very helpful to make connections in how my emotions create tingles and a tightness in my chest where I can barely talk because I am so worked up."</p> <p>"Another powerful realization was 'Who is the self who goes to school every day? It is a continued realization that I can impact on others in either a supportive or detrimental way."</p> <p>"Being mindful of how my body felt and recognizing that I was in no shape to deal rationally caused me to step back and return back to the situation once my emotions were in and I had calmed down."</p> <p>"I've made the intention to remind myself to smile as I enter the school. I find it has a very positive response."</p> <p>"I hadn't realized that my arms were never really relaxed, and that I have to consciously lower my shoulders. I am now learning to be more present than worrying about something in the past or future. It is an ongoing process."</p> <p>"On the week that we discussed anger, I found the information about the 'refractory period' interesting. I have learned before that the amygdala takes about 30 minutes to let go of the cortisol spike once it is triggered. However, the idea that there is a period of time where there can be no other perspective, and that it can be longer than 30 minutes, was new to me. And it was interesting to figure out my style of being angry and letting go."</p>
Being in the moment	<p>"By doing this [deep breathing] I am able to be more present rather than living in the moments of my stress."</p> <p>"I'm actually more productive when I'm doing activities—focusing on one activity at a time means I get it done more efficiently. And I'm not procrastinating like I used to—I think this is because when I am doing a mindful practice, watching my thoughts, I start to notice what needs to get done sooner. It's almost like being mindful helps me prioritize!"</p> <p>"Mindfulness is something I have to consciously put an effort toward each day."</p> <p>"But to really improve one ought to take what we learn and practice it in one's daily life, paying attention in the here and now."</p> <p>"It has only been a few months in the process, but I can honestly say that I am more present in each and every moment and am appreciating that even the unpleasant or uncomfortable emotions or situation can be seen as a growth opportunity."</p> <p>"I am now learning to be more present rather than worrying about something in the past or future."</p> <p>"By taking time to pause, I respond to things more rationally rather than emotionally and without thought. This has had a large effect on my relationships both personally and professionally."</p> <p>"Being more present also influences my conversations with people. When speaking to someone now, I try to be more aware of how I listen to someone by using eye contact and by being fully attentive to the other person."</p> <p>"I was in 'doing mode' and never felt it was enough."</p> <p>"I try not to multitask anymore whether it is at school or at home."</p>
Emotion management and self regulation	<p>"I am learning to better identify the emotions I am feeling. To feel them as they come and let them be here. Rather than bury feelings and holding on to them only to have them explode in moments of high stress."</p> <p>"Documenting my triggers ... helped me identify what those triggers are and what those reactions are ... It's funny because my husband and my children wait for me to yell or scream or be upset with them and I don't, I now walk away."</p> <p>"I have learned to acknowledge when these thoughts crept up on me ... I was able to push them aside and move forward without letting them take complete control over me."</p> <p>"The anger diary helped me see that I get angry for the smallest things. Some things are better just left alone and in the hands of the universe. For example, there is no reason to be angry about traffic or lineups. Sometimes you need to be in traffic, so you have time for yourself. To be by yourself and in silence."</p> <p>"I am still a very sensitive person, but triggers can more easily roll off my back."</p>

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Subtheme	Quotations
	<p>"In this course, I recall a reading that the simple power of naming an emotion that we are currently feeling goes a long way in relieving distress associated with it."</p> <p>"I found this course has been a great learning experience in understanding not only mindfulness practices but general human behavior, but most importantly how to roll with what life offers you while celebrating joys (little or big) and coping with life's potential hardships (death, illness, depression, etc.)."</p> <p>"Documenting my triggers in an Anger Journal helped me identify what those triggers are and what those reactions are ... It's funny because my husband and my children wait for me to yell or scream or be upset with them and I don't, I now walk away."</p> <p>"I have noticed my mood has changed at work. The stress level has not changed, however my way of dealing with everyone and with the situation has shifted."</p> <p>"My partner upset me a few weeks after this session and to his surprise (and to mine too!) I first took some deep breaths and articulated exactly how I felt at the time, and why I was feeling that way. His response was, 'When did you learn how to do that? Who are you!?'"</p>
Self-compassion and self-care	<p>"This course has been a positive and timely reminder that I need to be constantly looking out for myself and doing what I need to in order to bring wellness and health to my life."</p> <p>"I identify as an introvert. Mindfulness has reaffirmed this belief since I have noticed how mindful time with myself fuels me, re-energizes me."</p> <p>"I realized that I can be judgmental, and my mind can get ahead of me."</p> <p>"Now I give myself permission to do nothing, or rather to give myself time to breathe, not think so much, or do so much, to just be."</p> <p>"I am not trying to be over dramatic in saying that I am a different person now. Just stopping and being mindful of what you can and can't control is so empowering."</p> <p>"I have become more productive. I was surprised to find that by taking time away, I got more done."</p> <p>"This course at its core has taught me to slow down and take time to enjoy what is going on around me rather than trying to complete each task as quickly as possible."</p> <p>"Now, even though the amount of things I have to do hasn't changed, the way I approach these things has changed because I am not stressing out to finish. I am taking my time to approach what needs to be done and then I do it."</p>

## Code/Theme 2. Mindfulness as an ongoing lifestyle.

Subtheme	Quotations
Mindfulness as an ongoing lifestyle	<p>"I learned new techniques ... to help myself throughout the day. I find myself taking a pause, mindfully eating, or mindfully exercising when I need to. As a result, I have been less stressed at work, and I have been able to turn around some difficult situations."</p> <p>"My perspective on mindfulness and awareness of myself has developed into a lifestyle. I learned that mindfulness doesn't have to be in a set time or manner but it can be done in various moments of the day."</p> <p>"Mindful eating and mindful walking have become part of my daily routine and both practices help me to stay grounded and connected to the present too. Instead of rushing through my breakfast to get somewhere, I now savor every bite ..."</p> <p>"My silent retreat experience was amazing ... My intent ... was forgiveness ... We went to the place where I got married to my [abusive] husband of 15 years ... I forgave myself ... I forgave him ..."</p> <p>"One of my classes has been particularly difficult this year, but through the course I have managed to use some mindful activities that have helped me a great deal ... puts me in a much better mood to greet the student."</p> <p>"I am aware that this is an ongoing journey that does not end after this set of classes- but something that must continue and must be cultivated."</p> <p>"I found this course has been a great learning experience in understanding not only mindfulness practices but general human behavior, but most importantly how to roll with</p>

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Subtheme	Quotations
Relationship to students	what life offers you while celebrating joys (little or big) and coping with life's potential hardships (death, illness, depression, etc.)."
	"During the period of taking our SMART course, and after, I notice that I pause more often throughout the day, to check in with myself by noticing sensations, thoughts and emotions' have also become kinder to myself by practicing self-compassion through self-care."
	"I learned starting and ending my day with 10-15 minutes of meditation, whether it was a body scan, a kindness medication[sic] or just focusing on my breathing, I gave myself the time I needed to destress and recompose and make the most out of my day."
	"I also started to remind my children to eat mindfully at home because as they always get distracted ... It was interesting to discuss 'where pasta came from' with my children and getting them to think about appreciating food."
	"I have brought mindfulness into my classroom both at a personal level and a professional level. Personally, when students do things that annoy me or upset me, I tell them that I need to take some time to breathe and calm down before I can respond to what has happened. This seems to be working well for me because I do not raise my voice at my students as much as I used to. They also seem to be responding in a positive way and give me those few seconds to calm down."
	"I wondered how I could, as an educator and trusted adult, support the well-being of my students. Before long, I felt burnt out and concluded that first I would need to focus on myself before I could help the students ... I truly believe that my attitude and how I treat a child impacts their growth as capable, competent learners."
	"At school, when I notice students are unsettled, noisy and not ready to learn, I naturally incorporate some mindfulness activities. They are usually yoga practices that involve movement. In particular I have been asking students to find their mountain pose and feel their weight ... During recess, when students ask for help in resolving conflicts, I invite them to trace their hand and breath in and out."
	"Many [students] have taken this home and taught their parents about different emotions and levels of anger, happiness, and sadness. They have said that it helps them have conversations because they will wait until they are not at the height of the emotion to have a conversation."
	"What's amazing is that most ... students not only practice mindfulness in the classroom but take it home with them and teach their siblings, cousins and even their parents. I have had numerous parents approach me to inquire about what 'magic' was happening at school because their kids were calmer and happier at home."
	"We had a new student just start with us and we are already noticing the changes in him, as he learns. He is becoming more calm and is able to cope with certain feelings more appropriately. It also has helped the other students to bring acceptance to the new students' behaviors that otherwise could have been triggers."
Relationship to colleagues	"I am more compassionate toward the other adults walking around the school in the same boat and am not assuming that they are coping any better or worse than I am."
	"Just recently a colleague asked why I was so full of energy, and I shared my intention with him. He remarked that it shows and to keep it up. I can now see that I unconsciously carried through with my intention and it can be contagious."
	"I started the mindfulness sessions for educators with a main goal in mind; finding strategies and ideas to improve my professional skills with the children and the people I work with in schools." "As a result, I have been better at communicating with colleagues and friends where I've intended to do so."