

2019

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Solar, Ernest (2019) "Mindfulness for Teacher Candidates: An Exploratory Study to Examine Teacher Self-Efficacy, Stress, and Awareness," *Journal of Contemplative Inquiry*. Vol. 6: No. 1, Article 8.
Available at: <https://digscholarship.unco.edu/joci/vol6/iss1/8>

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Mindfulness for Teacher Candidates: An Exploratory Study to Examine Teacher Self-Efficacy, Stress, and Awareness

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Preservice teachers are tasked with academic classes, action research projects, lesson planning, field observations, and multiple internship experiences. Research indicates (Tarrasch, 2015) that, though critical for preparing teachers, these intense experiences contribute to high levels of stress. Studies (Csaszar, Curry, & Lastrapes, 2018; Flook, Goldberg, Pinger, Bonus, & Davidson, 2013) have also demonstrated that stress and a lack of self-efficacy are variables leading to educator burnout and exiting the profession. Managing the stress of preservice teachers in any higher education facility is a constant challenge. This study reports results from an exploratory study of 44 preservice teachers who participated in a modified Mindfulness-Based Stress Reduction course. The course was specifically adapted for preservice teachers and focused on practicing mindful qualities to manage stress and the benefits of meditation. Results indicated the intervention to be promising. Participants demonstrated statistically significant decreases in perceived stress during the most difficult weeks of their teacher training program and statistically significant increases in self-efficacy as teachers in the classroom. These findings are an important contribution to efforts in higher education and PK-12 to recruit, train, and retain highly qualified educators.

INTRODUCTION

The teaching profession is stressful. All teachers, regardless of grade level, kindergarten through higher education, feel the effects of stress (Klassen & Chiu, 2010; McCann & Holt, 2009; Prilleltensky, Neff, & Bessell, 2016). Primary school teachers feel the stress of teaching young children the building blocks of a strong education, secondary school teachers feel the stress of molding and preparing young adoles-

cents for adulthood, and professors feel the stress of preparing young adults for a career. Teachers experience the effects of acute and chronic stress not only in their profession but also in their personal lives. Acute stress is a high level of stress felt for a short duration of time (Kabat-Zinn, 2005); causes could include a parent-teacher conference that results in delivering potentially bad news, a confrontation with a student, or writing an Individual Education Program (IEP). Chronic stress is a low level of stress that is experienced for a long period of time (Kabat-Zinn, 2005), which could be caused by events or actions such as a chronic illness, the pressure of teaching the scope and sequence of a course through an entire school year, implementing and monitoring accommodations from an IEP, unit and lesson planning, or grading. Stress can have both positive and negative effects on an individual. The positive effects include a heightened sense of awareness, focused attention, and decreased reaction time, while the negative effects comprise physiological and psychological symptoms (Harmsen, Helms-Lorenz, Maulana, & van Veen, 2018; Haydon, Stevens, & Leko, 2018; Kabat-Zinn, 2005). For example, physiologically an individual may experience high blood pressure, increased perspiration, fatigue, or a combination of several symptoms (Kabat-Zinn, 2005). Psychological symptoms could include increased anxiety and depression (Harmsen et al., 2018; Haydon et al., 2018). Lastly, causes of stress can be good for example, a promotion to department chair or bad for example, being partnered with a peer in a co-teaching situation that has opposite teaching philosophies.

Stress and Burnout

Stress, if not managed, can lead to burnout (Abenavoli, Jennings, Greenberg, Harris, & Katz; 2013; Garner, Bender, & Fedor, 2018; Harmsen et al., 2018; Haydon et al., 2018; Schussler, Jennings, Sharp, & Frank, 2016). Schaufeli and Salanova (2007) indicate that emotional exhaustion and depersonalization are key elements of burnout experienced by teachers. Pines and Aronson (1998) define teacher depersonalization as a negative and cynical attitude towards students and co-workers. Jennings and Greenberg (2009) coined the term “burnout cascade” (p. 491), which a teacher may experience if he or she succumbs to emotional exhaus-

tion, depersonalization, and a lack of personal accomplishment. Burn-out cascade is marked by inability to effectively manage the social and emotional demands of the learning environment (Jennings & Greenberg, 2009). Signs include ineffective classroom management, a deterioration of the learning environment, and a cynical attitude toward students and co-workers (Abenavoli et al., 2013; Jennings & Greenberg, 2009). A teacher's self-efficacy may be a protective factor against stress and potential burnout (Emerson et al., 2017; Frank, Reibel, Broderick, Cantrell, & Metz, 2016). A 2007 study by Skaalvik and Skaalvik found a strong correlation between low teacher self-efficacy and teacher burnout. If teachers did not feel confident in their professional abilities, they were more apt to feel emotionally exhausted and negative towards their students and the other teachers in the building.

Stress and Teacher Self-Efficacy

The concept of self-efficacy is grounded in Bandura's (1977) social cognitive theory, which is the assumption that individuals have the ability to exercise a degree of influence over what they do. Through self-efficacy an individual can determine how environmental opportunities and roadblocks are perceived, how much effort to put forth in certain activities, how much time is expended on a task, and how long to persevere when confronting an obstacle (Bandura, 2006). Bandura (1997) defines self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (p. 2). Typical characteristics include: (a) approaching difficult tasks as challenges to be mastered, (b) setting challenging goals and maintaining a strong commitment to them, (c) heightening or sustaining their efforts in the face of failures or setbacks, (d) attributing failure to insufficient effort or deficient knowledge and skills which are acquirable, and (e) approaching threatening situations with assurance that they can exercise control over them (Bandura, 1997). In short, an individual with high (or strong) self-efficacy faces challenges and goals with the confidence—from experience, knowledge, or a combination of the two—that they can overcome any obstacles or roadblocks and persevere in accomplishing what must be done.

Based off of Bandura's (1977, 1997) ideas of social cognitive theory and self-efficacy, Skaalvik and Skaalvik (2007) conceptualize teacher self-efficacy as the ability to (a) plan, (b) organize, and (c) perform tasks that are necessary to achieve expected education goals. Through this conceptualization, Skaalvik and Skaalvik (2007, 2010) created the Norwegian Teacher Self-Efficacy Scale (NTSES). The scale measures five factors in teachers' confidence: (1) instruction, (2) adapting instruction to individual needs, (3) motivating students, (4) maintaining discipline, and (5) co-operating with colleagues and parents. The assumption is that a teacher scoring high on the NTSES demonstrates a high confidence in the five factors measured, which in turn assumes the teacher is confident in his or her ability—from personal experience, professional experience, or training from a teacher preparation program, or a combination of all three—to address challenges and roadblocks, acquire additional knowledge or skills to overcome setbacks, and feel confident in exercising control over threatening situations.

Unfortunately, the effects of stress, chronic and acute, can erode a teacher's self-efficacy and perseverance, which may lead to burnout and ultimately cause the educator to leave the profession (Abenavoli et al., 2013; Boe, Cook, & Sunderland, 2008; Frank et al., 2016; Jennings & Greenberg, 2009; Klassen & Chiu, 2010). Currently, the American education system continues to experience a teacher shortage in special education and general education (Hagaman & Casey, 2018; Wronowski, 2018). The reasons range from poor work conditions to low salaries and high performance expectations (Boe et al., 2008; Hagaman & Casey, 2018; Klassen & Chiu, 2010; Wronowski, 2018). In conjunction with this shortage, research reports that many new teachers leave the profession shortly after beginning for reasons such as lack of preparedness, overwork, feelings of being overwhelmed, low salaries, high levels of stress, and high expectations (Abenavoli et al., 2013; Blazer, 2006; Emerson et al., 2017; Garner et al., 2018; Hagaman & Casey, 2018). Teachers are not the only ones who experience the stress and pressure from the shortage of educators (Jennings & Greenberg, 2009; McLeskey & Billingsley, 2008; Roser, Skinner, Beers, & Jennings, 2012); students feel stress and pressure from the teachers on a daily basis to perform well and succeed

on standardized assessments (Abenavoli et al., 2013; Csaszar, Curry, & Lastrapes, 2018; Emerson et al., 2017; Garner et al., 2018; Grannis, 1992; Grossman, Niemann, Schmidt, & Walach, 2004; Roser et al., 2012). Clearly, there are larger and more fundamental issues that need to be addressed to overcome this shortage. In addition, procedures and expectations in the classroom and across the entire American education system need to be adjusted to provide more support for all teachers. But until those widespread changes occur, teachers need help in managing their stress and increasing their self-efficacy in the classroom. If teachers are less stressed and more confident in their own abilities, then students may benefit as well.

Mindfulness-Based Stress Reduction

Mindfulness-based stress reduction (MBSR), developed by Dr. Kabat-Zinn in the 1980s, may help a teacher avoid burnout and increase self-efficacy and perseverance by educating him or her in stress management techniques. Originally, MBSR was known as a stress reduction and relaxation program and was used to help promote healing in medical patients (Kabat-Zinn, 2005). Over the past 40 years, MBSR has been extensively researched in several different professions, including but not limited to medicine, nursing, counseling, sports, and education. Studies have involved participants who range from young children to adolescents, adults, and seniors, all with a variety of physiological, psychological, medical, and/or emotional symptoms that contribute to some degree of stress. In many of these instances, MBSR has been shown to be significantly helpful in lowering stress and promoting a healthier outlook on life in general (Carmody & Baer, 2008; Carmody, Baer, Lykins, & Olendzki, 2009; Lee, Semple, Rosa, & Miller, 2008; Reibel, Greeson, Brainard, & Rosenzweig, 2001).

MBSR is an experiential contemplative structured program that uses a pedagogical approach to help individuals learn how to manage their stress through non-judgmental awareness. The program is usually taught over an eight-week period (once a week for 90 to 120 minutes) and includes (a) weekly group sessions, (b) a core curriculum embedded with the principles of mindfulness, (c) mindfulness guided meditations,

(d) group discussions, and (e) regular home practice. The core concept of MBSR is centered on the idea of mindfulness, which Kabat-Zinn (2005) defines as “cultivating our ability to pay attention in the present moment” (p. 11). When practitioners “think of mindfulness as a lens, taking the scattered and reactive energies of [their] mind and focusing them into a coherent source of energy for living, for problem solving, and for healing” (Kabat-Zinn, 2005, p. 11), they will start to witness a transformation in themselves. Kabat-Zinn further explains that MBSR incorporates mindfulness meditation, which is intentionally observing the body and mind and letting the experience develop from moment to moment while accepting what occurs without judgment (Kabat-Zinn, 2005). Lastly, MBSR includes the practitioner applying the seven principles of mindfulness (non-judging, patience, beginner’s mind, trust, non-striving, acceptance, and letting go) to daily events, thoughts, and feelings. Over time, as the practitioner consciously and intently tries to embrace mindfulness, he or she will minimize judgmental reactions to events, which will increase his or her overall well-being and reduce the accumulation of stress (Carmody & Baer, 2008; Carmody et al., 2009).

Mindfulness Interventions for Educators

Due to the success of MBSR, other mindfulness interventions (MIs) and similar contemplative practices have been developed over the years to specifically help niche populations. For example, Mindfulness-based cognitive therapy (MBCT) which combines cognitive behavioral therapy (CBT) with mindfulness, was designed to prevent the relapse of depression or similar conditions by helping individuals learn how to notice automatic responses and changing those reactions to observation without judgment (Segal, Williams, & Teasdale, 2001). Dialectical behavior therapy (DBT) was developed to treat individuals with borderline personality disorder through a combination of CBT, emotional regulation, and mindful awareness (Linehan, 1993). Acceptance and commitment therapy (ACT) is structured around using acceptance and mindfulness techniques to help individuals better control their thoughts, feelings, and emotions (Hayes, Strosahl, & Wilson, 2011).

In recent years, MBSR-based programs have also been designed specifically for educators. These include the Cultivating Awareness and

Resilience in Education (CARE) program (Jennings, Snowberg, Coccia, & Greenberg, 2011; Jennings, Frank, Snowberg, Coccia, & Greenberg, 2013), which incorporates emotion-skills instruction, mindfulness practices, and listening practices (Abenavoli et al., 2013); the Stress Management and Relaxation Techniques (SMART) program (Benn, Akiva, Arel, & Roeser, 2012), which includes instruction in attention, awareness, emotion regulation, compassion, and various mindfulness practices (Abenavoli et al., 2013; Benn et al., 2012); and the Comprehensive Approach to Learning Mindfulness (CALM) program (Abenavoli et al., 2013), which focuses on daily yoga practices conducted in the school environment (Abenavoli et al., 2013; Harris et al., 2013).

Research findings related to MI programs specifically designed for educators have demonstrated promising results (Jennings et al., 2012; Roeser et al., 2012). Specifically, MIs for educators may have the potential to positively enhance a teacher's self-awareness or mindful attitude (Abenavoli et al., 2013; Jennings et al., 2011; Schussler et al., 2018), which has a strong protective effect against the components of stress (Schussler et al., 2018). In turn, if MIs for educators help manage their stress levels there may be a continued effect on self-efficacy and resilience (Abenavoli et al., 2013; Jennings et al., 2013; Schussler et al., 2016), which may lead to fewer cases of teacher burnout (Abenavoli et al., 2013; Jennings et al., 2013; Schussler et al., 2016).

Outside of MIs specifically designed for educators, there have been a handful of research studies exploring the effects of modified MBSR programs with in-service teachers. Many of these studies explored the possibility of offering mindfulness training to teachers that would be engaging and relevant to their roles as educators (Flook, Goldberg, Pinger, Bonus, & Davidson, 2013). For example, the Flook et al. (2013) study included a mindfulness intervention taken from the standard MBSR curriculum and adapted for educators to emphasize incorporating mindfulness principles into the classroom. In summary, the study suggests that mindfulness may enhance aspects of teachers' mindfulness, reduce psychological indicators for burnout, and increase effective teaching. Similarly, the other studies incorporating an MI program adapted for teachers found a reduction in stress indicators (Benn et al., 2015) and increases in

mindfulness (Benn et al., 2015; Frank et al., 2016; Taylor et al., 2016) and self-efficacy (Benn et al., 2012; Frank et al., 2015; Taylor et al., 2016).

Overall, even though these studies, on both MIs for educators and MIs in general, show positive effects of mindfulness for teachers, there are three limitations: generalizability due to a small number of participants or homogeneous samples (Abenavoli et al., 2013; Frank et al., 2015; Jennings et al., 2013; Taylor et al., 2016), self-reported measures (Abenavoli et al., 2013; Benn et al., 2015; Frank et al., 2015; Jennings et al., 2013; Taylor et al., 2016), and a lack of comparison to a control group (Jennings et al., 2013; Taylor et al., 2016). Despite these limitations, the research suggests mindfulness may be an effective strategy for educators (Abenavoli et al., 2013).

Mindfulness Interventions for Preservice Educators

Currently there are even fewer research studies investigating the effects of mindfulness training for teacher candidates (Csaszar et al., 2018; Garner et al., 2018; Hue & Lau, 2015; Jennings et al., 2011). Similarly to research on MI programs for in-service teachers, studies on MI for preservice teachers demonstrate mixed results. The Csaszar et al. (2018) and Jennings et al. (2011) studies showed a decrease in preservice teachers' overall stress factors; however, the Hue and Lau (2015) study showed no significant change in stress levels. Increases in mindfulness and well-being were demonstrated in three of the studies (Csaszar et al., 2018; Hue & Lau, 2015; Jennings et al., 2011). Lastly, the Garner et al. (2018) study showed positive factors that could lead to an increase in teacher self-efficacy.

As with MI programs for in-service teachers, these studies also displayed limitations, due to small sample sizes and lack of randomization (Hue & Lau, 2015; Jennings et al., 2011) and the fact, as expressed by Garner et al. (2018), that some preservice teachers are already employed in a school system as paraprofessionals, which may influence the findings within the studies.

Purpose of the Current Exploratory Study

A teacher training program at a private liberal arts university in the Mid-Atlantic region recognized that teacher candidates in the program were

not receiving preservice training related to social and emotional competency (SEC) (Jennings & Greenberg, 2009). The School of Education believed the lack of SEC training became heightened during the students' second internship experience in the classroom. Typically this experience is completed during the candidates' final semester or academic year. During the second internship, teacher candidates are expected to complete six weeks of full-time teaching, a research paper based on an action research intervention, and a final portfolio demonstrating mastery of the career and content standards related to their area of study.

Based on current research and the trend of 40% of educators burning out within three to five years (Abenavoli et al., 2013, Emerson et al., 2017), the School of Education believed that incorporating mindfulness into the preservice training program would help teacher candidates develop greater self-awareness. Jennings and Greenberg (2009), in proposing their Prosocial Classroom Model, have stated that "socially and emotionally competent teachers have high self-awareness" (p. 495), which prevents them from experiencing burnout.

The decision was made to incorporate the mindfulness training for all candidates during the second internship and as part of the final portfolio class that all undergraduate and graduate students are required to complete. Through this structured mindfulness curriculum, teacher candidates could potentially learn emotional-regulation skills (Frank et al., 2016), which could lead to an increase in self-awareness (Abenavoli et al., 2013; Jennings & Greenberg, 2009). Together, these might help a teacher candidate feel more confident implementing effective teaching practices (Emerson et al., 2017). The researcher questioned whether mindfulness training would enhance self-efficacy among teacher candidates, and expected it to foster a greater sense of self-awareness (Jennings & Greenberg, 2009) and emotional regulation (Emerson et al., 2017, Frank et al., 2016), which might increase the candidates' self-efficacy as educators. The researcher also assumed that if the teacher candidates were able to manage the high demands of stress throughout their second internships by becoming more self-aware, they would be able to effectively practice the skills of teaching in the classroom, which would further improve their efficacy.

There was no assumption that the teacher candidates would continue practicing mindfulness in the future. However, the researcher hoped that they would see the benefit and continue similar practices to maintain their overall well-being.

Mindfulness Training

For the independent variable, the researcher adapted the Mindfulness-Based Stress Reduction for Teenagers program developed by Gina Biegel (2009). MBSR-Teens is a structured program with a pedagogical approach that is easily adaptable to the targeted population. This program was chosen as the vehicle of teaching mindfulness to the teacher candidates because it has been modified for a younger population and the time commitment has been shortened from the standard 90 minute session to 60 minutes per session.

Each mindfulness lesson consisted of guided instruction followed by a short formal meditation practice, concluding with a group discussion. The purpose of the guided instruction was to introduce the concept of using mindfulness in daily living to reduce stress, become more aware of moment-to-moment interactions, and incorporate mindful qualities as an informal practice. Each intervention session started with the teacher candidates each discussing what mindful quality they had chosen for the week and their experience with the quality. For example, a candidate may have selected patience; they would provide an example of how they had embraced patience when interacting with a student, or a parent, or themselves. After the candidates shared their mindful qualities, the researcher would provide a short lesson related to the content of the course (refer to Table 1).

Following the lesson, the candidates would engage in a formal meditation practice. The purpose of this practice was to instruct the participants in better understanding how to sit quietly without falling asleep, regulate their breathing, practice focusing on one event at a time, and delay a response to internal or external distractions (Kabat-Zinn, 2005). For example, each participant is taught how to become more aware of his or her moment-to-moment experiences and decrease his or her

sense of “going through the motions” or reacting emotionally to the experience, regardless of whether the event is positive or negative. This type of awareness is the ability to be “dispassionate, non-evaluative, and sustain moment-to-moment awareness of perceptible mental states and processes” (Grossman et al., 2004, p. 36).

After the formal meditation practice, the participants would engage in a group discussion concerning what they had experienced during the current or previous meditation session. During this time the researcher would discuss how meditation could be used in each participant’s daily life to reduce stress and anxiety related to the school or teaching environment, and the participants would be encouraged to share any thoughts, feelings, or experiences related to the meditation they may have practiced during the week. The focus of each discussion was the positive use of meditation in school, managing stress in the classroom related to student and co-worker interactions, and how to manage life events outside of school.

The table below provides a summary of the topics the participants learned during the intervention sessions. It also includes the types of formal mindfulness meditation practices the participants experienced.

Table 1: Intervention Session Lessons

Intervention Session	Lesson Topic	Mindfulness Meditation Practice
Session 1	Examine and define the foundations of stress and an introduction to mindfulness.	Mindful Eating
Session 2	Effects of stress on the mind and body. Beginning a personal mindfulness practice.	Body Scan Meditation
Session 3	Further development of mindful practices and learning to be aware of the present moment.	Short Breathing Sitting Meditation
Session 4	Cultivating self-care and awareness of positive experiences and pleasant moments.	Loving-Kindness Meditation
Session 5	Noticing, working and being with thoughts, and facilitating an awareness of unpleasant moments and negative experiences.	Body Scan Meditation

Table 1, continued

Session 6	Mindful strategies for improving awareness, attention, and behaviors. Utilizing positive coping strategies, letting go, forgiveness and acceptance in daily living.	Gratitude Meditation
Session 7	Cultivating mindful resilience, building mindful relationships, setting future intentions.	Body Scan Meditation

METHOD

Participants

The researcher completed a Human Subjects Review Board application from the supporting university to conduct the MI. When final approval was granted, the researcher identified eligible participants through convenience sampling. The subjects recruited were undergraduate and graduate students who were participating in Internship II and considered teacher candidates. The researcher met with the candidates during the first week of the semester and provided information regarding the mindfulness study. The researcher explained that all of the candidates were going to receive mindfulness training in their final portfolio class as part of the curriculum. The researcher asked for participants willing to complete three self-reporting surveys related to teacher self-efficacy, perceived stress, and mindful awareness to measure the effectiveness of this exploratory program. Candidates were free to abstain from participation in the surveys.

Of the 49 teacher candidates in the program, 24 undergraduate students and 20 graduate students agreed to participate in the research study. Informed consent was obtained from all participants. The sample of participants was predominantly female with $n=34$ and $n=10$ males, with the approximate mean age of 26.7 in an age range between 18 and 55. Of the 44 participants, 86.4% were Euro-American, 9.1% were Asian-American, and 4.5% were African-American. Among the participants, nine were

completing teaching certificates in elementary education, 23 in secondary education, and 12 in elementary and special education.

Measures

Pretest data collection occurred in the first week of the intervention and posttest data collection transpired at the conclusion of the seventh week. The participants completed three self-report measures: the Norwegian Teacher Self-Efficacy Scale (NTSES), the Perceived Stress Scale (PSS), and the Mindfulness Attention Awareness Scale (MAAS).

Norwegian Teacher Self-Efficacy Scale. Participants' self-efficacy was assessed using the NTSES (Skaalvik & Skaalvik, 2007). Self-efficacy is a belief in one's ability to succeed in specific situations or to accomplish a set of tasks (Bandura, 2006). A person's degree of self-efficacy contributes to how he or she approaches goals and challenges. Skaalvik and Skaalvik (2007) developed the NTSES to measure a classroom teacher's belief in his or her ability to manage the everyday challenges of the teaching profession. The scale measures six constructs related to teaching: (1) instruction, (2) adapting instruction to individual needs, (3) motivating students, (4) maintaining discipline, (5) cooperating with colleagues and parents, and (6) coping with change. An increase in the overall score from the six constructs after an intervention would indicate an increase in self-efficacy. The NTSES demonstrates good internal consistency, with Cronbach's $\alpha = .79$ (Skaalvik & Skaalvik, 2007).

Perceived Stress Scale. Participants' perceived stress was evaluated using the PSS (Cohen, Kamarck, & Mermelstein, 1983), a self-reporting scale which measures the degree to which situations in a person's life over the past month are appraised as stressful and rated as unpredictable, uncontrollable, and overwhelming (Carmody & Baer, 2008). The higher the overall score on the PSS, the higher level of stress the individual is currently experiencing. The PSS demonstrates good internal consistency, with Cronbach's $\alpha = .85$ (Cohen et al., 1983; Cohen & Williamson, 1988).

Mindful Awareness Attention Scale. Participants' dispositional mindfulness was assessed using the MAAS (Brown & Ryan, 2003). The MAAS is a self-reporting scale which measures an individual's disposi-

tional mindfulness, which is their awareness and attention to what they are thinking and feeling in the moment (Brown, West, Loverich, & Biegel, 2011). Higher overall scores on the MAAS indicate that an individual is more mindfully aware. The MAAS demonstrates good internal consistency, with Cronbach's $\alpha = .81$ (Brown & Ryan, 2003).

Results

Paired sample *t*-tests were conducted on outcome measures to examine changes within the group over time from pre- to posttest. Two of the three pre-post paired *t*-tests were statistically significant and the third approached statistical significance at the .05 level. The NTSES achieved statistical significance at the $p < .01$ level with $p = .00002$, meaning participants experienced a significant increase in their self-efficacy as teachers in the classroom. The PSS achieved statistical significance at the $p < .05$ level with $p = .01688$, meaning participants experienced a significant decrease in their perceived stress throughout the seven-week MI. Lastly, the MAAS achieved near statistical significance at the $p < .05$ level with $p = .05502$, meaning participants experienced an increase in their ability to identify thoughts and feelings during the present moment throughout the intervention. Refer to Table 2 for a summary of the statistical results.

In addition to the significant results for the participants' teacher self-efficacy and perceived stress, there was a statistically significant negative linear correlation between perceived stress and mindful awareness

Table 2: Summary of pre-post correlated *t*-test comparisons

<i>Variables</i>	<i>Pre Means (N)</i>	<i>Post Means (N)</i>	<i>t, df, sig</i>
Norwegian Teacher Self-Efficacy Scale	4.82 (44)	5.32 (44)	-4.76, 43, $p = .00002^{**}$
Perceived Stress Scale	19.77 (44)	17.64 (44)	2.49, 43, $p = .01688^*$
Mindful Attention Awareness Scale	3.68 (44)	3.94 (44)	-1.97, 43, $p = .05502$ ns

* $p < .05$; ** $p < .01$; ns (not significant)

at the .01 level of significance, $p(44) = -.407$, $p < .006$. A $r = 4.407$ indicates a low correlation between perceived stress and mindful attention.

The coefficient of determination $r^2 = .16$ indicates that 16 percent of the variance in perceived stress is explained by the variance in mindful awareness. However, the researcher cannot assume that the low correlation between perceived stress and mindful awareness is related to causation. There may be a third variable affecting the correlation. Further research and analysis would need to be completed.

DISCUSSION

The significant results of this exploratory study suggest that mindfulness interventions for teacher candidates may increase self-efficacy as a teacher, lower perceived stress levels, and potentially increase mindful awareness. These findings support previous research findings related to MIs for preservice teachers that increase self-efficacy (Flook et al., 2013; Garner et al., 2017), lower perceived stress (Csaszar et al., 2018; Jennings et al., 2011), and improve mindful awareness (Brown et al., 2011; Hue & Lau, 2015; Jennings et al., 2011; Meiklejohn et al., 2012).

The researcher cannot definitively state that the MI caused the significant increase in self-efficacy reported by the teacher candidates through the NTSES, because the candidates were engaged in internships that provided them with a mentor and hands-on training in the profession for six weeks. The assumption is that the teacher candidate would be exposed to and learn the vocation of teaching by experience; therefore, this supportive experience would naturally increase his or her ability to provide instruction, adapt to the individual needs of a student, motivate students, maintain classroom discipline, work with colleagues and parents, and adapt to change. However, the researcher would like to make the argument that the teacher candidates were in a better mindset to learn these self-efficacy constructs because they were experiencing less stress by becoming more mindfully aware of their thoughts and emotions. A candidate experiencing high levels of stress would have had a more difficult time creating and presenting lesson plans, engaging students in a meaningful way, maintaining a behavior management system, successfully working with peers and parents, or adapting to change.

Through the MI, teacher candidates may have learned how to become more mindfully aware of their thoughts, feelings, and emotions on a daily basis, giving them the tools to pause and find a response—as opposed to a reaction—to the daily tasks of teaching. In essence, the teacher candidates would, theoretically, have more of an open mind to receive instruction and feedback from their mentors and professors to learn the skills of teaching.

Strengths of this exploratory study included the statistically significant results of the teacher candidates' self-efficacy and perceived stress scores. Similarly to Flook et al.'s (2013) and Garner et al.'s (2017) findings, the results of the study indicate that participating in a stress-reduction intervention such as mindfulness can lead to positive benefits for teacher candidates' effectiveness in the classroom and a general sense of feeling less stressed (Csaszar et al., 2018; Jennings et al., 2011). In turn, the benefits the teacher candidates experience may have a positive impact on their students' own learning and engagement through better teacher-student relationships and classroom environments (Csaszar et al., 2018; Flook et al., 2013; Jennings & Greenberg, 2009).

Future research studies to further examine the positive benefits of teacher candidates learning mindfulness should include a control group at the same university to increase the rigor of the research study and compare results between control and intervention participants. A dedicated correlation study should examine whether becoming mindfully aware does decrease an individual's perceived stress. Lastly, as in Flook et al. (2013), further research is needed to assess the impact of longer MIs, follow-up assessments over time, and fostering the sustainability of practices beyond the initial intervention period.

The results of this exploratory study indicate that teacher candidates learning mindfulness during their teacher preparation program has the potential to increase self-efficacy as an educator and lower perceived stress through mindful awareness. Education policy decisions dictate support programs, through professional development, to enhance teacher personal and professional well-being (Abenavoli et al., 2013; Csaszar et al., 2018; Flook et al., 2013; Jennings & Greenberg, 2009). Based on the results of this study, teacher candidates learning how to become educa-

tors may benefit from learning a stress-reduction program like MBSR or mindfulness as part of their own personal practice to maintain a balanced and healthy lifestyle (Jennings & Greenberg, 2009). Teacher candidates, who experience the positive benefits of mindfulness, may be more open to continue the practice as they become professionals, which in theory would potentially reduce burnout. Kabat-Zinn (2011) has maintained that mindfulness can only be taught by those who practice it on a daily basis. Teacher candidates who continue to practice mindfulness after the initial intervention may be more open to implementing mindfulness activities in the classroom with their students because they will have experienced the positive benefits of the practice. This could lead to improved student-to-student and teacher-student relationships in a more accepting and inclusive classroom environment similar to Jennings and Greenberg's (2009) Prosocial Classroom Model.

ETHICAL STANDARDS

The researcher for this study completed a Human Subjects Review Board application from the supporting university to obtain permission to conduct the mindfulness intervention. When permission was granted by the university review board, informed consent was obtained from all participants included in the study prior to participation.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

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