AILACTE
Journal

The official journal of the
Association of Independent Liberal Arts
Colleges for Teacher Education

AILACTE Journal Purpose
The *AILACTE Journal* is the only national journal focused on teacher education in private, liberal arts colleges and universities.

Indexing
The *AILACTE Journal* is indexed in the academic databases of EBSCO and ERIC.

2024 Call for Manuscripts for the
AILACTE Journal
Volume XXI

The Association of Independent Liberal Arts Colleges for Teacher Education (AILACTE) is a non-profit organization dedicated to the work of educator preparation programs in private liberal arts institutions. AILACTE supports, recognizes, and advocates for private higher education institutions that offer a liberal arts education. As an affiliate of the American Association of Colleges for Teacher Education (AACTE), AILACTE provides communication, resources, information sharing, and leadership across organizations.

Each year AILACTE publishes a peer-reviewed journal with the goal of disseminating scholarly work that enhances the field of teacher education in independent liberal arts colleges and universities.

The 2024 journal will be a **non-themed volume**. Manuscripts may address any issue that enhances the work of teacher educators in a liberal arts context. Topics that are appropriate for the journal include teaching and learning strategies; diversity, equity, inclusion, and social justice; responding to state mandates; candidate and faculty recruitment; tenure track and the use of adjuncts and professors of practice; budget issues; candidate and program assessment; program leadership; clinical practice and partnerships; policy changes; program models; etc. Although submissions are not limited to research studies, manuscripts that are grounded in literature and supported by empirical data will be given stronger consideration.

Manuscripts are due **June 10, 2024,** and can be submitted here. Manuscripts must follow APA guidelines, 7th Edition, as well as additional *AILACTE Journal* requirements posted on the website. If you have questions at any point, please feel free to contact Jackie Crawford (Jackie.crawford@simpson.edu).

The 2025 journal will be a themed volume addressing **The Integration of Artificial Intelligence in Teacher Education Programs.** A detailed Call for Manuscripts for the 2025 volume is posted on the *AILACTE Journal* website.

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Table of Contents

From the Editors

This current volume of the *AILACTE Journal* marks a milestone anniversary: 20 years of publication! For two decades now, the *AILACTE Journal* has disseminated scholarship that furthers the work of teacher education professionals, particularly those working in liberal arts contexts. For this anniversary issue, we explore the intersection of neuroscience and education.

Educators are increasingly conscious of the diversity of their students and the need to provide all students with high-quality instruction that is relevant to their distinct lived experiences in the world. Pedagogy that is responsive to students' various identities and experiences results in greater learning and higher achievement, and therefore culturally responsive/sustaining pedagogies are topics receiving more attention in educator preparation programs. One aspect of diversity that seems not to receive as much attention in teacher preparation, however, is neurodiversity.

The articles in this volume of the *AILACTE Journal* illuminate ways that curricula could be enhanced both to better prepare pre-service teachers to meet the needs of neurodivergent students and other students with mental health concerns, and to promote the mental well-being of pre-service teachers themselves as they are initiated into the teaching profession. Because small colleges tend to be nimbler than large universities and may be able to adapt their programs more quickly to changing student needs, the articles in this volume are especially relevant to liberal arts institutions.

Student mental health issues are on the rise, and, particularly after the COVID-19 pandemic, teachers are increasingly called upon to support students experiencing a variety of mental health concerns. Kathleen McGrath, Caitlin Riegel, and Rosina Mete explored one such diagnosis, obsessive-compulsive disorder (OCD). Their survey data reveals that teachers lack formal preparation for supporting students with OCD, and, not surprisingly, the teachers perceive their ability to teach these students effectively as low. The authors conclude that students

struggling with specific mental health diagnoses would experience more inclusive classrooms and better instruction if teachers were equipped with greater knowledge and pedagogical skill related to student mental illness. They suggest that liberal arts colleges, with smaller class sizes and more individualized instruction, are ideal sites for this enhanced pre-service preparation.

Aaron Stratton and Aarek Farmer's study centers on the premise that most students, not only those with mental health diagnoses, suffered learning loss during COVID-19 and are less motivated in school than they were pre-pandemic. Their research explores the implementation of whole brain teaching strategies into reading and writing instruction, for intermediate students, as a way to augment student motivation. Their results suggest that the use of strategies connected with whole brain learning could help motivate students in the classroom and positively impact learning loss, as motivation and learning are strongly connected.

Lonnie Cochran and Megan Parker Peters are interested in the mental health of teachers, and, specifically, how teacher preparation programs can better support new teachers as they learn how to navigate the stresses inherent in the profession. Their mixed-methods study explores the impact of intentional mindfulness and Social Emotional Learning (SEL) content woven into pre-service teacher education during the student teaching semester. Findings indicate that training in mindfulness practices and SEL increased pre-service teachers' social-emotional competencies for managing the stressors that educators face on a daily basis. Cochran and Parker Peters argue that this training should be included in teacher-preparation programs as a support to teacher well-being, and, potentially, to prevent burnout.

We are pleased to present this brain-based educational scholarship to you, and we thank our authors for their important contributions to the field of teacher education. We would also like to thank assistant editors Julie Kalnin, Caitlin Riegel, and Kevin Thomas; the *AILACTE Journal* Editorial Board; Alyssa Haarer, executive assistant; and Barbara Grinnell,

graphic designer. This volume would not exist without their significant efforts. In addition, we thank the AILACTE Executive Board for their support.

Finally, Elizabeth Leer is stepping down this year as the co-editor of the journal. Jackie, the AILACTE Journal Editorial Board, and the AILACTE Board offer our thanks to Elizabeth for her six years of service as the co-editor of the journal. Elizabeth's efforts have been invaluable in creating a high-quality journal each year. Thank you, Elizabeth, for your hard work, expertise, positivity, good humor, intellect, and willingness to do whatever is needed. We will miss you greatly.

Please join us in celebrating the twentieth anniversary of the *AILACTE Journal*!

Jacqueline Crawford, Simpson College
Elizabeth Leer, St. Olaf College

Teacher Perceptions of Obsessive-Compulsive Disorder

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Abstract

Mental health concerns among K–12 students are prevalent, including students who present with complex conditions such as Obsessive-compulsive disorder (OCD) (Moon et al., 2017). The Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) explains that "characteristic symptoms of OCD are the presence of obsessions and/or compulsions" (American Psychological Association [APA], 2022, p. 263). The DSM defines obsessions as "repetitive and persistent thoughts, images, or urges. Compulsions (or rituals) are repetitive behaviors or mental acts" (APA, 2022, p.267). To examine school mental health, this study uses a multi-disciplinary lens including both education and mental health to investigate teachers' understanding of OCD, their perceived abilities to teach and support students with OCD, and factors that impact their potential abilities. Using a quantitative approach to provide interpretations of teachers' perceptions, results highlight implications for both in-service and pre-service development related to mental illness and potential collaboration between general and special education teachers, school counselors, and school psychologists.

Keywords: obsessive-compulsive disorder, student mental health, teacher education

Teacher Perceptions of Obsessive-Compulsive Disorder

The K-12 environment features teachers who are there to support, empower, and care for their students. One of the important roles teachers play is supporting students with disabilities as they are often the first to notice behavioral and emotional changes in their students. Consequently, K-12 teachers seek opportunities to facilitate a welcoming environment that addresses mental health concerns and promotes learning. The learning milieu is dynamic; however, barriers to student engagement in the classroom include mental health concerns which impact learning efficacy.

Research suggests that though K–12 educators are expected to accommodate for the many learning differences of their students, most teachers are not necessarily prepared for students with mental health diagnoses (Moon et al., 2017). One requirement for pre-service teachers includes foundational curriculum related to special education which includes mental health concerns; however, specific mental health curriculum at the pre-service level is not unilaterally required across the nation (Education Commission of the States, 2020). The content of this coursework centers on categories of disability as outlined by the Individuals with Disabilities Education Act [IDEA] (2004), of which specific mental health diagnoses (such as obsessive-compulsive disorder) may be touched on or not at all. Training for in-service educators may range from formal professional development to brief workshops on mental health awareness. This leads to the question as to whether more comprehensive pre-service preparation and in-service training are required to effectively support students with mental health conditions and specifically, OCD.

In today's society, there is an increased awareness regarding mental health issues, and mental health diagnoses have become more prevalent in school-age students (Tkacz & Brady, 2021). According to the National Alliance on Mental Illness (NAMI) (2020), one in five school-age youth has a mental health condition, with half of the mental health conditions developing by age 14. According to Freidl et al. (2017), childhood and

adolescence is the core risk phase for developing symptoms and syndromes of anxiety including separation anxiety, panic disorder, specific phobias, and obsessive-compulsive disorder (OCD). Children with an anxiety disorder are 3.5 times more likely to experience depression or anxiety in adulthood, and consequently, early identification, intervention, and treatment of anxiety disorders are crucial (Griffiths & Fazel, 2016; Krebs & Heyman, 2015).

While awareness has increased the ability to support students with mental health conditions in the classroom, as many as half of these students go undiagnosed and untreated, which can significantly interfere with a student's ability to learn, grow, and develop (National Alliance on Mental Illness [NAMI], 2020). Undiagnosed and untreated mental illness may also interfere with educators' abilities to provide appropriate support and accommodations for their students. NAMI (2020) maintains "since children spend much of their productive time in educational settings, schools provide a unique opportunity to identify and treat mental health conditions by serving students where they already are" (para. 2). This objective for the educational system to teach all students fosters a need for educators to be effectively prepared for this responsibility. Additionally, rates of OCD are increasing among college-aged university students, and research identifies a possible link to a lack of earlier school supports (Berman et al., 2022). On a global level, OCD symptoms are more prevalent amongst the general population within the past decade, and OCD symptom severity has increased since the COVID-19 pandemic (Guzick et al., 2021).

Many researchers include OCD as a neurodiverse population due to the differences in brain activity related to obsessive and compulsive behaviors (Ampe & Rammant, 2023; Honeybourne, 2018). There are researchers who caution against the exclusion of OCD as a neurodiverse condition due to its neurological presentation (Mellifont, 2021). The study provides further research to reduce stigma and increase awareness surrounding OCD and its impact within the classroom.

To date, teachers' understanding of OCD and their perceptions of their abilities to effectively support students with OCD

in the educational context have not been studied in-depth (Chaves et al., 2021). Examining teachers' perceptions of OCD is relevant to teacher education as it provides a starting point to illuminate teachers' current level of understanding regarding OCD. This study explores how and in what ways teachers perceive their understanding of OCD, as well as their perceived abilities to teach and support students with OCD. The purpose is to add to the discussion regarding mental health, specifically OCD, in the educational environment and to encourage further collaboration amongst educators and school clinicians. Results highlight implications for teacher preparation programs, including program improvements to better prepare educators to navigate barriers to learning related to mental illness, use of appropriate supports for students with OCD in the classroom, and skills necessary to collaborate with mental health specialists. The research also provides professional development ideas for school administrators related to teacher knowledge gaps regarding complex mental illness.

Review of the Literature

To contextualize mental health and specifically OCD within the classroom and provide a framework for the study, literature was reviewed that examined (1) current understandings and identification of OCD, (2) impacts of OCD on school functioning, and (3) overall trends in teacher perceptions towards their abilities to address and support students with mental health conditions in the educational context.

Clinical Overview of Obsessive-Compulsive Disorder (OCD)

Obsessive-compulsive disorder (OCD) is a common, chronic, and long-lasting disorder that affects one to three percent of the worldwide population and is considered one of the top leading causes of global disability (Chasson et al., 2022; Fawcett et al., 2020; Pampaloni et al., 2021). It is marked by uncontrollable, recurring thoughts (obsessions), and/or behaviors (compulsions). Obsessions, as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition [DSM-5-TR] (APA, 2022), are recurrent and persistent

thoughts, urges, or impulses that are experienced as intrusive and unwanted at some time during the disturbance. In most individuals, obsessions cause marked anxiety or distress. Compulsions are repetitive behaviors or mental acts aimed at preventing or reducing anxiety or distress, or preventing some dreaded event or situation; however, these behaviors or mental acts are not connected in a realistic way with what they are designed to neutralize or prevent, or are clearly excessive (APA, 2022). Paradoxically, though compulsions seem to bring short term relief from the anxieties caused by obsessions, Peris and Schneider (2019) assert that compulsions eventually result in more anxiety and fear. Anxiety Canada (n.d.) describes this phenomenon as the OCD cycle.

For a clinical diagnosis of OCD, the DSM-5-TR specifies that "obsessions or compulsions are time-consuming (e.g., take more than 1 hour per day) and may cause clinically significant distress or impairment in social, occupational, or other important areas of functioning" (APA, 2022, p. 266). The DSM-5-TR highlights that young children may not be able to articulate the aims of their behaviors or mental acts (APA, 2022). Furthermore, many students attempt to hide their symptoms and are embarrassed to seek help, thinking that they are the only ones who experience these obsessions and compulsions or fearing that others will think of them as "crazy" (Keyes et al., 2018, p. 22). Consequently, the abilities of health care providers, educators, school psychologists and counselors, and caregivers may be instrumental in recognizing, monitoring, and intervening with students exhibiting OCD behaviors.

Impacts of OCD on School Functioning

OCD may affect a child's ability to learn, make friends, and have fun within the educational context (Shakehnia et al., 2017). In fact, children with OCD may often have difficulties with concentration, memory, executive function, and behavior, resulting in school avoidance or refusal, impaired academic achievement (Negreiros et al., 2022), and deficits in social functioning (Snyder et al., 2015) and quality of life (Storch et al., 2018). For example, attention that students should allocate to academic

tasks is frequently redirected to obsessive thoughts or mental compulsions (Sulkowski et al., 2018), which may interfere with following directions and/or completing academic tasks in a timely fashion. OCD symptoms may also impair memory and result in missing information or forgetting things.

In another example, preoccupations with performing morning rituals associated with OCD may result in tardiness and absenteeism (Sulkowski et al., 2018). OCD symptoms might also manifest in problematic behaviors including agitation and non-compliance as the child seeks endless reassurances or explanations, or is compelled to avoid certain classes, activities, or people. It is not surprising that students' preoccupation with ruminations and compulsions leave little time or energy for friends or family. Many are withdrawn and isolated from peers with few or no friendships. In addition, many adolescents attempt to hide their condition due to shame and embarrassment surrounding their OCD behaviors (Zakaria et al., 2019).

It is important to highlight that under the Individuals with Disabilities Education Act (IDEA), special education services typically are not available for most mental health diagnoses, including OCD, except under circumstances when the mental health condition significantly impacts educational performance. In these cases, students might qualify for services under the category of Other Health Impaired (OHI). However, many students with OCD do not meet the criteria for IDEA's special education services. Such students might qualify for accommodation and support under Section 504 of the Rehabilitation Act of 1973 (Adams et al., 2007; Chaturvedi et al., 2014). A 504 Plan might include counseling services, modifications to the learning environment, extended time for tests and assignments, or other necessary and specific supports as determined by individual evaluation (Chaturvedi et al., 2014). Consequently, collaboration, understanding, and compassion among educational professionals is crucial to best support these students in reaching their educational potential (Villani et al., 2022).

Teacher Perceptions of Ability to Support Students with OCD
It is estimated that, on average, American students spend six

hours per day in school, accounting for many of their waking hours (ED 100, 2015), and teachers often play an integral role in identifying and supporting students who have mental-health issues (Kratt, 2019; Marsh, 2016; Shelemy et al., 2019). However, research suggests that teachers, worldwide, perceive a lack of specific knowledge on mental health, training, and experience with supporting mental health issues (Bruek, 2016; Chaves et al., 2021; Kratt, 2019; Marsh, 2016; Mazzer & Rickwood, 2015).

Additionally, research reveals that teachers feel overwhelmed with taking on the role of a mental-health provider (Chaves et al., 2021; Ekornes, 2017; Kratt, 2019; Marsh, 2016). Kratt (2019) pointed out that part of teachers' overwhelm was due to the lack of formal education on mental health for pre-service teachers (Hampson et al., 2018; Mazzer & Rickwood, 2015; Poznanski et al., 2018) and minimal in-service training available to teachers for addressing mental health concerns in the classroom (Ersoy & Deniz, 2016; Kutcher & Wei, 2020). Not surprisingly, when teachers feel inadequately prepared to deal with students with mental health problems, they often become frustrated, disappointed, and discouraged (Shirley et al., 2020). Kratt (2019) found that teachers are becoming more aware of mental health conditions, desire effective training, and "are interested in being part of the solution" (p. 33).

Teacher Preparation Curriculum

Educator Preparation Programs (EPPs) are designed to prepare teacher candidates for the field of education, including foundational curriculum related to special education. For example, the New York State Education Department (NYSED, 2021) requires EPPs to include at least three semester hours in the field of special education. However, special education remains only a small portion of the total required semester hours. Additionally, these hours typically focus on providing teacher candidates with general knowledge of special education, including categories of disabilities, identification and remediation of disabilities, the special education process, and state and federal special education laws and regulations. These hours also typically focus on effective practices for planning

and designing co-teaching and collaboration with peers, individualizing instruction, and applying positive behavioral supports and interventions to address student and classroom management (New York State Education Department [NYSED], 2021).

The limited special education knowledge gained in an EPP may contribute to the lack of preparation that teachers feel related to supporting mental health issues in the educational setting (Holmqvist, 2019; Kratt, 2019; Mazzer & Rickwood, 2015). It is suggested that independent liberal arts colleges play a unique role in teacher education, having the ability to adapt to provide professional preparation in relevant moral and ethical issues within the field of education (U.S. News & World Report, 2022). With accreditation bodies, such as Council for the Accreditation of Educator Preparation (CAEP) and Association for Advancing Quality in Educator Preparation (AAQEP) calling for "continuous improvement," EPPs have external bodies pushing, and research supporting, the need to address programmatic improvements, including those related to preparing educators to better support students with OCD (Association for Advancing Quality in Educator Preparation [AAQEP], 2021, para. 1; Council for the Accreditation of Educator Preparation [CAEP], 2020, para. 2).

Though research has broadly examined teachers' perceptions of their knowledge, skills, and dispositions toward effectively supporting students with mental health issues in the educational context, there exists a gap within the literature relative to teacher perspectives of their knowledge, competencies, and experience when supporting students with OCD. Effectively supporting students who struggle with OCD requires knowledge about OCD symptomatology as well as its effects on school functioning. It also requires knowledge about effective accommodations for the educational context. Although special education requirements are embedded in the educator preparation curriculum, as outlined above, there is room to modify curriculum to enhance special education knowledge with more explicit knowledge of mental health.

Teacher Conceptions of Obsessive-Compulsive Disorder

Methods

This multidisciplinary study uses both an educational and mental health lens to examine teachers' understanding of Obsessive-compulsive disorder (OCD), their perceived abilities to teach and support students with OCD, and the factors that impact their perceived abilities. The research team included three university faculty, with two in teacher education and one counsellor educator and psychotherapist allowing for a collaborative and interdisciplinary examination of the research questions.

This study used a quantitative approach (Sahin & Öztürk, 2019) to examine teachers' perceptions of obsessive-compulsive disorder (OCD). The following research questions were addressed:

1. What do teachers know about obsessive-compulsive disorder (OCD)?
2. How do teachers perceive their ability to teach students with obsessive-compulsive disorder (OCD)?
3. What has had the greatest impact on teachers' perceived ability to teach students with obsessive-compulsive disorder (OCD)?

Participants

The selected participants had both preparation and practical experience regarding teaching within inclusion classrooms. Purposive sampling was used to identify a sample of 274 participants. To solicit participants, school district administrators, employed in a northeastern state, were contacted via email obtained from a public listserv of public and non-public school boards and were requested to forward the online survey to their P-12 faculty. The sample also included individuals who were members of national teacher organizations. Organization leaders were sent an email requesting them to forward the online survey to their members. The sample also included individuals who graduated from an EPP in a liberal arts and science institution in a northeastern state and were employed in a public, private, or charter school, working in a school or for an educational organization (e.g., day school program, special education

agency, teachers' association). These individuals were solicited through their personal email addresses supplied by their institution's Alumni Engagement Office.

Participants completed an online survey distributed via email through their online provider (i.e., Campus Labs). The sample included primarily White (89.42%) females (86.50%) between the ages of 26-30 (27.01%) or over 40 (34.67%). All participants reported earning at least a Bachelor of Art's degree, with the majority (80.29%) earning a Master of Education degree, suggesting a high level of education amongst participants. Participants indicated working in Birth-Pre-K (7.66%), Grades K-2 (19.34%), Grades 3-5 (14.96%), Grades 6-8 (20.07%), Grades 9-12 (24.45%), or another educational setting, or a combination of grades (12.04%). Additionally, participants indicated a variety of teaching experience, including less than one year (7.30%), 1-5 years (32.48%), 6-10 years (20.07%), to 10+ years (39.78%).

Procedure

Prior to beginning the study, approval from an Institutional Review Board (IRB) was received. The approval included permission to conduct research on human subjects. Participants completed a consent form, received a copy of the survey items and sampling procedures, along with a disclaimer about volunteering, data security, and confidentiality. Evidence of content validity for the survey (see Appendix) was achieved by conducting a review of the survey's content by experts. Given that the survey involved a specific mental health diagnosis, several faculty members from a clinical mental health program at a northeastern university reviewed the first drafts of the survey questions for clarity, relevance, and accuracy.

Several emails were sent out requesting participation with additional email reminders sent periodically. The participating teachers completed a survey involving several sections. The first section included personal demographics and current employment information which validated their qualification for participation. The second section had participants indicate their current level of knowledge of OCD through one open-ended

question as well as eight Likert scale questions rating their level of knowledge, from *not at all knowledgeable* (1) *to extremely knowledgeable* (5), within a series of questions phrased to determine their perceived knowledge of specific aspects of OCD (e.g., definition, characteristics). The third section had participants indicate their perceived ability to teach students with OCD through one Likert scale question rating their perceived ability, *poor* (1) *to excellent* (5), and several open-ended questions phrased to determine the greatest impact on their ability to teach students with OCD (e.g., Educator Preparation Program, professional development). The last section was an optional entry into a drawing for one of two $25 electronic gift cards.

Data Analysis

SPSS and Microsoft Excel were used to analyze the data. To address knowledge of OCD, Microsoft Excel was used to run descriptive statistics identifying the percentage of the sample with specific knowledge on different aspects of OCD. To address teaching students with OCD, Microsoft Excel was used to develop a bar graph depicting the number of participants and their perceived ability to teach students with OCD as poor, fair, good, very good, or excellent. SPSS was then used to run multiple ANOVAs to identify significant differences in participants' perceived ability to teach students with OCD. To address factors that impacted participants' perceived ability to teach students with OCD, Microsoft Excel was used to develop a circle graph depicting the resource that had the greatest impact on the perceived abilities (e.g., percentage of the sample that indicated an educator preparation program, professional development, professional experiences, personal experiences, self-study, or other had the greatest impact on their ability to teach students with OCD).

Findings
Current Knowledge of OCD

Results indicate that the participants' greatest perceived knowledge about OCD centers around the definition (e.g., diagnosed disorder) and characteristics (e.g., repetition of

behaviors). As outlined in Table 1, very few of the 274 educators held a high level of perceived knowledge regarding OCD, with less than seven percent indicating they were extremely knowledgeable in any aspect of OCD. The aspects of OCD that educators expressed knowledge in were foundational aspects such as the definition and characteristics, with around 70 percent of educators indicating they were somewhat or moderately knowledgeable in these areas. The more detailed aspects, such as knowing the instructional strategies to use with students with OCD and knowing what accommodations and modifications to provide to students with OCD, had low levels of knowledge, with over 60 percent of educators indicating slight knowledge or no knowledge at all in each of these aspects (see Table 1).

TABLE 1

Perception of Current Level of Knowledge of OCD

Aspects of OCD	Perception of Current Level of Knowledge (%)				
	Not at all	Slight	Somewhat	Moderate	Extreme
Definition	1.46	21.53	37.59	32.48	6.93
Characteristics	1.46	24.09	39.05	30.66	4.74
Instructional Strategies	29.20	35.40	22.63	9.85	2.92
Accommodations and Modifications	26.64	39.78	17.88	13.87	1.82
Assistive Technology	52.55	28.83	12.04	6.20	0.36
Transition Process	44.16	31.75	15.69	6.20	2.19
Family Perspectives	36.50	33.21	19.71	8.03	2.55
Resources	47.45	31.02	14.23	5.47	1.82

Note: All percentages rounded to the nearest hundredth.

Teaching Students with OCD

The second research question addressed how teachers perceive their ability to teach students with OCD. As outlined in Figure 1, 53.28 percent of participants indicated their ability to teach students with OCD as poor or fair, while 46.71 percent indicated their ability to teach students with OCD as good, very good, or excellent. It is evident from Figure 1 that educators

do not have a great deal of confidence in their ability to teach students with OCD, with only 1.5 percent of participants indicating their ability to teach students with OCD as excellent.

FIGURE 1
Teachers' Perceived Ability to Teach Students with OCD
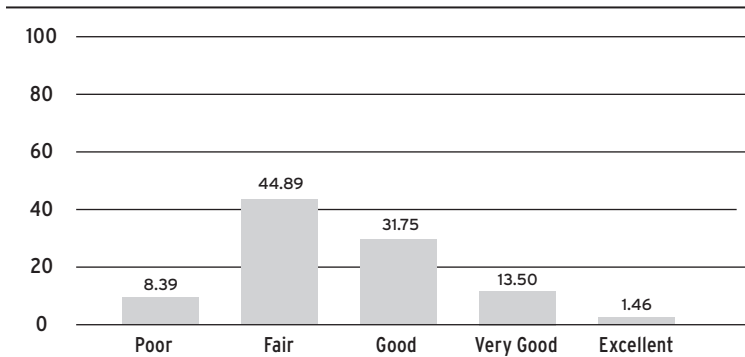
A one-way ANOVA was conducted to compare the highest level of education (e.g., Bachelor of Arts Degree, Master of Education Degree) of the participants. As indicated in Table 2, a significant difference was found (F (3, 270) = 3.830, $p <$ .05). Tukey's HSD was used to determine the nature of the differences between participants having the highest levels of education. This analysis revealed that participants holding a doctoral degree (m = 3.4, sd = .894) indicated a significantly higher perceived ability to teach students with OCD than

TABLE 2
One-way ANOVA and Post Hoc Summary of Highest Level of Education on Perceived Ability to Teach Students with OCD

Highest Level of Education	N	F	p	Tukey's HSD Sig. Different Groups	Mean
Bachelor's Degree	43	3.830	*	Bachelor's Degree & Doctorate Degree	2.23*
Master's Degree	220				2.58
Professional School Degree	6				2.83
Doctorate Degree	5				3.40*

*p ‹ .05, **p ‹ .01

participants holding a bachelor's degree ($m = 2.23$, $sd = .782$).

Another one-way ANOVA was conducted to compare participants' mental health advocacy to their perceived ability to teach students with OCD, indicating different frequencies of advocating for mental health in their classroom. As indicated in Table 3, a significant difference was found (F (4, 269) = 5.955, $p < .01$). Tukey's HSD was used to determine the nature of the differences between participants from different races given its ability to determine which group means are significantly different from each other while controlling for the risk of making false discoveries based on the unequal group sizes. This analysis revealed that participants who advocate for mental health in their classroom always ($m = 2.89$, $sd = .914$) indicated a significantly higher perceived ability to teach students with OCD than participants who advocate for mental health in their classroom sometimes ($m = 2.33$, $sd = .854$) or never ($m = 1.67$, $sd = .516$).

TABLE 3
One-way ANOVA and Post Hoc Summary of Mental Health Advocacy on Perceived Ability to Teach Students with OCD

| | | | | Tukey's HSD | |
Mental Health Advocacy	N	F	p	Sig. Different Groups	Mean
Never	6	5.955	**	Always & Never	1.67**
Rarely	80				2.40
Sometimes	25			Always & Sometimes	2.33**
Often	97				2.59
Always	66				2.89**

*$p < .05$, **$p < .01$
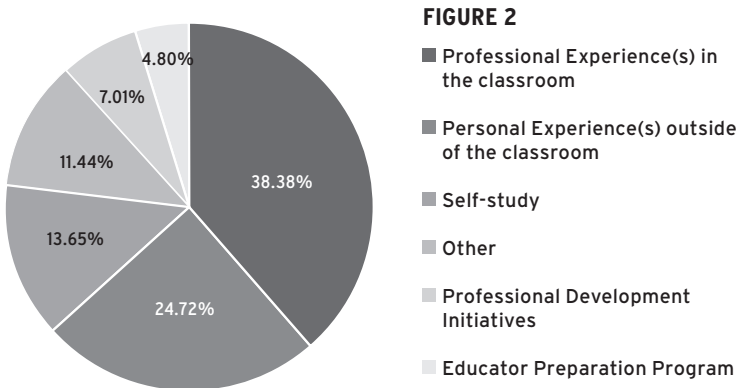
Impact on Teaching Students with OCD

The third research question addressed the greatest impact on teachers' perception of their ability to teach students with OCD. As outlined in Figure 2, both professional experiences within the classroom and personal experiences outside of the classroom had the greatest impact on participants' ability

to teach students with OCD. Given that about 40 percent of participants indicated they have been employed as a teacher for ten or more years, it follows that their experiences would have a substantial impact on their ability to teach students with OCD. Consequently, approximately 40 percent of participants indicated they have been employed as a teacher for five years or less, indicating they were relatively new to the profession. The researchers are of the opinion that a preparation program specifically designed to prepare prospective educators to teach all students in their classroom would also have a substantial impact on an educator's perceived ability to teach students with OCD. Figure 2 illustrates that the least impactful resource for educators' perceived ability to teach students with OCD was their EPP, with only 4.8 percent of educators indicating their preparation program had the greatest impact. In addition to personal and professional experiences, teachers indicated that professional development initiatives, self-study, and other factors such as consulting colleagues and medical professionals, impacted their perceived ability to teach students with OCD more than their educator preparation programs. The data indicates that the most beneficial resources are professional experience in the classroom and personal experiences outside the classroom.

FIGURE 2

- Professional Experience(s) in the classroom
- Personal Experience(s) outside of the classroom
- Self-study
- Other
- Professional Development Initiatives
- Educator Preparation Program

(Pie chart values: 38.38%, 24.72%, 13.65%, 11.44%, 7.01%, 4.80%)

Discussion

This study fills a gap outlined in the literature regarding teachers' understanding of OCD, as well as their perceived

ability to teach and support students with OCD. It explores educators' understanding of OCD and provides a lens of their perceived skills and knowledge regarding the management and accommodation of clinical symptoms of OCD in the classroom. This study also provides several contributions to the field, including a model for future research intended on evaluating teachers' understanding of mental health diagnoses that may be present in the K-12 classroom.

Data gathered in this study suggests that teacher's current perceived knowledge of OCD is focused on the broad medical aspects such as the definition and characteristics. Given the impacts of OCD on a child's education (Adams et al., 2007; Chaturvedi et al., 2014; Negreiros et al., 2022; Shakehnia et al., 2017; Snyder et al., 2015; Sulkowski et al., 2018; Zakaria et al., 2019), it is evident that this perceived general understanding of OCD does not allow teachers to navigate the academic challenges students with OCD may present in the classroom. Rather, more in-depth knowledge in areas such as accommodations, instructional strategies, and resources would better prepare teachers to support students struggling with OCD in the classroom (Villani et al., 2022).

Corroborating the literature (Bruek, 2016; Chaves et al., 2021; Kratt, 2019; Marsh, 2016; Mazzer & Rickwood, 2015), data gathered in this study suggest that teachers generally perceive their ability to teach students with OCD as low. This study found that the more formal education (e.g., Bachelor of Arts Degree, Master of Education Degree) and active support (i.e., advocating for mental health in the classroom), the higher their perceived ability to teach students with OCD. This suggests that the amount of training a teacher receives, whether it be through pre-service course work or in-service professional development, may make a significant difference on teachers' perceived ability by providing more in-depth knowledge and intentionally getting them more actively involved in the mental health community. As discussed in the literature review, independent liberal arts colleges are in a unique position to address programmatic improvements, including those related to preparing educators to better support students with OCD

(U.S. News & World Report, 2022; Association for Advancing Quality in Preparation [AAQEP], 2021, para. 1; Council for the Accreditation of Educator Preparation [CAEP], 2020, para. 2).

Finally, data gathered in this study suggests that teachers rely heavily on their personal and professional experiences to teach students with OCD. The ability to learn from experience is something teacher preparation programs hope students continue to do as they enter the field; however, the data collected from teachers within their first five years of teaching revealed a heavy reliance on experience. This suggests that preparation programs specifically designed to prepare prospective educators to teach diverse students may not be adequately addressing student mental health diagnoses. Furthermore, the literature regarding a limited exposure, if any, to OCD (Bruek, 2016; Chaves et al., 2021; Kratt, 2019; Marsh, 2016; Mazzer & Rickwood, 2015), specifically supports a potential need for preparation programs to revise their coursework on students with special needs.

Limitations

The limitations of this study provide several areas for future research. To strengthen the generalizability of these findings, a national sample of educators should be examined. Findings can also be analyzed to determine whether there is a significant difference in teachers' perceived ability to teach students with OCD and the number of credit hours focused in special education required by EPPs. Secondly, 89.42 percent of the participants of this study identified as white and 86.50 percent identified as female. These ratios are slightly higher than the national percentages as reported by the National Center for Educational Statistics [NCES] (2020), where 76 percent of public school teachers identify as female and about 79 percent identify as white. To strengthen the generalizability of these findings, future research could examine a more diverse sample of teachers.

Implications

The results of this study suggest several implications. First, given students spend, on average, one-third to one-half of

their day either in school or going to and from school (Oliveira et al., 2019), teachers and other school personnel can make a profound difference in the lives of those exhibiting OCD by providing effective, flexible, and compassionate support. Although teachers are positioned to identify, intervene, and advocate for students struggling with OCD, the results from this study suggest they generally perceive their abilities in these areas to be low. Teacher preparation focused on knowledge development, accommodations, instructional strategies, and resources for students who have OCD will be important for effectively and compassionately supporting these students.

A second implication involves professional collaboration. The National Association of School Psychologists [NASP] (2016), asserts that collaboration among school and mental health experts is critical to providing the full continuum of mental health services necessary for effectively supporting students' mental health. Education that includes preparation for working with students who have special needs plays a critical role in promoting and facilitating the academic achievement and adaptive social functioning of students with OCD. Therefore, the input of other professionals in collaboration with the general education teacher is critical (Ní Bhroin & King, 2020). With a better understanding of OCD and its impacts on school functioning, teachers will be positioned to offer compassionate, flexible, and effective accommodations as well as create safe, positive classroom environments that will decrease anxiety and increase the academic and social success of all students, including those with OCD. An excellent resource for educators is *Teaching the Tiger: A Handbook for Individuals Involved in the Education of Students with Attention Deficit Disorder, Tourette Syndrome, or Obsessive Compulsive Disorder* (Dornbush & Pruitt, 1995).

The results of this study also suggest teachers' current knowledge of OCD focuses on broad medical aspects rather than more in-depth areas related to education (e.g., accommodations, instructional strategies, resources). More formal teacher preparation related to students struggling with OCD would better support students with OCD. As highlighted

earlier, current teacher preparation requires a handful of credit hours that focus on students with special needs; however, specific mental health diagnoses, such as OCD, may be briefly discussed or fully omitted from training. With smaller class sizes and more individualized instruction, independent liberal arts institutions have the ability to revise current course content to include activities and assignments that dig deeper to cultivate the knowledge, skills, and dispositions teachers must possess to effectively support students with OCD in ways that larger institutions may not be able to support (e.g., time, grading, individualized content) on a larger scale.

In sum, a three-pronged preparation approach would be effective for EPPs to implement. This would encompass (1) improving teachers' knowledge of mental illness (e.g., OCD, Attention Deficit Disorder, Tourette Syndrome), (2) learning to support students with OCD in the classroom (e.g., accommodations, instructional strategies, resources), and (3) increasing collaboration with mental health specialists such as school psychologists and school counselors to ensure students receive the appropriate support in the classroom. Providing ongoing professional development on mental illnesses such as OCD is essential to providing students with the highest quality education possible.

Future Research

Due to the increased national and global awareness of mental health conditions of students in the post-pandemic classroom, the potential for identifying, intervening, and providing effective support in the educational context will be an important area for further research. Similarly, teacher preparation for providing compassionate support for students who struggle with OCD is a vital area for further research and development.

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Appendix: Survey

1. Gender:
    a. Male
    b. Female
    c. Non-binary/other gender
    d. Prefer to self-describe

2. Age:
    a. 20-25
    b. 26-30
    c. 31-35
    d. 36-40
    e. 40+

3. Race:
    a. White
    b. Hispanic or Latino
    c. Black or African American
    d. Native American or American Indian
    e. Asian/Pacific Islander
    f. Multiple ethnicity/Other (please specify)

4. What is your highest level of education received?
    a. Bachelor's degree (BA, BS, AB, etc.)
    b. Master's degree (MA, MS, MENG, MSW)
    c. Professional school degree (MD, DDC, JD)
    d. Doctorate Degree (PhD, EdD)

5. Are you currently employed as a teacher in a public, private, or charter school?
    a. Yes
    b. No

6. For how many years have you been employed as a teacher?
    a. Less than one year
    b. 1-5 years
    c. 6-10 years
    d. 10+ years

Teacher Conceptions of Obsessive-Compulsive Disorder

7. In what type of school are you currently employed?
   a. Private
   b. Public
   c. Charter
   d. Other (please specify)

8. How would you describe your school's geographic location?
   a. Rural
   b. Suburban
   c. Urban

9. In what grade level are you currently employed?
   a. Birth-Pre-kindergarten
   b. Primary (grades K-2)
   c. Early Intermediate (grades 3-5)
   d. Upper Intermediate (grades 6-8)
   e. High school (grades 9-12)
   f. Other (please specify)

10. How often do you advocate for mental health in your classroom (hanging relevant posters, scheduling mental wellness breaks, student self-care routines, etc.)
    a. Never
    b. Rarely
    c. Sometimes
    d. Often
    e. Always

11. What do you know about Obsessive Compulsive Disorder (OCD)?
    a. (space to write response)
    Indicate your current level of knowledge as it pertains to the following aspects of Obsessive Compulsive Disorder (OCD):
        Not at all knowledgeable
        Slightly knowledgeable
        Somewhat knowledgeable
        Moderately knowledgeable
        Extremely knowledgeable

12. The definition of OCD
13. The characteristics of OCD
14. Instructional strategies used for teaching students with OCD
15. Accommodations and modifications for students with OCD
16. Assistive technology for students with OCD
17. The transition process for students with OCD
18. The perspective of families of students with OCD
19. Resources for families, students, and teachers related to OCD

20. How do you perceive your ability to teach students in your classroom with OCD?
    a. Poor
    b. Fair
    c. Good
    d. Very good
    e. Excellent

21. What has had the greatest impact on your ability to teach students with OCD?
    a. Educator Preparation Program
    b. Professional Development Initiatives
    c. Professional Experience(s) in the classroom
    d. Personal Experience(s) outside of the classroom
    e. Self-study
    f. Other (please specify)

22. In what ways, if any, has your Educator Preparation Program impacted your ability to teach students with OCD?
    a. (space to write response)
    b. This has not impacted my ability to teach students with OCD

23. In what ways, if any, has professional development initiatives impacted your ability to teach students with OCD?
    a. (space to write response)
    b. This has not impacted my ability to teach students with OCD

Teacher Conceptions of Obsessive-Compulsive Disorder

24. In what ways, if any, has professional experience(s) in the classroom impacted your ability to teach students with OCD?
    a. (space to write response)
    b. This has not impacted my ability to teach students with OCD

25. In what ways, if any, has your personal experience(s) outside the classroom impacted your ability to teach students with OCD?
    a. (space to write response)
    b. This has not impacted my ability to teach students with OCD

26. In what ways, if any, has your self-study impacted your ability to teach students with OCD?
    a. (space to write response)
    b. This has not impacted my ability to teach students with OCD

27. In what ways, if any, has other impacted your ability to teach students with OCD?
    a. (space to write response)
    b. This has not impacted my ability to teach students with OCD

The Effects of Whole Brain Teaching on Student Motivation in Reading and Writing

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Abstract

Motivation in students can have a strong effect on student engagement and overall student success. Due to the impact of COVID-19, students have been less motivated and have fallen farther behind which increases the need to better motivate and engage students within the classroom. This quasi-experimental study which incorporated a pre- and post-test design explored the implementation of whole brain teaching strategies into reading and writing instruction for a sample of fourth to sixth graders. Whole brain teaching includes instruction focusing on the four primary sections of the brain with strategies merging abstract and conceptual models, emotional and intrinsic ideas, sequencing and organization, visual notions, and interpersonal concepts. Instruction focusing on these strategies provides learning opportunities for a variety of learner needs. The Elementary School Motivation Scale (ESMS) was used to measure student motivation for schoolwork following both reading and writing instruction after the implementation of whole brain learning strategies. Results indicated that student motivation significantly increased in both reading and writing after the implementation.

Keywords: student motivation, whole brain teaching, engagement, ESMS

The Effects of Whole Brain Teaching on Student Motivation in Reading and Writing

Motivation can strengthen student success and comes from the enjoyment that students gain from being engaged in the lesson material and in exploring the world around them (Wabiser, 2022). Furthermore, Spence (2022) concluded that every educator should be continuously looking for new strategies to engage and motivate their students. Embedding motivation strategies in the classroom that allow for individual learning styles of students can connect students further to their interests (Bawaneh et al., 2012; McCombs & Whistler, 1997). For this to be successful, students' personalities, learning styles, and interests; as well as their individual needs (i.e., physical, emotional, psychological, social, academic) need to be met (Bawaneh et al., 2012; Navir, 2017). When students are given equitable learning opportunities, based on their individual needs, they will feel more motivated to learn and participate in the instruction (Bawaneh et al., 2012).

Educators must consider new instructional methods that focus on students of all learning styles and encourage students to actively participate in the learning process (Silverstein, 2013; Smith, 2018). Research has shown that not every student learns in the same way or has the same intelligence (Ismah et al., 2022). Factors that may impact student learning include students preferred learning styles, the rate at which each student learns, their current developmental level, as well as the impact that gender can have on student performance and engagement (Smith, 2018). Smith further stated that these factors must be considered if educators are to effectively motivate every student to be engaged in the learning process. Duta (2021) asserts that student interests and expectations for success are also influential factors:

> The state of motivation to learn exists when student engagement in a particular activity is guided by the intention of acquiring the knowledge or mastering the skill that the activity is designed to teach. In particular, students are more likely to want to learn when they appreciate the value of classroom activities and when they believe they

will succeed if they apply reasonable effort. (p. 29)

Motivation is a key factor in student behavior, stimulation, and the ability to continue toward achieving targeted goals within the learning process (Bawaneh et al., 2012). Furthermore, there are three primary designations for determining levels of motivation: lack of motivation, extrinsic motivation, and intrinsic motivation. Extrinsic motivation in an individual is the demonstration of specific actions due to an external influence, such as a reward or the satisfaction of their ego. Intrinsic motivation is the demonstration of a specific behavior due to enjoyment, interest, or the instinct to succeed (Ryan & Deci, 2000). Given the impact motivation has on achievement (Bawaneh et al., 2012; Duta, 2021; Ryan & Deci, 2000) and the gap in current literature regarding the impact of whole brain teaching on motivation and achievement, there is a continued need to explore further the connections between neuroscience and educational strategies.

Literature Review

A lack of motivation is a major factor that decreases student learning, and hence, educators have worked to identify instructional methods and factors that might increase motivation in students (Bawaneh et al., 2012). One approach to increasing student motivation was the implementation of alternative instructional methods, which include the use of whole brain teaching, introduced by Herrmann (1989), and have been used to prevent boredom and a lack of motivation within classrooms (Bawaneh et al., 2012). This type of instruction focuses on the four primary sections of the brain (Bawaneh et al., 2012). Bawaneh et al. (2012) further explained that the upper section deals with abstract and conceptual concepts, while the lower section deals with emotional and intrinsic ideas. Specifically, the upper-left part deals with logic and quantity, the lower left part deals with sequence and organization, the right upper part deals with conceptual and visual notions, and the lower right part deals with interpersonal and emotional concepts. Instruction focusing on this knowledge provides learning opportunities for a variety of learners within the same lessons.

This method of instruction, known as "Whole Brain Teaching," as indicated by Biffle (2013), can make learning fun and engaging for students throughout the entire learning process. This strategy has also been shown to eliminate passive learning and improve student engagement (Elfiky, 2022; Priyadarshini et al., 2019). Whole brain teaching has been connected to effectiveness in areas of classroom management, critical thinking, and differentiated instruction (Silverstein, 2013). This method of instruction utilizes different parts of the brain, similar to Gardner's (1993) theory of multiple intelligences.

Whole brain teaching can also be adapted to a variety of curricula (Silverstein, 2013), thus creating an avenue for schools across the U.S. to increase student engagement and motivation (Smith, 2018). Biffle (2013) reported a 12% increase in reading over a three-month period of whole brain teaching implementation, and Smith (2018) reported a 28% improvement on state-mandated math tests. A study was conducted in 2013 that examined the effects of whole brain teaching, in which eight experienced educators began using whole brain teaching strategies and reported positive outcomes, such as higher retention and comprehension of material, improved levels of engagement, improved levels of student participation, and a decrease in the number of disciplinary actions taken during instruction (Silverstein, 2013). Furthermore, these eight participants reported that students appeared more confident, less stressed, enjoyed learning, responded positively to the new strategies, adapted quickly, and showed excitement toward learning (Silverstein, 2013). Whole brain teaching allows for more choice, control, and movement of students because the activities created for the lessons are centered around these elements (Smith, 2018).

The whole brain teaching approach focuses on seven core teaching techniques (Biffle, 2013; Clark, 2016; Elfiky, 2022) and includes the utilization of (a) call-and-response techniques, (b) classroom rules, (c) engagement, (d) competition scorekeeping, (e) mimicking, (d) key phrases for redirection, and (f) partner team-teaching. Whole brain teaching has been associated with both increased student engagement (Elfiky, 2022)

and motivation (Nayir, 2017). Students show signs of stronger motivation for learning when they are engaged and motivated to learn (Navir, 2017).

Whole brain teaching is based on Vygotsky's (1978) social learning theory, in which he showed the importance of social interaction in the process of learning and development (Bridges, 2019; Tompkins, 2014). The social learning theory consists of a more knowledgeable person teaching someone within the zone of proximal development. This zone consists of a person's ability to learn with help and is based on the individual's independent abilities without assistance and has been considered the time where optimal instruction is most likely to occur (Bridges, 2019; Vygotsky, 1978). This theory aligns with whole brain teaching strategies such as the "teach, okay" strategy, where students learn from the teacher and then teach their partner what they've just learned. The teaching students become more knowledgeable as they must know more than their partners (Biffle, 2013). Neuroscience connects biology, cognitive science, and education to support stronger methods of learning and instruction (Jensen, 2008; Kharsati & Prakasha, 2017). According to Kharsati & Prakasha (2017), "Neuroscience enables us to identify key indicators for educational outcomes and provides a scientific basis for evaluating different teaching approaches" (p. 76).

Statement of the Problem

In 2020, COVID-19 made a lasting impact on the country and with regard to student learning. In the fall of 2020, the Tennessee Department of Education (TDOE) projected an estimated decrease of 50% in reading proficiency scores of third graders and a projected 65% decrease in math (Tennessee Department of Education [TDOE], 2022). The TDOE also projected that because of the March school closures in 2020, learning loss would be 2.5 times the normal summer rate. In 2021, the Policy Analysts for California Education (PACE), further determined the impact of COVID-19 on student learning by comparing scores from fall 2019 to winter 2021, assessing approximately 100,000 unique students across 19 California

schools (Pier et al., 2021). Pier et al. (2021) noted that learning decreased for every grade assessed (Grades 4-8), in both math and English, among all three tests that were administered (MAP, Star, and i-Ready). Specifically, a greater amount of learning loss occurred among economically disadvantaged students, English learners, and Latinx students (Pier et al., 2021). Pier et al. (2021) also found that those who were previously low achieving experienced greater learning lags than students who were not previously low achieving.

In 2022, the National Center for Education Statistics (NCES) administered the Long-term Trend (LTT) reading and mathematics assessments for 9-year-old students, to examine student achievement surrounding the COVID-19 pandemic. The National Assessment of Educational Progress (NAEP) stated that in 2022, the largest drop in reading scores since 1990 had occurred as well as the first-ever drop in mathematics scores (NCES, 2022). The NCES (2022) also reported that students who were low performing had greater decreases than students who were not low performing previously.

Purpose of the Study

Given the drops in achievement over the past five years and decreased motivation related to the loss of learning during the COVID-19 pandemic (Duta, 2021), data from this study will add to the literature regarding the effects of whole brain teaching on students in the general education classroom. Duta reported that due to COVID-19 and the increased utilization of virtual classes, students had a lack of motivation for learning and instruction. Omadan (2021) noted the importance of student motivation regarding student learning, especially after the COVID-19 pandemic. Given the loss of student learning noted in the literature (NCES, 2022; Pier et al., 2021) and the strong connection between motivation and learning (Omadan, 2021), instruction for all students, which has traditionally incorporated direct instruction, should be re-examined, along with the benefits of whole brain teaching, to determine what type of instruction might best suit students following the onset of the COVID-19 pandemic. Aligned with this purpose, this

study was guided by the following question: What is the impact on student motivation in (a) reading and (b) writing after the implementation of whole brain teaching?

Furthermore, this study addressed literature in which authors raised concerns over whole brain teaching due to a lack of research. The connections between whole brain teaching and the neuroscience of the brain have caused some researchers to question the use of neuroscience in education given a lack of credible information (Purdy & Morrison, 2009; Varma et al., 2008). Some researchers believe that neuroscience research findings have been overgeneralized to meet educational needs (Bruer, 1997). Critics of whole brain teaching also feel that while there is some evidence of the effectiveness of these classroom strategies, there have been few research studies conducted to validate its effectiveness (Falls, 2016; VanHosen, 2017). The topic of whole brain teaching is a relatively new concept because research in this area has focused on brain-based learning and not whole brain teaching (Bridges, 2019). While some researchers have been skeptical, the results of whole brain teaching strategies have been seen in classrooms and have gained popularity among educators over the years; thus, further research is needed to show the continued advancement and development in the field of neuroscience (Gocen, 2021). Gocen (2021), following an exploration of the impact of neuroscience in the field of leadership, also stated:

> Neuroscience, or brain science, opens up new areas for leadership in the educational field by enabling us to better understand the reasons behind the chemical processes occurring in the brain and in administrative steps such as human motivation and decision-making. (p. 63)

Methodology

This quantitative study explored data from a convenient sample of students from one class at one public Montessori elementary school in a West Tennessee school district. The 41 students were in the fourth, fifth, and sixth grades, and all had the same teacher. A quasi-experimental research design with a pre- and post-test survey was utilized to compare the

data of student responses before and after the implementation of whole brain teaching to determine if whole brain strategies were associated with higher student motivation. After Institutional Review Board (IRB) approval was obtained and approved by the school, parents were informed of the study and provided an opportunity to consent. If parents consented, students were informed and provided the opportunity to ask questions in their English class prior to giving their consent. One English class was selected and chosen to incorporate whole brain learning strategies due to the teacher's familiarity with whole brain learning techniques. Students were introduced to new learning strategies during classroom instruction and were taught the rules and procedures associated with these strategies (e.g., reciting class rules each period, teacher mirroring—key lesson concepts using words and actions of the teacher, re-teaching concepts to peer partners using physical movements). Classroom rules were communicated and carried out as a whole group, through hand motions, as described by Biffle (2013). Communicated rules included following directions quickly, raising their hand for permission to speak, raising their hand to leave their seat, making smart choices, and making the dear team stronger. These rules were communicated to the class at the beginning of each lesson. Regarding mirroring, which Clark (2016) described as a technique that requires the teacher to connect motions as well as variations in inflection and tone to key ideas from the lesson, students were required to mimic the teacher by connecting ideas from the lesson as shown by the teacher. Peer teaching started with call-and-response techniques between the students and the teacher. For example, the teacher would say "Teach!" and the students responded in unison with "Okay!". When the students responded, they immediately turned to their designated partner and began to teach the key ideas of the lesson to that peer, using the same inflection and hand motions provided by the teacher. These three whole brain teaching techniques were chosen because of their basic nature, the ease at which they could be taught and communicated to students, and because of their consistency when applying them to instruction across different grade levels.

The Elementary School Motivation Scale (ESMS) (Guay et al., 2005) was used to determine student motivation toward their schoolwork in reading and writing. Guay et al. (2005) found acceptable reliability specifically regarding reading motivation (a = .73) while Ramos et al. (2002) found sufficient reliability ranging from 0.701– 0.901. Students were given an 18-item survey that included a Likert scale to determine their levels of intrinsic motivation, identified self-regulation, and perceived external regulation as pertaining to the areas of reading and writing (See Appendix A). Each child had to rate each item on the survey according to the following scale: *no always* (1), *no sometimes* (2), *do not know* (3), *yes sometimes* (4), *yes always* (5). Students completed the test on paper in approximately five minutes and turned it in to the teacher. This questionnaire was filled out twice (i.e., once before the intervention and once following the intervention) on an anonymous basis, while the teacher monitored all students to ensure they were completing the assessment with fidelity.

The Cronbach's alpha coefficient was evaluated using the guidelines suggested by George and Mallery (2018) where > .9 excellent, > .8 good, > .7 acceptable, > .6 questionable, > .5 poor, and ≤ .5 unacceptable. The items for motivation (reading) had a Cronbach's alpha coefficient of .75, indicating acceptable reliability. Table 1 presents the results of the reliability analysis.

TABLE 1
Reliability Table for Motivation (Reading)

Scale	No. of Items	*a*	Lower Bound	Upper Bound
Motivation (Reading)	9	.75	.69	.82

Note: The lower and upper bounds of Cronbach's a were calculated using a 95.00% confidence interval.

A Cronbach alpha coefficient was calculated for the Motivation (Writing) scale, which consisted of 13 items measuring motivational constructs (e.g., intrinsic, self-regulation, perceived external). The Cronbach's alpha coefficient was evaluated using the guidelines suggested by George and Mallery (2018) where > .9 excellent, > .8 good, > .7 acceptable, > .6

questionable, > .5 poor, and ≤ .5 unacceptable. The items for motivation (writing) had a Cronbach's alpha coefficient of .73, indicating acceptable reliability. Table 2 presents the results of the reliability analysis.

TABLE 2
Reliability Table for Motivation (Writing)

Scale	No. of Items	a	Lower Bound	Upper Bound
Motivation (Writing)	9	.73	.65	.80

Note: The lower and upper bounds of Cronbach's a were calculated using a 95.00% confidence interval.

Results

Demographic information was collected for the student population frequencies and percentages were calculated for each nominal variable. The most represented grade level was sixth (n = 17, 42%), while the population consisted of more males (n = 23, 56%) than females (n = 18, 44%). Frequencies and percentages are presented in Table 3.

TABLE 3
Frequency Table for Nominal Variables

Variable	n	%
Grade		
4th	12	29%
5th	12	29%
6th	17	42%
Gender		
Male	23	56%
Female	18	44%

Writing Motivation

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference between the writing motivation pre- and post-test scores was significantly different from zero. A normal distribution of scores was first checked for

the data set. A Shapiro-Wilk test was conducted to determine whether the differences in the scores could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were not significant based on an alpha value of .05, $W = 0.98$, $p = .648$, which suggests the possibility that the differences in the scores were produced by a normal distribution cannot be ruled out, indicating the normality assumption was met.

TABLE 4
Two-Tailed Paired Samples t-test for the Difference Between Motivation in Writing

Motivation in Writing (Pretest)		Motivation in Writing (Posttest)				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
25.15	6.68	26.34	6.84	-3.22	.003	0.50

Note: N=41. Degrees of Freedom for the t-statistic=40. *d* represents Cohen's *d*.

The result of the two-tailed paired samples t-test was significant based on an alpha value of .05, $t(40) = -3.22$, $p = .003$, indicating the null hypothesis can be rejected. This finding suggests the mean of the motivation score on the writing posttest was significantly higher than the mean of the pretest. The results are presented in Table 4. A bar plot of the means is presented in Figure 1.

A summary of all scores, pre and post, for motivation related to reading and writing appears in Table 5.

TABLE 5
Summary Scores Table for Reading and Writing

Variable	*M*	*SD*	*n*	*SEm*	Min	Max	Skewness	Kurtosis
Motivation in Reading (pretest)	26.54	7.06	41	1.10	16.00	44.00	0.57	-0.24
Motivation in Reading (posttest)	28.76	7.14	41	1.12	18.00	45.00	0.55	-0.49
Motivation in Writing (pretest)	25.15	6.68	41	1.04	10.00	39.00	-0.36	-0.39
Motivation in Writing (posttest)	26.34	6.84	41	1.07	11.00	39.00	-0.43	-0.49

FIGURE 1
The Means of the Motivation in Writing with 95.00% CI Error Bars Noting Significant Increase
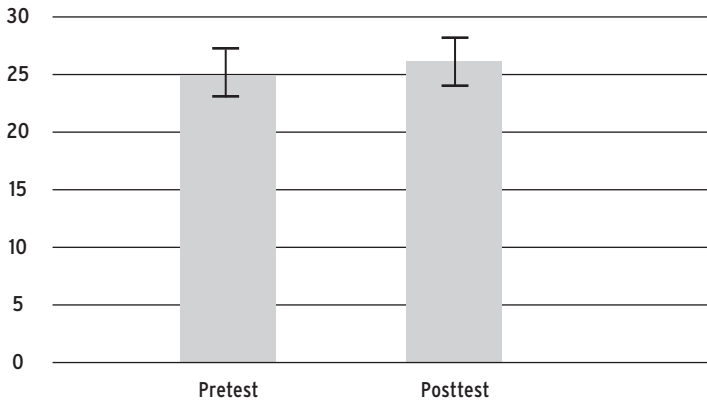
Reading Motivation

A two-tailed paired samples t-test was conducted to examine whether the mean difference between the reading motivation scores between the pre- and post-test scores was significantly different from zero. A normal distribution of scores was first checked for the data set. A Shapiro-Wilk test was conducted to determine whether the differences in the scores could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant, $W = 0.94$, $p = .024$. This result suggests the differences in the scores are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated. Given the violated assumption, a two-tailed Wilcoxon signed rank test was conducted to examine whether there was a significant difference between the pre- and post-test scores. The two-tailed Wilcoxon signed rank test is a non-parametric alternative to the paired samples t-test and does not share its distributional assumptions (Conover & Iman, 1981).

The results of the two-tailed Wilcoxon signed rank test were significant based on an alpha value of .05, $V = 34.00$, $z = -5.00$, $p < .001$. This indicates that the differences between the pre- and posttest scores are not likely due to random variation. The median of the motivation in the reading posttest ($Mdn = 28.00$)
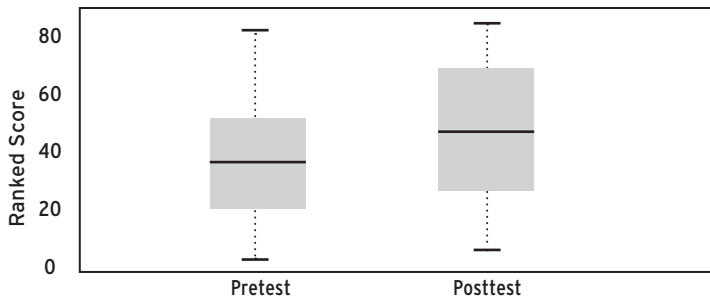
was significantly higher than the median of the pretest (Mdn = 26.00). Figure 2 presents a boxplot of the ranked values of the pre- and post-test scores.

Discussion

FIGURE 2

Ranked Values of the Motivation in Reading Noting Significant Increase

This study found that motivation in reading and writing classes was significantly higher when whole brain strategies were utilized, which may have been tied to the presence of a more active learning model. Elfiky (2022) and Priyadarshini et al. (2019) would attribute this increase in motivation to improved student engagement due to an active learning environment which is a characteristic of whole brain learning strategies. This increase in motivation may further contribute to the falling achievement scores as noted by NAEP (2022). Literature has suggested a positive connection between achievement and whole brain learning strategies given the impact it can have on both student motivation and engagement (Biffle, 2013; Navir, 2017; Silverstein, 2013; Smith, 2018).

This study adds to the literature on student motivation that may help address the extreme drop in achievement that Pier et al. (2021) and NAEP (2022) noted had occurred during the onset of the COVID-19 pandemic. Strategies connected to whole brain learning such as the use of class rules that are consistently recited with connected physical movements, student mirroring of the teacher, and the students teaching each other key concepts of the lesson could be used to help motivate students after the learning loss that may have occurred since

COVID-19. The whole brain teaching methods used in this study did show a connection to higher gains in motivation toward reading and writing. Due to the simple nature of the whole brain teaching methods and the ease with which they can be implemented, this strategy could be taught easily and implemented in a variety of educational settings.

Recommendations and Implications

Given the data from this study, it is recommended that education stakeholders explore the possible implementation of whole brain learning strategies which includes the utilization of (a) call-and-response techniques, (b) classroom rules, (c) engagement, (d) competition scorekeeping, (e) mimicking, (d) key phrases for redirection, and (f) partner team-teaching. Specifically, strategies connected to whole brain learning such as the use of class rules that are consistently recited with connected physical movements and modeled by the teachers could help students retain content knowledge and avoid learning loss. These strategies should be embedded and taught throughout education preparation program (EPP) coursework to give future teachers both the ability and efficacy to develop whole brain strategies to utilize in future classrooms.

Strategies connected to whole brain learning such as the use of class rules that are consistently recited with connected physical movements, student mirroring of the teacher, and the students teaching each other key concepts of the lesson could be used to help motivate students after the learning loss that may have occurred since COVID-19. The whole brain teaching methods used in this study did show a connection to higher gains in motivation toward reading and writing. Due to the ease with which whole brain strategies can be embedded into all classrooms, these strategies could be taught to all teachers for implementation in a variety of educational settings.

Limitations and Future Research

Further research should be conducted with a larger sample size since these results are not generalizable to all populations given the lack of random selection and the low sample size.

Future studies should be conducted with students from multiple areas, backgrounds, special education needs, grade levels, and schools to better determine the effect whole brain teaching may have on diverse learners. Another notable limitation of the study was the length of time (one month) for which the whole brain learning strategies were implemented between the pre- and post-tests. Even though data showed a statistically significant increase in motivation after one-month, future studies would benefit from a longer implementation of whole brain learning strategies to better determine how these methods impact student motivation. Furthermore, there was no control group and only one dependent variable explored (i.e., motivation). Literature has shown a positive relationship between motivation and achievement (Bawaneh et al., 2012; Duta 2021; Silverstein, 2013; Smith, 2018; Wabiser, 2022), however, future studies exploring whole brain learning may further add to the gap in the literature connecting whole brain teaching and student achievement. Another limitation noted was that all students attended the same school and grades. Furthermore, the literature alludes to other factors that may impact motivation, such as intrinsic motivation to stay engaged in the instruction and extrinsic motivation (i.e., praise, rewards) that could impact student motivation (Ryan & Deci, 2000); however, this study did not explore those factors.

Conclusion

This study examined the effects of whole brain teaching implementation on student motivation toward reading and writing. From a sample of fourth through sixth grade students, motivation increased significantly after only one month of whole brain teaching strategies embedded into English and language arts classes. There is a need for district and school personnel to heighten the exploration of diverse whole brain learning strategies within K-12 classrooms and teacher preparation programs to prepare teachers to implement active learning strategies that may increase both motivation and achievement for diverse learners. Data from this study adds to the current literature and may provide research-based evidence for strategies

that may support student success, especially in response to decreased student motivation and achievement as a result of the COVID-19 pandemic (Duta, 2021; NAEP, 2022; Pier et al., 2021; TDOE, 2022). The methods used in this study were connected to higher gains in motivation toward reading and writing; thus it may be beneficial for educators to explore strategies connected to whole brain learning to help motivate students.

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Appendix A
Elementary School Motivation Survey (ESMS)

Write the initials of your first and last name and 1 if you're taking the pretest or a 2 if you're taking the posttest.

Initials and Number Here: _____

Circle the corresponding number that you agree with.

(1)	No Always
(2)	No Sometimes
(3)	Do Not Know
(4)	Yes Sometimes
(5)	Yes Always

Reading

Intrinsic Motivation

I like reading.	(1) (2) (3) (4) (5)
Reading interests me a lot.	(1) (2) (3) (4) (5)
I read even when I am not obliged to do so.	(1) (2) (3) (4) (5)

Identified Regulation

Reading will allow me to learn many useful things.	(1) (2) (3) (4) (5)
I chose to read to learn many things.	(1) (2) (3) (4) (5)
In life, it's important to learn how to read.	(1) (2) (3) (4) (5)

External Regulation

I read to get a nice reward.	(1) (2) (3) (4) (5)
I read to please my parents or my teacher.	(1) (2) (3) (4) (5)
I read to show others how good I am.	(1) (2) (3) (4) (5)

Effects of Whole Brain Teaching on Student Motivation

Writing

Intrinsic Motivation

I like writing.	(1) (2) (3) (4) (5)
Writing interests me a lot.	(1) (2) (3) (4) (5)
I write even when I am not obliged to do so.	(1) (2) (3) (4) (5)

Identified Regulation

Writing will allow me to learn many useful things.	(1) (2) (3) (4) (5)
I chose to write to learn many things.	(1) (2) (3) (4) (5)
In life it's important to learn how to write.	(1) (2) (3) (4) (5)

External Regulation

I write to get a nice reward.	(1) (2) (3) (4) (5)
I write to please my parents or my teacher.	(1) (2) (3) (4) (5)
I write to show others how good I am.	(1) (2) (3) (4) (5)

Supporting Teachers from the Beginning by Preparing the Whole Educator: Pre-Service Teacher Social and Emotional Learning, Mindfulness, and Efficacy

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Abstract

This multiple methods study examined the impact of brief, intentional instruction in the areas of mindfulness and social and emotional learning (SEL) on teacher self-efficacy, teacher mindfulness, and the use of mindfulness practices. The SEL content and strategies were taught to pre-service educators during their student teaching seminars. Teacher efficacy includes the beliefs that a teacher holds about their ability to lead learning and includes beliefs about classroom management, instructional practices, and student engagement. Social and emotional learning, as defined by The Collaborative for Academic, Social, and Emotional Learning (CASEL), includes five components: self-awareness, self-management, other awareness, relationship skills, and responsible decision-making. These components encompass skills essential to effective teaching. Mindfulness has been defined as present moment awareness without judgment and is linked to well-being. We hypothesized that teacher efficacy and mindfulness would be improved significantly from pre- to post-intervention. Eighteen of 35 potential participants completed quantitative measures of efficacy (Teacher Self Efficacy Scale) and mindfulness (Teacher Mindfulness Scale). Thirty-four participants completed qualitative session reflections. Seven participants completed journal responses. Increases in mindfulness and teacher efficacy were found; however, within the quantitative measures, only increases in teacher efficacy were significant. Within the qualitative findings from the Self-Assessing Social and Emotional Instruction and Competencies scale, self-awareness was identified as participants' greatest strength while self-management

of emotions was identified as their greatest opportunity for improvement. In addition, most participants noted current or future plans to use mindfulness or SEL strategies. Findings are consistent with previous work indicating that short-term training in mindfulness and SEL should be included in educator preparation programs as a mechanism to support teacher well-being and potentially reduce teacher burnout.

Keywords: teacher preparation, social emotional competency, teacher efficacy, teacher mindfulness

Supporting Teachers from the Beginning by Preparing the Whole Educator: Pre-Service Teacher Social and Emotional Learning, Mindfulness, and Efficacy

Even before the pandemic, changes were called for in teacher preparation to address the absence of instruction in social and emotional competencies (Schonert-Reichl, 2017), to integrate what has been learned through the science of learning and development (SoLD) (Darling-Hammond et al., 2022), and to address teacher well-being. In fact, teacher preparation established firmly in the Mind, Brain, and Education Sciences (MBES) is just what has been called for by the Organisation for Economic Co-operation and Development (OECD) (Ansari et al., 2017) to transform education and promote a high quality, equitable education for all. SoLD principles suggest that education should be focused on the whole child, which consists of academic, cognitive, ethical, physical, psychological, and social-emotional elements (Darling Hammond et al., 2020). Accordingly, educators should be learning to foster holistic development which consists of cognitive, affective, and social and emotional competencies (Cantor et al., 2018).

Yet, teacher preparation largely focuses on the cognitive, while neglecting the affective dimension, including social and emotional competencies (Schonert-Reichl, 2017) which are critical to the development of healthy classroom climates, positive student social and emotional and academic outcomes, and teacher well-being (Jennings & Greenberg, 2009). While much has been learned regarding the influences between the brain, psychology, and learning, the role of the learning sciences within the field of teacher preparation remains elusive (Tokuhama-Espinosa, 2018). MBES can support educators more holistically in their preparation by intentionally connecting the learned content knowledge of teacher preparation to the affective dimensions of teaching and learning (Tukohama-Espinso, 2018). Others have long suggested that effective teaching consists of knowlege in three areas: content, pedagogical, and emotional. Thus, all of these areas should be addressed in preparation. The problem, however, is to do so would require a major shift in

educator preparation, not to mention substantial resources at a time when higher education is facing declining enrollments and the ill effects of teacher stress which are at an all-time high (NooNoo, 2022).

While such a dramatic shift in teacher preparation might not be immediately feasible, there are some simpler, more cost-effective changes and additions that teacher preparation programs can begin to implement to help deepen the MBES classroom connection and ensure more holistic preparation while also addressing teacher well-being. The Collaborative for Academic, Social, and Emotional Learning (CASEL, 2024) has been a strong voice in the field, promoting the importance of mindfulness and SEL in educational contexts. Based on the work of CASEL and Greenberg (2016), Lawlor (2016) created a model for K-12 settings that integrates mindfulness practices that promote the five SEL components (self-awareness, self-management, other awareness, relationship skills, and responsible decision-making). These models or frameworks include pieces of MBES, which acknowledge the role of emotions in teaching and learning and can be more easily embedded in existing training than a complete overhaul of preparation programs.

Using an adapted version of Lawlor's (2016) model for teacher preparation, we surmised that teacher preparation programs could support the development of teacher social and emotional competencies (SEC) and thereby, teacher efficacy. Accordingly, teachers' preparation would equip them with the necessary SEC to create the optimal climates for learning and healthy student outcomes while also reciprocally reinforcing personal well-being, as outlined in Jennings and Greenberg's (2009) prosocial model. The current study seeks to confirm previous findings from Cochran and Parker Peters (2023) indicating that brief training for pre-service teachers in mindfulness and SEL can significantly improve teacher efficacy and potential well-being.

The purpose of the present study was to determine whether intentionally integrating mindfulness and social and emotional learning strategies within the final semester of teacher

training leads to higher levels of teacher efficacy and teacher mindfulness. Further, we aimed to determine whether and how pre-service teachers use the strategies taught in their own student teaching placements.

Literature Review
Teacher Stress, Burnout, and Attrition

As the field of education continues to experience teacher shortages, early attrition and burnout have been cited as the number one problem facing teachers today (NooNoo, 2022). Teacher stress has been cited as a reason for teachers leaving the classroom prematurely (Harmsen et al., 2018; Madigan & Kim, 2021). Burnout often occurs as a result of extreme emotional exhaustion due to stress over time (Madigan & Kim, 2021). In part, as a result of burnout, there are fewer teachers to fill classrooms. It is evident that the cost of attrition to districts is well beyond financial; student achievement and well-being are also negatively impacted (Madigan & Kim, 2021). Those educators with unmitigated chronic stress or emotional exhaustion who remain in the classroom may be less cognitively and emotionally equipped to support student learning (Seiz et al., 2015). Further, early-career teacher stress has been negatively associated with the use of effective teaching strategies (Harmsen et al., 2018).

At the same time, mindfulness has been negatively associated with all dimensions of burnout: emotional exhaustion, depersonalization, and low accomplishment; it has been positively associated with positive affect (Abonavali et al., 2013). Others have also found dispositional mindfulness (Hwang et al., 2019) and self-compassion were associated with less stress and teacher well-being (Hwang et al., 2019; Moe & Katz, 2020). Accordingly, brief instruction in mindfulness and SEL during teacher preparation may be a cost-effective and efficient way to promote resilience and well-being in future teachers, better equipping them with strategies for coping with stress related to the classroom.

Teacher Preparation

The cost of chronic teacher stress is not limited to districts.

The significant time and resources required to attain teacher certification, whether through traditional or alternate routes, can feel wasted when teachers leave the classroom well before they intended. While some factors contributing to teacher stress are out of a teacher's ability to control (e.g., licensure requirements, policies, school organization, school resources, job demands), others are not (e.g., social and emotional competencies) (Greenberg et al., 2017).

Teacher preparation programs are responsible for preparing effective teachers. This includes ensuring teachers are ready for all aspects of the classroom, including navigating the emotional context and managing stress. Teacher preparation programs have a responsibility to ensure that teachers have the skill sets needed to remain in the classroom. Beyond the important constructs of academic content and pedagogy, holistic readiness includes social-emotional competencies, which are malleable (Ferreira et al., 2021; Kasler et al., 2013; Main, 2018; Martinsone et al., 2020) and, thus, teachable (Borba, 2018). A comprehensive teacher preparation program should include content, pedagogy, and emotional knowledge instruction, such as SEL, which includes strategies for coping with both personal stress and the stressors present in an emotion-laden classroom.

Teaching and learning are both emphasized in preparation programs and are intertwined, as are the cognitive and emotional competencies necessary to grow in each construct. Teaching and learning are highly emotional. As Immordino-Yang (2016) documented, "Learning is dynamic, social, and context dependent because emotions are, and emotions form a critical piece of how, what, when, and why people think, remember and learn" (p. 17). Thus, emotions present in the classroom, whether the teacher's or a student's, impact whether and what learning will take place. "Learning begins with emotion—and cannot happen without it" (Wilson & Conyers, 2020, p. 94); thus, it is imperative that pre-service teachers understand the role of their own and their students' emotions in the classroom. Positive emotions promote learning, while negative emotions hinder learning (Darling-Hammond et al., 2020; Harmsen et al., 2018; Jennings & Greenberg, 2009). Positive

emotions promote attention (Moe et al., 2021) essential for teaching and learning, while negative emotional arousal can be detrimental (Bandura, 1997).

The all-too common problem of teacher emotional exhaustion may render a teacher unable to draw on their cognitive resources (Seiz et al., 2015), rendering such resources less effective in the classroom. Noting that awareness was a particularly powerful component, Abenavoli et al. (2014) promoted the construct of mindfulness as a protector from teacher burnout and a predictor of teacher self-efficacy. Teacher efficacy is associated with effective teaching, use of effective coping strategies, and positive learning outcomes. It follows that identifying and implementing cost effective ways for promoting excellent teaching and supporting teacher emotional well-being are imperative, especially in an era where teacher shortages and attrition continue to leave districts and more importantly, students, without qualified teachers in the classroom (Madigan & Kim, 2021).

Mindfulness and Teacher Training

Mindfulness has been defined as present moment awareness, without judgment (Jennings, 2015). Shapiro et al. (2018) have suggested mindfulness is a "universal capacity that transcends culture and religion" and is "a state of awareness accessible to all" (para. 4). Further, mindfulness involves intention, attention, and attitude. Accordingly, mindfulness is "the awareness that arises through intentionally attending in an open, caring, and discerning way" (Shapiro & Carlson, 2017, as cited in Shapiro et al., 2018, para. 4).

Mindfulness practices, such as Mindfulness Based Stress Reduction (MBSR), have been used to promote well-being and reduce stress or pain within the field of medicine (Williams & Penman, 2011). Accordingly, in the context of education, Chang (2009) and Jennings and Greenberg (2009) stressed the potential usefulness of mindfulness and emotional knowledge training in promoting teacher well-being and positive student outcomes. In the decade since, many studies have been conducted examining mindfulness training in teacher professional

development (Ansley et al., 2021; Dave et al., 2020; Fabbro et al., 2020; Flook et al., 2013; Jennings et al., 2013; Jennings et al., 2014; Reiser et al., 2018; Reiser & McCarthy, 2018; Sharpe & Jennings, 2016; Zarate et al., 2019) and in pre-service teacher training (Cochran & Parker Peters, 2022, 2023; Dewhirst & Goldman, 2020; Garner et al., 2018; Hirschberg et al., 2020; Poulin et al., 2008; Solar, 2019) and have found positive effects, even with brief training. Garner et al. (2018) specifically emphasized the importance of mindfulness-based practices coupled with SEL training for pre-service educators for developing teacher professional identities, equipping teachers for the emotional dynamics of the classroom, and promoting resiliency. Others have also suggested such training in pre-service teaching as necessary to equip future teachers to cope with stress and the emotional demands of the classroom (Birchinall et al., 2019; Csaszar et al., 2018; Hadar et al., 2020; Katz et al., 2020; Prilleltensky et al., 2016; Sulis et al., 2021). Both formal and informal use of mindfulness practices have proven effective (Jennings, 2015; Williams & Penman, 2011).

Mind Brain Education Science (MBES)

MBES is the intersection of psychology, neuroscience, and education. As noted previously, calls have been made to integrate MBES in education, in K-12 settings, and in teacher preparation. Kelleher & Whitman (2018) suggested that "MBE is a discipline with considerable promise to help close gaps in school and teacher quality and student achievement" (p. 4). Yet, little movement has been made to do so. Some have suggested that the gap between MBES and classroom integration is too wide. Tokuhama-Espinosa (2018) has called for educators to bridge the gap between theory and practice by helping to make what is known in mind-brain theory accessible to scholar-practitioners. Nouri et al. (2023) suggested that translational communicators--teachers well versed in research--are the answer to this gap. They have noted, however, that currently "few teachers research well, and few researchers teach well." (p. 64). This aim could be accomplished through intentional instruction in the critical consumption of scholarship during

pre-service education, including: identifying, accessing, under-standing, and engaging with MBES research and neuromyths (e.g., learning styles) (Tukohama-Espinosa, 2018). Similarly, Wilson and Conyers (2020) have suggested that teachers should be "adaptive experts and lifelong learners," who are "continually reexamining their professional beliefs and practices in the con-text of current research and the evolving needs of their students" (p. 161) as the "Gold Standard for Educational Professionals." Among their suggestions, Wilson and Conyers promote five ideas from MBES research for inclusion in teacher preparation and thereby the classroom, that could ultimately transform teaching and learning: neural plasticity, human potential, intelli-gence, the brain-body connection, and metacognition. They also suggest that recognizing neuromyths is essential. A neuromyth has been described as "a misconception generated by a misun-derstanding, a misreading, or a misquoting of facts scientifically established (by brain research) to make a case for the use of brain research in education and other contexts" (OECD, 2002, as cited by Torrijos-Muelas et al., 2021, p. 2). Tukohama-Espinso (2018) and Nouri et al. (2023) also suggest intentional instruction regarding the six principles and 21 tenets of MBES, identified through a Delphi panel of experts and verified at three points (2008, 2017, 2020), as a good place to begin.

Models for the integration of MBES in K-12 schools do exist (Kelleher & Whitman, 2018), but they require substantial resources, specifically time, educator buy-in, and commit-ment. In the absence of these resources, there are measures that can be taken immediately to begin to integrate aspects of MBES and to facilitate some of the promise MBES holds. Howard-Jones et al. (2020) conducted a study of the effective-ness of a 1.5-hour professional development session on SoLD. They found significant differences in participants valuing SoLD scientific concepts regarding teaching and learning, which actually promote learning, over performative tasks, tasks that seem to indicate teaching externally but may not promote learning, from pre- to post-instruction. These findings, though somewhat diminished, were maintained in follow-up test-ing weeks later. This pilot study holds promise that even brief,

intentional training can change teacher beliefs about teaching and learning.

Purpose of the Study

Our earlier studies suggest that training in mindfulness and social and emotional learning embedded in seminars could be a cost effective and practical way to integrate some of the affective aspects of the MBES learning sciences in teacher preparation, while also addressing teacher well-being (Cochran & Parker Peters, 2022, 2023). The present study is a continuation of that earlier work whereby we connected to Jennings and Greenberg's (2009) prosocial classroom model by extending backwards into teacher preparation and providing brief mindfulness and social and emotional learning training embedded within the student teaching seminar.

Jennings and Greenberg (2009) utilized facets of MBES in their prosocial classroom model. In this model, educators' social-emotional competencies are connected to classroom and learning outcomes. Classroom learning environments that support psychological well-being positively relate to students' academic and behavioral outcomes. Building on Greenberg's 2014 work, Lawlor (2016) developed a model for integrating mindfulness to promote SEC in K-12 settings. By adapting Lawlor's model for pre-service teachers, our aim was to increase pre-service teachers' SEC, namely self-awareness, as evidenced in teacher efficacy and teacher mindfulness measures. As with our previous work (Cochran & Parker Peters, 2022, 2023) this study incorporated brief training on the anatomy of the brain, emotions and the role of emotions in the classroom, stress and the role of stress in teaching and learning, and introduced mindfulness strategies that could be used to promote the student teachers' own well-being as well as that of their students. Building on this, within the present study, we introduced the CHECK model (Cochran et al., 2022). An acronym for Control vs. No Control, Hear What You are Saying to Yourself, Emotional Awareness, Challenge Your Thoughts, and Know a Plan, CHECK was developed as a low-resource, easy-to-use tool to support teachers' social-emotional learning. By moving

through the steps of CHECK, educators can address their immediate SEL needs and also experience deeper reflection after the school day ends. The CHECK model provides prompts for considering what facets are under a teacher's control and what cannot be controlled in addition to naming and taming emotions with the goal of greater emotional management.

Importantly, mindfulness has been negatively related to burnout and predictive of teacher self-efficacy (Abenavoli et al., 2013; Abenavoli et al., 2014). Further, those with higher efficacy are more likely to draw on coping strategies when encountering stress (Bandura, 1997). Thus, we hypothesized that brief mindfulness and SEL training would improve teacher efficacy and teacher mindfulness, both interpersonal and intrapersonal.

Methods

Research Design

This multiple methods research study used a pre-experimental group to self-comparison design to address the research questions: 1) How does intentional integration of SEL and mindfulness training impact pre-service teacher self-efficacy? and 2) How does intentional integration of SEL and mindfulness training impact pre-service teacher mindfulness? Quantitative data gathered using the Teacher Self-Efficacy Scale (Tschannon-Moran & Woolfolk Hoy, 2001) and the Teacher Mindfulness Scale (Frank et al., 2017) were used to measure changes in self-efficacy and mindfulness from pre- to post-training. Qualitative data, gathered from student teaching journals and discussion prompts, were used to provide evidence of the strategies learned and used within the student teaching seminars to cope with stressors encountered within student teaching placements. While not without limitations due to the absence of a control group for comparisons, the pre-experimental design was selected to determine changes in participants' self-efficacy and mindfulness prior to and following the training. We hypothesized that the integration of the SEL and mindfulness training would be a contributing factor to quantitative changes observed in teacher efficacy and mindfulness. The qualitative data connect any observed quantitative

effects to the training and provided insights into whether and how the strategies were being used.

Participants

Participants included 35 teacher candidates who were enrolled in student teaching seminars within a College of Education during the Fall 2022 and Spring 2023 semesters. Thirty-two candidates were female, and three were male. Twenty-six candidates identified as White, two identified as Hispanic/Latino, one identified as American Indian, one identified as Asian, one identified as two or more races, and one identified as race/ethnicity unknown. Eleven candidates were 21 years of age, 11 were 22 years of age, and nine were 23 years of age. One candidate was 26, one was 27, one was 29, and one was 31 years of age.

Procedures

Potential participants were invited to join the study during the initial student teaching seminars (fall and spring). Following an oral presentation and an opportunity to ask questions, willing participants accessed the informed consent form through REDCap, an electronic data capture system, and completed the questionnaire consisting of the Teacher Self Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001), and the Mindfulness in Teaching Scale (MTS; Frank et al., 2016). Participants created their own personal identifying information code, which they were instructed to retain for the post data collection. This allowed pre- and post-data to be matched while maintaining participant confidentiality and anonymity in participant responses. There were no incentives for participation aside from any potential benefits gained through the instruction received and the strategies used. Prior to the study, Institutional Research Board (IRB) approval was obtained from the university.

Throughout each semester, during three 60–90-minute sessions, candidates were provided with SEL content instruction and were introduced to and practiced mindfulness strategies (see Table 1). Participants were also introduced to CHECK, an

acronym-guided process designed to help educators check on their own well-being and manage stress (Cochran et al., 2022). SEL and mindfulness strategies were introduced which explicitly connected to CHECK. Participants created a self-care plan at the end of the initial session and were asked to refer to the self-care plan regularly and identify one to two mindfulness strategies to implement in times of stress; however, use of strategies outside of the seminars was not monitored. Participants also completed session reflections during the seminars. These reflections contributed to the qualitative findings. Additionally, as part of their student teaching journal, pre-service teachers were asked to reflect on their placement and any instances of stress as well as any strategies used to mitigate the stress when encountered. This reflection was completed at two points, once following each student teaching placement. These reflections also contributed to the qualitative findings.

TABLE 1
SEL Strategies and Mindfulness Practices by Session

Session	Timeframe	Content	SEL Strategies and Mindfulness Practices
1	90 minutes	Introduction to Study Data Collection Mindfulness, SEL, and Self-Care	CHECK Self-care assessment Nurturing Activities Assessment Self-care plan Focused attention Three breaths Setting an intention
2	60 minutes	Stress and Emotions Emotion Regulation Emotions in the Classroom	Mood meter and emotion wheel Three breaths Sighing Yawning Emotion journal Exploring an emotion meditation
3	90 minutes	Self-Care and Compassion	Lovingkindness practice Self-assessment Mindful classroom CHECK
4	30 minutes	Data Collection	

Note: Content and strategies included were informed by Brackett (2019), Cochran et al. (2022), Jennings (2015), and Yoder (2014).

Measures

Quantitative data were collected during the initial and final seminar sessions and consisted of five demographic questions, the Teacher Self Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001), and the Mindfulness in Teaching Scale (Frank et al., 2016). Qualitative data were collected through session reflections completed within the semester as well as the two student teaching journal prompts previously referenced.

Quantitative Data

Teacher Efficacy. To address Research Question 1, efficacy data were collected using Tschannen-Moran and Woolfolk Hoy's (2001) TSES. For this study, participants completed the long form which consists of 24 Likert-type items rated on a scale of *none at all* (1) *to a great deal* (9). Higher levels of efficacy are indicated by higher scores. Because the participants in this study were pre-service teachers, only the whole scale efficacy score has been used, as suggested by Fives and Buehl (2012) and the instrument authors (Tschannen-Moran & Wolfolk Hoy, 2001).

Teacher Mindfulness. To address Research Question 2, teacher mindfulness data were collected using the MTS (Frank et al., 2016). The MTS measures teacher mindfulness in two domains, intrapersonal (9 items) and interpersonal (5 items) and consists of 14 Likert-type items on a scale of *never true* (1) *to always true* (5). Higher scores indicate higher levels of mindfulness.

Qualitative Data

Qualitative data consisted of written session reflections and journal entries completed during the student teaching semester. These data were used to gain an understanding of whether and how the strategies were being used during the student teaching placements and to determine the role the received training may have played in informing teacher efficacy and mindfulness. Awareness is necessary for both efficacy and mindfulness. Further, the training included content related to identifying emotions, causes of emotions, and selecting appropriate coping strategies when encountering stress. In this sense, the qualitative data inform both efficacy and mindfulness, thus

research questions one and two. During the third session participants completed the "Self-Assessing Social and Emotional Instruction and Competencies" tool designed to self-assess SEC and instructional practices (Yoder, 2014) and were asked to share their greatest strength and opportunity for improvement. Participants were asked to reflect on any opportunities or missed opportunities to implement the strategies learned in the session during their student teaching experience. They were also asked to consider their potential use of SEL and mindfulness strategies in their future classrooms, which contributed to our understanding of whether participants were internalizing strategies and their potential uses. Journal entries, previously described, were also collected at two points, one following each student teaching placement. All reflections and journal entries were voluntarily submitted through Google Forms.

Data Analysis
Researcher Positionality
Both authors are white females who have completed doctoral degrees in the field of Education. We have both been employed in P-12 settings. To address these potential biases, both authors coded the data separately and then compared interpretations and analyses.
Elements of Trustworthiness
To ensure trustworthiness of the qualitative data, Lincoln and Guba's (1986) four criteria (credibility, dependability, confirmability and transferability) were reviewed and employed. To establish credibility, the researchers confirmed their knowledge and skills to analyze the qualitative responses. Dependability of the data was reviewed because the participating students were mostly white females between the ages of 21 and 31, and the researchers would not infer that exact findings would be found with a more generalized sample of student teachers. However, the researchers measured coding accuracy and inter-rater reliability and created an audit trail to ensure the qualitative findings would be replicable with a similar group of student teachers. The qualitative data are compared and analyzed in conjunction with the quantitative data to support

confirmability. In addition, though the sample may not support broad transferability, the researchers did employ purposive sampling for the context of the study. The researchers independently coded the qualitative response data using open coding to identify segments of meaning and emergent patterns with the data. Following open coding, axial coding was used to identify themes. Following independent coding, the researchers met to compare patterns and themes for consensus among the researchers.

Results

Of the 35 participants invited to participate during the 2022-23 academic year, 18 completed both the pre- and post-questionnaire and were able to be matched for the quantitative analyses. Of those matched, all but two (89%) identified as female. Participant ages ranged from 21 to 31 with 13 candidates (72%) reporting ages 21-22 years. All participants reported some form of Christianity as their religion. All but five participants (72%) reported no formal training in contemplative practices. Of the five who had, three reported they had received training in prayer, one reported training in meditation, and one reported training in yoga. Contemplative practices have been associated with a variety of religious traditions and are used to cultivate self-awareness, personal well-being, and flourishing. Mindfulness is among the contemplative practices and has been associated with religion; however, mindfulness practices, in the context of the present study, are strategies that can be used to promote present moment, non-judgmental awareness for the purpose of reducing stress and managing oneself and promoting well-being. These practices are not associated with a particular religion; they would be most similar to those used in medicine, such as mindfulness-based stress reduction.

From the initial seminar to the post seminar, participants showed an increase in efficacy and mindfulness, overall and in each domain (intrapersonal and interpersonal mindfulness), with efficacy showing the greatest increase. Table 2 shows the descriptive statistics and reliability estimates for each variable.

TABLE 2
Teacher Self-Efficacy and Teacher Mindfulness Descriptive Statistics

Variable		Pre			Post		
	n	M	SD	a	M	SD	a
Overall TSES	18	6.71	1.09	.94	7.52	0.09	.96
Overall Teacher Mindfulness		3.8	0.54	.87	3.99	0.45	.81
Intrapersonal		3.6	0.59	.81	3.78	.54	.76
Interpersonal		4.16	0.59	.77	4.37	.42	.61

Note: All values rounded to the nearest hundredth.

In answering Research Question 1, a repeated measures t test was used to determine whether any significant changes in teacher efficacy had occurred during the intervention period. Results of the repeated measures t test indicate significant growth (α = .05) in teacher efficacy from the initial to final assessment: t (17) = 3.66, p < .00, Cohen's d = .81, Power = .93.

Repeated measures t tests were also used to address Research Question 2 regarding changes in teacher mindfulness during the intervention period. Results indicate no significant changes (α = .05) in mindfulness overall: t (17) = 2.08, p = .053, Cohen's d = .38, Power = .5; however, those changes were approaching significance for the two-tailed test. There were no significant changes in the mindfulness subcomponents, intrapersonal mindfulness (t [17] = 1.71, p = .11, Cohen's d = .32, Power = .37) or interpersonal mindfulness (t [17] = 1.6, p = .13, Cohen's d = .41, Power = .33) from pre- to post-assessment. It is notable that participants reported levels of mindfulness on the higher end, given a five-point scale, and in particular intrapersonal mindfulness, at the outset of the study which might indicate these participants already have high intrapersonal teacher mindfulness.

All analyses were completed using JMP software. Power analyses (n = 18) were completed post hoc by calculating the mean difference and comparing that mean difference to a hypothesized difference of zero.

Qualitative Findings
Session Reflection and Journal Responses

Session Reflections. Thirty-four participants submitted session reflection data during the third session. The first part of the reflection required participants to complete Part B of Yoder's (2014) "Self-Assessing Social and Emotional Instruction and Competencies" tool in paper and pencil format. Yoder's tool allows teachers to reflect on the components of SEC and SEL specific to teaching. The five components of SEC (self-awareness, self-management, other awareness, relationship skills, responsible decision-making) are included in this assessment. For our purposes, we aimed to improve teachers' SEC, namely awareness as it is considered requisite to all other SECs. Awareness has been identified as of particular importance to self-efficacy and is the foundation of mindfulness. Further, awareness is essential in order for one to draw on coping strategies if needed. In this way, completion of this measure informed our understanding of Research Questions 1 and 2. While participants completed all items, they were only asked to self-report their greatest strength and their greatest opportunity pertaining to their own social and emotional instruction and competencies. Self-awareness was identified by the majority as their greatest strength while self-management/emotions was identified as their greatest opportunity for professional

TABLE 3
Social and Emotional Competency Self-Assessment Strength and Opportunities Frequencies

SEC	Strength		Opportunity	
	f	*%*	*f*	*%*
Self-Awareness	22	64.7	1	2.9
Self-Management/Emotion Regulation	3	8.8	21	61.8
Social Awareness	4	11.8	6	17.6
Relationship Skills	11	32.4	2	5.9
Responsible Decision Making	2	5.9	9	26.5

Note: n=34; Six participants listed more than one strength and/or opportunity.

development. This indicates that while the majority of these pre-service teachers reported self-awareness, they did not perceive their ability to manage self and regulate their own emotions as a strength. These findings were consistent with our previous work (Cochran & Parker Peters, 2022). Frequencies and percentages for responses are shown in Table 3.

For the second part of the reflection, participants read the article "CHECKing in on Educator Well-being" (Cochran et al., 2022) and were asked to consider the relevance of any of the strategies to their own practice or personal life. Participants were also asked to consider how they might strengthen their opportunities. Additionally, participants reflected on any opportunities within their student teaching experiences to use mindfulness and SEC strategies and the result and/or to consider any missed opportunities and how those might be addressed differently if encountered again in the future. Following this discussion, participants were asked to respond to the prompt regarding their current or future use of mindfulness and SEL strategies via a Google Form. Within these data, the following themes were identified: Mindfulness and SEL Strategies and Emotions/Emotion Regulation.

Of the 34 participants, 32 indicated they are currently using or intend to use mindfulness and SEL strategies personally and/or in the classroom, with many of them specifically noting the benefits for self and/or students. For example, one participant stated, "I see myself using mindfulness/SEL everyday [*sic*] for my sake and the students [*sic*] sake." Participants connected mindfulness and SEL strategies as useful for creating a welcoming environment, promoting learning, and managing behavior. For example, one participant wrote, "I will absolutely use SEL to make the students feel welcomed and heard and promote relationships. Give them a place to be welcomed and to know that they can be themselves even when that included [sic] the bad days." Another shared:

SEL helps students to see that they are more than students, they are a human in society. When I use mindfulness or SEL, students will see that I care for them and am aware that it [*sic*] is more than academic learning but life skill.

It is evident in these responses that these pre-service teachers connect SEL and mindfulness as essential tools for creating a sense of belonging.

The most frequently identified mindfulness strategy among participants was breathing. This strategy was often connected with calming oneself or students down. For example, one participant shared, "I was angry and frustrated. But instead of yelling, I took a deep breath… (Seriously, I did. I actually took a deep breath before speaking)." This strategy was often connected with managing self and the classroom. Among SEL strategies, participants identified the use of morning meetings, check-ins, and components of CHECK as strategies they intended to use in the classroom.

A second theme was Emotions/Emotion Regulation. While there is some overlap among this theme and the previous, 13 participants explicitly stated the importance of emotions, recognizing them and knowing how to regulate them. As with the previous, Emotions and Emotion Regulation was seen as important for self and student. One participant wrote,

> I think when I'm teaching I can get down because I don't know how to get students to do the work that they just don't want to do. This can cause me stress because I start to doubt my abilities as their teacher. I think that I am very self-aware of my emotions which is helpful, but I need to use effective strategies of mindfulness in order to better manage myself and the students. I need to create plans and focus on what I can control, not what I can't.

This participant quote highlights an awareness of the importance of understanding emotions and how to regulate them for self and students. Additionally, the quote is particularly illustrative of the inner workings of pre-service teachers, namely stress and self-doubt often associated with classroom management and the awareness of effective coping strategies to mitigate and manage that stress and self-doubt. Knowing a plan and recognizing what one can and cannot control are two components of CHECK, a SEL tool introduced in the seminars. Knowing a plan and recognizing what is within one's control

along with reflection were noted by several participants in their responses. Participants also identified morning meetings and check-in as useful for growing in identifying and expressing emotions.

Journal Responses. Only seven participants contributed to the journal response data; however, those who responded described actively using strategies to mitigate the stressors encountered. This is important, as in our initial work (Cochran & Parker Peters, 2023), the self-care plan and in-the-moment coping strategies were introduced later in the seminar. In that work, we found that pre-service teachers were not using coping strategies to mitigate stress in the first placement, namely with the primary source of identified stress, the edTPA licensure exam. In the present study, edTPA was only mentioned as a source of stress by three participants. Previously, this had been an unexpected and dominant theme. In the second placement, participants continued to use the strategies introduced; however, there was a shift from a reactive use to a preventative approach. This suggests that these pre-service teachers have grown in their awareness not only of active ways to cope with stress, but also in ways to mitigate or prevent the personal stresses related to teaching.

Also captured within these data were the range of stressors and emotionally demanding situations pre-service teachers encounter. These participants identified typical stressors related to planning and the execution of lessons, behavior management, and coping with suicide and the death of students. In reflecting, one participant noted, "This incident made me realize how much you need to pay attention to the students, not just academically." Further, this participant wrote:

> I have experienced a lot of stressors, but I have been more mindful of how I am going to take care of myself…I think SEL has become very important in my life as a new teacher for the needs of my students and my own.

This participant response perfectly encapsulates the importance of equipping pre-service teachers with more than content knowledge and pedagogy.

Discussion

Through this study, the researchers aimed to further our previous work (Cochran & Parker Peters, 2022, 2023) and determine the effects of brief mindfulness and SEL instruction embedded within the context of student teaching seminars on pre-service teacher efficacy and mindfulness. Within the present study, CHECK, a tool for in-the-moment teacher self-evaluation was incorporated into the session content. It was our hope that this tool would help pre-service teachers recall some of the strategies they had been introduced to in the session and to reappraise their thinking in-the-moment. The ability to reassess perspective has been shown to be an effective practice for coping with stress. Through the training, it was our intent to increase pre-service teacher awareness, through intentional instruction regarding the brain, its functioning, and the role of emotions in teaching and learning. Another goal was to equip pre-service teachers with practical mindfulness and SEL strategies to promote their own well-being.

Consistent with our hypothesis, quantitative findings indicate significant increases in teacher efficacy from the initial to final measure during the single semester student teaching seminar. This finding is consistent with our previous work (Cochran & Parker Peters, 2022, 2023) and that of others who also have found significant increases in efficacy with brief mindfulness instruction embedded in the final semester (Solar, 2019). Qualitative findings demonstrate that the pre-service teachers within this study viewed SEL and mindfulness strategies as important for managing their personal well-being and that of their students and classrooms. Further, teachers identified self-awareness as their greatest strength when assessing their own social and emotional competencies. Self-awareness is an essential component of teacher efficacy and is important when choosing appropriate coping strategies for addressing stress.

As Bandura (1997) noted, teachers with higher levels of efficacy are more likely to draw on positive coping strategies when encountering stress. The pre-service teachers in our study identified the need to understand their own emotions as well as those of their students. Further, they identified the need to

access the strategies they were provided during times of stress, to promote relationships, and a positive climate for learning. This suggests that these teachers are entering the classroom with a clearer understanding of the emotional dynamics of the classroom, how those dynamics impact learning and the classroom environment, and how to effectively manage themselves and their students during times of elevated stress. This is extremely important considering the highly emotional and stressful context of teaching. Further, Wilson and Conyers (2020) identified the brain-body system and learning as one of the Big Five ideas for connecting MBES to classroom practice and several of the tenants of MBES address the role of emotions, stress, and other aspects of affective dimensions as essential teacher knowledge (Tokuhama-Espinosa, 2018). Our work shows that even with brief instruction, elements of MBES can be connected to the classroom, similar to the findings of Howard-Jones et al. (2020) who showed brief instruction in SoLD was effective in changing teacher thinking about teaching practices. The pre-service teachers in the present study provided examples of how they were currently using or intended to use mindfulness and SEL strategies personally and in practice.

In contrast with our hypothesis, no significant changes were observed in teacher mindfulness, though slight increases did occur in the intrapersonal and interpersonal components. This lack of significance, in part, could be due to the elevated reported mindfulness observed at the initial assessment, perhaps leaving little room for any significant increases to occur particularly given the small sample size. The context of this study is a faith-based university that intentionally emphasizes contemplative practices such as prayer and reflection throughout all instruction. Further, most of the participants in this study identified with the Christian faith in which prayer, a contemplative practice, is a part. As a result, it is possible that this content impacted the level of mindfulness these pre-service teachers initially expressed.

Limitations

Though our study reveals the relative importance of teacher

mindfulness and SEC, the findings are only representative from a sample of student teachers within the context of a faith-based, liberal arts educator preparation program. This faith-based orientation may limit the generalizability of the findings in that participants may have a predilection for prayer, meditation, or other faith-based contemplative practices and may differ substantially from others who might not have such a disposition. While participants were asked about their previous participation in contemplative practices, only five of the 35 participants in the quantitative portion of the study indicated previous training in contemplative practices of any kind. These were not used as exclusionary criteria within the present study due in part to the small sample size and because the previous training was identified as in areas such as yoga, meditation, and prayer.

Our findings are not generalizable to diverse populations since the current sample is limited by ethnicity, gender, and age representation. Most of our participants were White females in their early twenties. Findings should also be interpreted considering the response rate; specifically, only 20% of participants submitted their journal responses, which limits generalizability.

Though we were able to come to consensus when coding and defining qualitative themes, there is a level of subjectivity inherent in qualitative research that may have been influenced by our individual biases. The journal and reflection data provided by open-ended responses were also impacted by personal biases and interpretations of the participants. Further, as with all self-report data, there is the possibility that social desirability bias influenced participant responses, particularly on the teacher efficacy and teacher mindfulness measures. The use of mindfulness and SEL strategies was not monitored outside of the seminar sessions by the researchers, though participant responses indicate their use. Finally, the study did not include a control group. We cannot be certain the increase in teacher efficacy was due to the training versus the normal improvement that is observed at the end of the student teaching semester.

Recommendations for Research and Practice

Though the classroom will continue to provide a heightened

level of stressors, educator preparation programs can better support new teachers by equipping them with social-emotional competencies that will support their personal and classroom well-being and continued success. As noted, the field of education continues to experience shortages, with early attrition and burnout cited as the top problem facing teachers today (NooNoo, 2022). Knowing that burnout often occurs as a result of extreme emotional exhaustion (Madigan & Kim, 2021), it is important and promising to see positive findings among student teachers who participated in a limited amount of SEL training. In our results, we found that student teachers who were equipped with SEL strategies were able to share how they were implementing learned strategies for self and students in the context of classroom stressors. From the first to the final seminar session, participating student teachers showed an increase in efficacy and mindfulness (though not significant for mindfulness), with efficacy showing the greatest increase. In their final student teaching placements, we observed a theme of student teachers reporting their proactive, preventative use of SEL strategies. With a small investment of seminar time dedicated to supporting SEC and mindfulness among student teachers, impactful content and practices were evident in participant responses. Educator preparation programs will not cease implementing new changes due to policy or research; as a part of continuous improvement and outcomes for candidates, preparation programs are challenged to make room for essential SEL content and strategies that will support new teachers and their students to thrive academically and beyond.

With a continued emphasis on the importance of preparing the whole child, perhaps it will be less of a leap to also consider preparing the whole educator. Student teacher participants noted personal growth opportunities in the areas of self-management and emotional regulation. After engaging in sessions to learn strategies to support personal SEC, student teachers recognized emotional regulation and self-management as areas that could be improved. For certain, these are important competencies for classroom leaders who naturally encounter countless stressors, frustrations, and emotions on a daily basis

by the nature of forming relationships with others, setting high expectations, and managing student behavior and learning–the tasks of the job. When educators enter the classroom, prepared to manage the inevitable stressors that present daily, they are also entering with the tools to support retention. When teachers remain in the profession of their training because they have the academic and social-emotional competencies to do so, they are ready to support the students who are also in need of social-emotional competencies to promote their learning and growth.

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