







Pre-service Teachers' Preparedness and Perceptions: Active Shooter Response Training

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Abstract: *The present pilot study explores pre-service teachers' experiences related to active shooter preparedness and perceptions of preparedness of active shooter training and drills. A survey was conducted among pre-service teachers (N = 97) regarding (a) previous experiences with active shooter response drills, (b) perceptions of preparedness for active shooter response training, and (c) preparedness to address the psychological needs of future K-12 students after an active shooter response drill. The participants who were full time interns in schools felt underprepared to navigate shooter drills in a school setting and desired additional training at the pre-service level than they currently received. Furthermore, these pre-service teachers desired preparation that transcends safety protocol to encompass the physical and mental health needs of children.*

Keywords: active shooter drills, school safety, pre-service teachers, teacher education

The Federal Bureau of Investigation (n.d.) defines an active shooter as “an individual who is actively engaged in killing or attempting to kill people in a populated area” (para. 1). Active shooter incidents at schools such as Robb Elementary School, Sandy Hook Elementary, and Marjory Stoneman Douglas High School, hereinafter referred to as *school shootings*, have heightened awareness of such threats in K-12 settings (Rocque, 2012; Schildkraut et al., 2018; Sung Hong & Espelage, 2020). In response, legislation at the federal and state levels has encouraged schools and communities to implement regular active shooter training in partnership with local law enforcement for the prevention-of and response-to school shootings (Devos et al.,

2018; Rygg, 2015; United States Department of Education, Office of Elementary and Secondary Education, and Office of Safe and Healthy Students, 2013).

Despite heightened awareness regarding school shootings, some experts assert that school shootings remain a relatively rare occurrence. Less than 1% of gun-related deaths occur on school grounds (Everytown, 2020). Nevertheless, measures to prepare for the possibility of school shootings have steadily increased in the last two decades (Diliberti et al., 2019; King & Bracy, 2019). Schools and districts design and execute active shooter response drills based on district needs, and these drills range from hyper-realistic methods (e.g., use of guns to fire blank ammunition, fake blood to simulate injury; Rygg, 2015) to more passive approaches (e.g., viewing videos or practicing lockdowns).

While there is little empirical evidence to support the effectiveness of the various methods used in active shooter response drills, there *is* evidence to suggest that certain practices can lead to low perceptions of safety among students and faculty (King & Bracy, 2019), which can have a negative impact on school climate, a metric that studies have correlated with declines in student achievement (Cornell & Mayer, 2010). Furthermore, some experts suggest that certain practices may have serious mental health implications (Erbacher & Poland, 2019). Conversely, some school leaders and law enforcement personnel argue that realistic drill elements are necessary to adequately prepare students and staff for potential emergencies (Herron, 2019). Thus, pre-service teachers who enter the teaching profession may confront a wide range of approaches to active shooter preparation and drills, with minimal preparation for how to effectively support students before, during, and after these drills. Prior research regarding pre-service teachers' perceptions and preparedness for active shooter drills are limited (Kandakai & King, 2002). Thus, this study explores pre-service teachers': (a) perceptions regarding differing active shooter drills and approaches, and (b) preparedness to support future students.

ACTIVE SHOOTER RESPONSE DRILLS: SAFETY VERSUS MENTAL HEALTH

Scholars suggest that realistic active shooter response drills, particularly those involving props and role-play, may traumatize participating students (Erbacher & Poland, 2019; Peterson et al., 2015). For example, one Indiana school conducted an active shooter response drill that involved a pellet gun that reportedly injured participants; in response, the Indiana Teachers Association advocated for banning projectiles during drills (Erbacher & Poland, 2019). In an examination of youth's ($N = 815$) perceptions of active shooter drills, Moore-Petinak et al. (2020) found that most participants (60%) experienced lower levels of safety, as well as higher levels of fear and helplessness, following their participation in active shooter drills at school. During realistic active shooter drills, students with trauma histories are particularly vulnerable because early trauma disrupts neurodevelopment and the stress response system (e.g., autonomic nervous system; Luby et al., 2019). Following highly stressful events (such as realistic drills), children with trauma histories may remain hypervigilant and struggle to experience feelings of safety long after the drill is completed (Jimenez et al., 2021). Further, participation in realistic drills may negatively affect students' abilities to appropriately process future threats (Erbacher & Poland, 2019). Other researchers suggest that high-stress experiences will prevent students from taking the drills seriously or increase levels of fear and anxiety as drills expose their school's unpreparedness (Rygg, 2015).

Despite findings of the emotional and psychological consequences of certain active shooter response drill practices, reluctance to drop the measures remains for some. Rygg (2015) stated that some schools have largely maintained realistic elements in active shooter response drills because

their school leadership believes that high-stress tests more accurately reveal the flaws in an emergency response. This logic mirrors that of law enforcement agencies and other first-responders who rely on robust simulations in their own training. Although Erbacher and Poland (2019) cautioned the impact of active shooter response drills, they conceded that drills are particularly useful for first-responder practice. Nevertheless, they recommend that “full-scale” simulations (those involving props and role play) utilize students solely as opt-in volunteers for the benefit of first responders and that full transparency be maintained before, during and after the event (Erbacher & Poland, 2019).

Other researchers have found that drills are not the only concern. One such study explored the impact of active shooter response training videos in post-secondary environments (Peterson et al., 2015). The study distributed an online survey to community college students ($N = 197$) upon assigning them to watch one of two active shooter response training videos. The researchers concluded that even training videos can incite fear among students and skew perceptions of the likelihood that an active shooting will occur. In the same year, a report published in the *Children's Legal Rights Journal* posited that preannounced drills lacking traumatic stimuli can lead to increased preparedness *without* heightened anxiety or perceptions of school being unsafe (Rygg, 2015). This aligns with the National Association of School Psychologists' (NASP, 2021) position that schools conduct *trauma-informed* drills that involve psychological support, particularly for students with preexisting traumas. Clearly, there is no consensus regarding the best way to prepare pre-service teachers for active shooter events.

DIFFERING VIEWPOINTS

Elementary, middle, and high schools in the United States have conducted emergency drills (e.g. fires and extreme weather) for several decades to train and prepare school communities. In the 1950's, schools held nuclear bomb drills in which students hid beneath or within solid structures. Since the onset of publicized school shootings, namely that of Columbine High School in 1999, active shooter response drills have joined the repertoire of school emergency preparedness training (King & Bracy, 2019; Price & Khubchandani, 2019). However, definitions and practices of active shooter drill or simulations are not standardized and vary from state to state. The Sandy Hook Promise Foundation (2022) defined active shooter *drills* as “practicing safe evacuation, sheltering in place, and responding to instruction from trusted adults” (p. 2). Active shooter *simulations* involve hyper-realistic elements such as fake gunfire, simulated gunshot wounds, or aggressive actors posing as school shooters (Schonfeld et al., 2020).

In some states, the range of school protection moves beyond only conducting active shooter drills and simulations. Requiring the placement of armed guards, installation of metal detectors, and permission for teachers to carry firearms are some of the means that have been adopted by states, districts, and school to augment school security.

PRE-SERVICE TEACHER PREPAREDNESS

School shootings have increased and graduates entering the teaching profession do so at a time of unprecedented media coverage surrounding school shootings and heightened concerns related to school safety (Peterson et al., 2015; Schildkraut et al., 2018; Sung Hong & Espelage, 2020). Prior research related to preservice teachers and active shooters have focused on (a) perceptions about school shootings, (b) protecting students, and (c) university preparedness leading to efficacy. For example, Wender & DeMille (2019) discussed pre-service teachers' perceptions regarding the protection of students from harm around the time of the shooting at

Marjory Stoneman Douglas High School in Parkland, Florida. Although based in another part of the United States, one teacher candidate journaled increased sentiments of both duty and apprehension. Conversely, she expressed feelings of powerlessness and unpreparedness that she attributed to the lack of college training regarding school safety. Kandakai and King (2002) surveyed more than 800 pre-service teachers from six universities and found they felt they were inadequately prepared by their universities to address school violence.

PURPOSE OF THE STUDY

The purpose of the study included: (a) investigating pre-service teachers' perceptions regarding active shooter response drills and (b) examining how their perceptions vary by age, political affiliation, and prior exposures to active shooter response training elements. The study sought to capture pre-service teachers' perceived preparedness to address the psychological and emotional needs of students surrounding active shooter response training. The following research questions guided this investigation:

Research Question 1: What are pre-service teachers' perceived preparedness levels regarding their abilities to address students' psychological and emotional needs before, during, and after active shooter training?

Research Question 2: Are there relationships between pre-service teachers' characteristics (e.g., age, political affiliation) and perceptions of active shooter response drills?

METHODOLOGY

Because both primary research questions aim to capture pre-service teachers' perceptions, the research team determined that a special purpose survey was an appropriate form of investigation (Fowler, 2013).

PARTICIPANTS

Applying a convenience sampling procedure, an online survey was distributed to 106 students enrolled in a college of education at a public university in the Southeast United States. To be eligible to take the survey, participants were required to (a) be 18 years or older, (b) enrolled in an undergraduate education degree program, and (c) indicate intention to enter the K-12 teaching profession upon graduation. Eligibility was verified through explicit questioning at the start of the survey. Of the 106 responses collected, 97 participants (92% female; 8% male) completed the survey and met all three eligibility requirements. Sample participants were recruited from two teacher education courses taught by professors with whom members of the research team had professional relationships. For the university in question, both courses are required for students enrolled in education degree programs. Approximately 90% of responses were collected from students enrolled in a capstone education course and in their final internship before graduation to the teaching profession. As such, participants from the capstone course were already hired to work in classrooms upon graduation. The remaining 10% of participants were recruited from a TESOL course that included pre-service teachers at varied stages of their training. Demographics for the participants varied only by age and political affiliation (See Table 1).

Table 1
Participant Demographics

| | | <i>n</i> | % |
|------------------------|-------------|----------|--------|
| Gender | Men | 8 | 8% |
| | Women | 89 | 92% |
| Age | 18-24 | 69 | 71.1% |
| | 25-34 | 20 | 20.6% |
| | 35-64 | 8 | 8.25% |
| Political Party | Democratic | 47 | 48.4% |
| | Republican | 30 | 30.93% |
| | Independent | 17 | 17.53% |
| | None | 3 | 3.09% |

THE SURVEY

After reviewing relevant literature about safety drills, pre-service education, school safety, and school shooters, a survey was designed to measure pre-service educators' perceptions of school safety drills. A bank of potential questions were developed from the review of literature. The authors, based on their expertise and experience in K-12 and in pre-service education, chose the final questions. Experts ($n = 6$) in the field (pre-service and K-12 educators) reviewed the final questions prior to the survey being deployed. Relevant questions were organized into three distinct parts: (a) demographics, (b) past experiences, and (c) content questions. Past experiences questions surveyed prior experiences with active shooter response training as a student, as an educator or school staff member, or as an employee in a non-school setting. Furthermore, participants were asked to characterize specific training elements experienced (e.g., training video, simulated gunfire, or lockdown). Finally, the content section consisted of nine content questions with (a) five questions about preparedness to conduct active shooter response drills, and (b) four questions about perceptions of specific active shooter response drill elements. The online survey was deployed through Qualtrics. The link to the survey can be found here: <https://tinyurl.com/yc7wy554>.

PROCEDURES

After developing the survey and seeking institutional review board approval #01629, a formal recruitment email was sent to the professors of the two courses from which participants were recruited; the survey was administered at the discretion of each professor.

DATA ANALYSIS

Survey responses were analyzed using the Statistical Package for the Social Sciences (SPSS) software version 26. Descriptive statistics were calculated for demographics and research question one and part of research question two. Inferential statistics included a one-way ANOVA and the Kruskal-Wallis H test to determine significant differences in perception between groups. The one-way ANOVA was deployed in instances where the dependent variable was measured on a categorical scale (i.e., Yes/No), and the Kruskal-Wallis H test was used in instances where the dependent variable was measured on an ordinal scale (i.e., Likert data).

RESULTS

PRIOR EXPERIENCES

The pre-service teachers were asked to share their prior experiences with active shooter response training (see Table 2). First, we asked respondents to indicate elements of active shooting drills that they experienced as students (i.e., when they were in the K-12 system). When asked to identify which training elements they had been exposed to as students, 44 (91.7%) indicated lockdown procedures in which they had to hide, 17 (35.4%) indicated training videos, and 14 (29.2%) were taught with mnemonic devices (e.g., run, hide, fight). Only two participants (4.2%) experienced drills that involved simulated gunfire, one (2%) of which also experienced roleplay that simulated both panic and injury. Ten participants (20.8%) indicated that their training was followed by a debriefing exercise in which participants could process their emotions considering the experience. Both individuals who had experienced simulation indicated that they had participated in a debriefing.

Table 2

Frequencies & percents: Past experiences with active shooter response drills

| Question | Yes | No |
|--|-------------------------|-------------------------|
| Have you ever experienced an active shooter response drill as a student? | <i>n</i> = 48, 49.5% | <i>n</i> = 49, 50.5% |
| Have you ever experienced an active shooter response drill as an educator or other staff member in a school setting? | <i>n</i> = 71, 73.2% | <i>n</i> = 26, 26.8% |
| Have you ever experienced an active shooter response drill as an employee in a non-school setting? | <i>n</i> = 11, 11.3% | <i>n</i> = 86, 88.7% |

Next, we examined pre-service teachers' experiences with active shooting drills as educators. When asked to identify which instructional methods they experienced as educators in the active shooter response drills, 67 participants (94.4%) indicated lockdown procedures, 31 (43.7%) indicated training videos, and 14 (19.7) reported the use of a mnemonic device. Only four participants (5.6%) experienced drills that involved simulated gunfire, two of which experienced simulations that involved roleplay to simulate panic. A total of 11 (15.5%) participants indicated that their active shooter response training was followed by a debriefing exercise; however, none who experienced drills involving simulated gunfire received the debriefing.

PREPAREDNESS

By answering a series of yes and no questions, the participants indicated their perceived levels of preparedness and if they were ready to support their future students to cope with active shooter training (see Table 3). Most of the participants 88% saw a need to receive active shooter response training in the pre-service education curriculum. Yet less than 20% felt they received this training in their undergraduate program and still fewer 14% felt that they had received training to support the emotional well-being of their students after an active shooter drill.

Table 3
Perceived Preparedness for Active Shooter Response

| Question | Yes | No |
|--|--------------------------|--------------------------|
| Do you believe you have been adequately trained in your coursework to have a discussion with your future students regarding fears and concerns about school shootings? | <i>n</i> = 38 (39.2%) | <i>n</i> = 59 (60.8%) |
| Have you received any training specific to the psychological well-being of students before, during, or after an active shooter response drill? | <i>n</i> = 14 (14.4%) | <i>n</i> = 83 (85.6%) |
| Do you expect to receive sufficient active shooter response training at your eventual school of employment? | <i>n</i> = 82 (84.5%) | <i>n</i> = 15 (15.5%) |
| Has your undergraduate coursework involved active shooter preparation of any kind? | <i>n</i> = 19 (19.6%) | <i>n</i> = 78 (80.4%) |
| Do you believe it is necessary to incorporate active shooter response training related to K-12 education into your undergraduate program? | <i>n</i> = 86 (88.7%) | <i>n</i> = 11 (11.3%) |

Of those who indicated they received training in their pre-service teacher education curriculum (*n* = 14; 74%), the context of the instruction was provided (see Table 4). Most indicated that their training took place through their internship (*n* = 7; 50%). The classroom (*n* = 4; 29%) and context not described (*n* = 3; 21%), were the other means for receiving training.

Table 4
Context for Active Shooter Response Training during Teacher Preparation

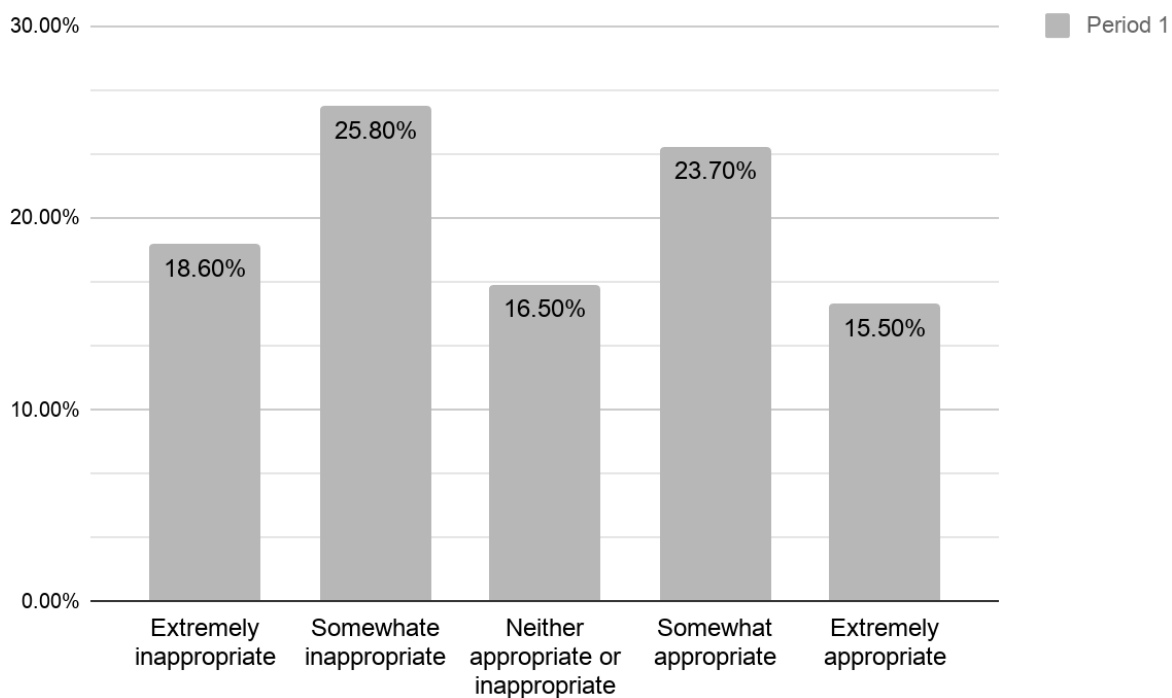
| Context | Count | Direct Responses from Participants |
|----------------------|-------|--|
| Classroom | 4 | <ul style="list-style-type: none"> • “Videos and online modules about active shooters and how to handle the situation.” • “A couple of my professors took time outside of our subject area instruction to share safety tips and procedures with us. Very little was done to teach it within a course though.” • “In many of my classes my professors have brought it up in different ways.” |
| Internship | 7 | <ul style="list-style-type: none"> • “Watched a video through internship” • “We did drills in my internship placements.” • “We have discussed ways to tell our students we are preparing, as well as how to prepare our classrooms to be set up to respond quickly for an active shooter.” • “Training during internship.” • “In my internship I had to do training and many, many drills.” • “The usual drills about what to do, such as hiding and finding the safest spot in the room.” • “They have drills throughout the year to prepare them where to go and how to respond.” |
| Context not Provided | 3 | <ul style="list-style-type: none"> • “I have watched videos and had discussions.” • “Through brief discussions” • “We spoke about the mental health aspect.” |

PERCEPTIONS OF DRILLS

Responses indicated that although most participants perceive active shooter drills as effective, there was less consensus regarding the appropriateness of more realistic drills or potential negative consequences (see Figure 1). Most participants ($n = 82$, 84.5%) responded yes when asked whether they believe active shooter response drills are an effective way to keep schools safe; however, there was less consensus regarding the appropriateness of realistic/sensorial training elements and the potential for negative consequences. Further analysis by group characteristics were conducted to better understand the results of the use of simulated gunfire during active shooter response drills. A one-way ANOVA revealed no significant difference in opinion between the different age groups, $F(2,94) = 1.207$, $p = 0.304$. Likewise, there was no statistically significant difference in opinion between the different political party affiliations, $F(3,93) = 0.581$, $p = 0.629$. When asked to rate the level of appropriateness of simulated gunfire during active shooter response drills, participants' beliefs were split among those who expressed a non-neutral position.

Figure 1

Bar graph: Perceptions of simulated gunfire measured on a Likert Scale



To better understand differences by group regarding the use of simulated gunfire during active shooter response drills, a Kruskal-Wallis H test showed there was no statistically significant difference in opinion between the different age groups, $\chi^2(2) = 5.575$, $p = 0.062$. Likewise, there was no statistically significant difference in opinion between the different political party affiliations, $\chi^2(3) = 3.225$, $p = 0.358$. Regarding the impact of active shooter response training, $n = 87$ (89.7%) participants believed there can be an impact on students' psychological well-being, and $n = 57$ (58.8%) believed there can be an impact on students' academic performance.

DISCUSSION

The present study contributes to what is known about school shooting training efforts and pre-service educators as the prevalence of school shootings increases. Specifically, the findings from the study expand knowledge about pre-service teachers' perceptions of readiness to support students during active shooter training. The findings indicated that pre-service teachers revealed a perceived lack of training regarding active shooter response training during pre-service teacher education, yet they expressed a general desire to receive such training.

Likewise, pre-service teachers generally felt underprepared to address the psychological and emotional needs of students related to active shooter response training, which is consistent with the findings of similar studies (Kandakai & King, 2002; Wender & DeMille, 2019). Knowledge of how to act in the case of an active shooter crisis does not ascertain the way someone may act in future. Rather, self-efficacy, control of thinking, and self-regulation are more indicative of practice (Gibbs, 2003). The self-efficacy of participants in this study to perform in the case of a school shooting was undermined by their lack of training. Therefore, an implication for teacher education programs would be to include practices and training to improve pre-service teachers' efficacy to perform in a school shooting crisis.

Although most participants had received or participated in active shooter response training to some degree, as students themselves and/or at places of employment, most had not received said training as part of their teacher education coursework. More specifically, they had not received training specific to the psychological and emotional implications of active shooter response drills and related exercises. Most participants reported that they received no training about how to manage discussions with students regarding fears associated with active shooter response drills, which aligns with the lack of mental health literacy among pre-service teachers suggested by the literature (Wei et al., 2020; Carr et al., 2018). Efforts to develop self-efficacy among pre-service teachers in the areas of school safety and mental health and wellness support could increase the likelihood that their eventual students receive adequate mental health support considering regular exposure to potentially traumatic stimuli. The evidence provides an implication for teacher education to add instruction on active shooter response training and how to address the training with K-12 students.

Responses regarding the appropriateness of simulated gunfire during active shooter response training were disparate and unclear. Some participants considered simulated gunfire to be either somewhat or extremely inappropriate, with an almost equal number indicating the converse. More research is needed to better understand the affordances of drill elements and for that information to be translated into practice (NASP, 2021). The non-statistically significant relationship between the demographics of age and political affiliation and pre-service teachers' perceptions of the level of appropriateness for simulated gunfire were novel to this study. Perhaps, this was because few participants had not personally experienced simulated gunfire or other sensorial elements during an active shooter drill.

Although most participants believed that active shooter response training can have an impact on psychological well-being, less than half believed it can have an impact on academic performance. In general, there are established links between psychological well-being and academic performance (Arslan & Allen, 2022; Wegmann et al., 2017; Murphy et al., 2015). Tangentially, this finding spotlight concerns for broadening understanding of pre-service teachers' mental health literacy training.

Bedland and Kim (2016) noted that after school shootings there was a decrease in students' achievement score. However, it is unclear if there are differences or duration of the difference in achievement after an active shooter response drill. More research is needed to address how drills affect students' performance (academic and extra-curricular) as well as their mental health and well-being.

IMPLICATIONS

As pre-service teachers may bring existing schema regarding students' reactions and processing of active shooter response drills, curriculum integration might be best to occur near the end of the pre-service training programs. Binder and colleagues (2015) determined a significant academic benefit of pre-service internships. Affordances included opportunities for students to process and reflect on active shooter response training experienced. Therefore, when pre-service teachers experience an active shooter drill during internship, debriefing with a faculty supervisor would enhance the pre-service teachers' knowledge and capacity for supporting students in their future teaching assignments.

Participants indicated a desire to receive additional pre-service training related to active shooters, so pre-service teacher education programs could systematically address factors related to active shooter training including but not limited to: (a) frequency (b) rationale, (c) the use props, (d) mental health literacy and (e) the need for communication with all educational stakeholders (e.g., parents, teachers, and staff) [NASP, 2021]. Further discussions of best practices and alternative methods to practice school safety drills in pre-service education could provide opportunities for pre-service teachers to ask questions and reflect in a safe environment.

LIMITATIONS

One limitation of the study was the instrument itself. Intended to inform future qualitative investigations, the survey provided a glimpse into the perceptions of pre-service teachers at the university in question; however, the survey was not designed as an externally validated instrument. Another limitation was the sample itself. Participants may not be a representative sample of pre-service teachers in the United States, particularly because all were recruited from the same pre-service program at a single university. However, students at this University were from different parts of the United States. A final limitation is the responses were representative of one state's pre-service curriculum. Other states results may be different based on their curriculum.

CONCLUSION

A survey of pre-service teachers' perceptions of active shooter training provides foundational evidence of the need for more collegiate training in pre-service education. Due to the evidence of certain active shooter training practices leading to low perceptions of school safety, declines in student achievement, and serious mental health concerns, it was imperative to consider pre-service teachers' perceptions regarding active shooter response training and their preparedness to facilitate such training. Despite a wide spread of opinions regarding the appropriateness of certain drill elements and the overall impact of active shooter response training, the pre-service teachers included in this study desired more training than they currently receive. More specifically, they seek preparation that transcends safety protocol to encompass the physical and mental health needs of children.

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