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DEVELOPMENT AND CONTENT VALIDATION OF THE STUDENT PERCEPTION OF SCHOOL SAFETY (SPSS) SCALE: AN EXPERT EVALUATION OF ITEM RELEVANCE RATINGS BY LAW ENFORCEMENT AND SCHOOL GUARDIANS

by

DIANA DAWN SCOTT
M.S. University of Central Florida, 2014

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Learning Sciences & Educational Research
in the College of Community Innovation and Education
at the University of Central Florida
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Major Professor: Stephen Sivo

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ABSTRACT

There is “no one-size-fits-all solution” to school safety (Cybersecurity & Infrastructure Security Agency, 2022. p. 7). The growing number of school shootings and health problems at schools raise serious questions about the dimensions of school safety that should be measured. Prior extensive surveys measuring elementary student's views of safety in relation to relevant safety issues have not been conducted. There were four objectives for this study: 1) to investigate relevant dimensions of school safety and understand safety procedures that are currently in use; 2) to formulate and organize questions that would be approved to gauge elementary students’ perceptions about school safety; 3) to assess validity and reliability of expert’s perceived school safety relevancy scores of the SPSS Scale’s items and theoretical dimensions of school safety; and 4) to determine whether school guardians and law enforcement share the same concerns about school safety. A preliminary analysis using Q-Method was run which led to approximately 27% reduction of items; differences in officer and teacher ratings were found. The primary task called for law enforcement and school guardians’ expert judgement on relevancy and suitability of the SPSS Scale. A series of tests were performed to examine the scores to assess the validity and reliability of the safety expert’s ratings. A Kruskal-Wallis H test was used to evaluate target hardening to ascertain whether the safety experts have similar concerns regarding school safety. Findings concluded that there were no statistically significant differences among the experts’ ratings of the items; they share the same view. Strong reliability was shown in the close correlation between the expert's judgments of the scale items and the theoretical constructs of school safety. The SPSS Scale's

applicability to comprehensively evaluate school safety was raised by agreement over themes discovered on the relevant but unreported school safety issues.

I dedicate my work to God, my family, friends, and mentors.

I've discovered that a happy life is the result of having courage, patience, perseverance, and love.

To my husband, Eric Scott, thank you for all your loving support; listening to me read repeatedly and letting me drill you about your military knowledge of guns and weapons. Truitt, for reading the many very lengthy SPSS Scales versions. You helped me create a "kid-friendly" scale. My daughter, Ashley, and my son, Zachary, you are my heart! The reason I began and completed this journey. Jack, and Bonne Scott, you are always cheering me on with your positive energy and support. To my grands - Aksel Truitt Kai, Aila Lovella Reign, Willow Anya Faye, and Freya Ryn, I love you very much. I hope that the completion of this "BIG BOOK" shows you that difficult challenges can be overcome if you are surrounded by love.

To mom and dad, Ollie Jean and Harry Elsworth Fulton III, I can still hear you ask, "When are you going to finish this stuff? Shouldn't you be done already?" Yes, Daddy, I finally finished… Dr. Robert L. Porter (SR), my mentor and kindred spirit. Kindred friendships are one of God's greatest blessings. I am thankful you were in my life for a season. Nothing, not even a PhD degree, should come between you and spending quality time with the ones you love.

Never Forgotten

To the hundreds of students, instructors, and school personnel who lost their lives at school. I kept you in my heart as I composed my dissertation. To me, you are more than simply a statistic. You will not be forgotten.

Anatomy of a PhD Candidate During Defense

- Tears from reading about so many school-related tragedies.
- Hair washed with dry shampoo for a "quick fix."
- Chai with extra shot of expresso – just mixing it up…
- Bags under eyes from sleep deprivation.
- Aching muscles from oversized books.
- Split ends from neglect.
- Wobbly wheels and a bag that has a mind of its own.
- Broken leg from not following safety rules.

ACKNOWLEDGMENTS

I want to express my gratitude to my chair and professor, Dr. Stephen Sivo, for helping me to pursue my research interest in school safety through psychometric research; those weekly calls were encouraging.

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I especially appreciate Dr. Clark's individual support provided through the Castle Lab (fun and educational). Thank you to Dr. Theodorea Berry, who inspired me, strengthened my sense of confidence, and who genuinely believes in me.

I am appreciative of the county's municipal police and agencies, the School Guardians, the Orange County Sheriff’s Office Crime Analysis team, and the Lake County Sheriff's Office, especially Lt. O'Brien. Without your support and involvement of your team, I could not have accomplished this objective.

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LIST OF TERMS

The following terms and phrases will be used in this study and are operationally defined below:

Active shooter. "An individual (or individuals) actively engaged in killing or attempting to kill people in a populated area" (FBI Report, 2020) this does not include violence of gangs and "accidental discharges of a gun" (FBI Report, 2020).

At School. "The school building, on school property, on a school bus, and going to and from school" (The National Crime Victimization Survey, NCVS).

CDC safe distance. "To maintain a physical distance of at least 3-feet" (as of August 5, 2021).

Hazards. "Threats to humans and what they value" (Slovic, Fischhoff, & Lichtenstein, 1985, p. 91).

Lineage. A lineage is a group of closely related viruses with a common ancestor. SARS-CoV2 has many lineages; all cause COVID-19 (CDC, 2022).

Mass shooting. A mass shooting is "an incident in which 4 or more people, other than the perpetrator(s), are unlawfully killed with a firearm in a single, continuous incident that is not related to gangs, drugs, or other criminal activity" (Luca, Malhotra, & Poliquin, 2020).

Mutation. A mutation refers to a single change in a virus's genome (genetic code). Mutations happen frequently, but only sometimes change the characteristics of the virus (CDC, 2022).

Pandemic. An epidemic that is contagious that crosses the globe (CDC, 2022).

School crisis. "A sudden generally unanticipated event that profoundly and negatively affects a significant segment of the school population and often involves serious injury or death" (Decker, 2007, p. 116, as cited in Javed and Niazi, 2015).

School safety. Any threat or perception of threat of harm (self-inflicted or otherwise), from physical safety offenses (PSO) (i.e., behavior which includes verbal abuse that could escalate to physical harm), and non-compliance of order and control offenses (OCO) (i.e., behavior with no physical harm but possible psychological harm and damage to property), school bus procedure compliance, pedestrian hazard avoidance, and protection against dangerous viruses at school.

School shooting. An incident involving an active shooter (FBI Report, 2020).

Variant. A variant is a viral genome (genetic code) that may contain one or more mutations. In some cases, a group of variants with similar genetic changes, such as a lineage or a group of lineages, may be designated by public health organizations as a Variant Being Monitored (VBM), Variant of Concern (VOC), or a Variant of Interest (VOI), due to shared attributes and characteristics that may require public health action (CDC, 2022).

CHAPTER ONE: INTRODUCTION

School safety is a problem; with school shootings, violence, student misbehavior, COVID-19 restrictions, child pedestrian accidents, and modes of transportation safety concerns, school authorities have their hands full protecting students today. Identifying what students believe to be safe or unsafe and developing a reliable instrument to measure pertinent school safety subjects could assist school administrators to create an effective safety plan. School safety personnel (SRD, SRO, and Guardians) use school safe practices and procedures to regulate safety such as: active assailant drills, fire drills, and checking automatic door locks (Crepeau-Hobson, Filaccio, & Gottfried, 2005). One important duty of these school safety personnel is to safeguard the students and staff from any outside threats. However, threats to school safety exist even though school safety protocols and procedures are in place. School safety includes a wide range of safety protocols such as school crises procedures, target hardening measures, student behavior enforcement, health and hygiene standards, and student pedestrian and bus safety.

Within the United States we have seen a spike involving school safety concerns over the last several years (National Institute of Justice Report, 2019). School emergency plans such as perimeter control, lockdown procedures, evacuations, and student-parent reunification have been tightened in the past decade and modified within that last couple of years, due to the increase of active shooter incidents, bombings, overall violence, and health safety issues within our nation (NCES, 2015). As such, target hardening practices within schools have seen a major shift from “open campus” perimeters to fully gated “closed campus” with locked doors,

and in some cases, metal detectors and surveillance cameras (Crepeau-Hobson, Filaccio, & Gottfried, 2005).

In the summer of 2018, after the Marjory Stoneman Douglas High School shootings, the Marjory Stoneman Douglas High School Public Safety Act (Senate Bill 7026) was signed into law to combat school safety threats which addresses school shootings and enhances "school safety policies" (Plakon, 2020). Prior to 2018, threats were not collected, tallied as data, or stored in any capacity (OCSO Annual Report, 2018). In 2020, twenty-one years after the 1999 Columbine High School massacre, Florida Legislature passed Senate Bill 70 (Allyssa's Law) to increase school safety, by allocating $6.4 million to implement a panic alert system (Allyssa's Alert) within all Florida public schools, some of which were implemented and/or updated in schools in 2023. These practices are supported by the school safety personnel (SRDs SROs, and Guardians). Other measures of safety include the student code of conduct handbooks. Through these soft measures, students are reminded of the "code" at the beginning of the school year along with friendly posters around campus promoting respect towards others and anti-bullying. To reinforce the student code, student hall monitors are recruited as leaders to promote positive student behaviors.

In recent years, the focus of school safety has shifted from student protection from physical injuries and violence to include protection of students' health from viruses and other life-threatening diseases. At the beginning of 2020 with the Coronavirus Disease 2019 (COVID-19), which is the disease caused by the SARS-CoV-2 virus, our country's schools experienced a complete shut-down adding further security changes. With the reopening of schools after just a few months of closure, and multiple waves of COVID-19 such as the Delta and Omicron

variants, these health hazards are concerns for students' safety. The 2020 health and hygiene enforcement safety procedures were implemented to combat the risk of contamination of COVID-19 such as: wearing masks, social distancing, frequent hand washing, temperature checks, and clear plastic barriers between students' desks. Although it seems that cases of COVID-19 infections have come to a steady simmer with the COVID-19 restrictions being lifted, 2022 offered the United States another challenge for the healthcare systems and schools: a "tripledemic". While there is no official scientific definition of the term, the CDC describes a tripledemic as three virus outbreaks at once: Specifically for 2023, it included respiratory syncytial virus (RSV), influenza, with COVID-19. Scientists speculate that the spike in RSV cases was due to children being masked to protect against COVID-19 and synchronously protected from the common, but contagious, RSV. When COVID-19 restrictions were lifted, the masks came off and children who are normally exposed to RSV before the age of two, became infected at a later age, and all at once (CDC, 2023). For healthy children, it could take a couple weeks to clear, but for children and adults who are immunocompromised, hospitalization was needed (CDC, 2023). In 2024, January began with an increase of Influenza A and B, which lead to hospitalization for some, and even death. While school safety measures for health-related issues are becoming more manageable and common practice, other school safety factors are requiring attention.

Student pedestrian safety and school bus safety are contributors to the school safety concerns. School busses are promoted as safe modes of transportation, due to the size and visibility (FDOT, 2022), however student pedestrians (i.e., walking/biking/riding a scooter or overboard to and from school) and students waiting at bus stops take many unsafe risks

(Charron, Festoc & Gueguén, 2012; Mendoza, et al., 2012; Rosenbloom, Eliyahu, & Nemrodov, 2008). Student safety is the number one priority for district school transportation and bus drivers alike, although fatal accidents do occur. One current example is: October 2023, a 17-year-old boy was hit by a school bus while he was riding his bike to school. The school bus penetrated the school's perimeter fencing, and seatbelts are optional safety features. As a result, when the bus collided with the pedestrian, it also put the students on board the bus at risk of injury. Pedestrian safety in and around school campus has been an ongoing focus of safety concerns over the past two decades due to a change in parameters for school bus transportation (Scott, 2014), forcing more students to walk or ride their bikes or scooters to school. The closure of the schools in 2020 affected the bus driver availability from 2021 to 2023 (and on-going). Due to the shortage of bus drivers, the drivers must make multiple trips to school picking up students on different routes, which adds to safety concerns of student pedestrians. To that end, school bus safety is a factor to consider when researching safety at school.

The school safety bills and laws mentioned were nationally implemented, along with added resources (school safety personnel) to safe-guard and combat a multitude of school safety issues, yet little is known about the relevance of these concerns to build a measurement scale. Further, little is known about the student's perception of these safety concerns. Self-report scales are commonly used to measure varying concepts such as school climate (Bradshaw *et* al., 2014; Cohen et al., 2009) bullying and victimization (Bradshaw *et* al., 2014; Bradshaw, Sawyer, & O'Brennan, 2009; Fink, Patalay, Sharpe, & Wolpert, 2018; Huang, Cornell, & Konold, 2015; Huesmann et al., 1992; Nansel *et* al., 2001; Perumean-Chaney & Sutton,

2013), children's difficulties (Deighton et al., 2013), competence beliefs (Smith, Guimond, Bergeron, St-Amand, Fitzpatrick & Gagnon, 2021), and even greed (Lambie & Haugen, 2019). There are limited school safety measures that cover multiple safety dimensions and those scales that exist are provided to older students (> 5th grade), which include drug and alcohol use or measure unrelated topics not pertinent to school safety. Those scales are not easily modified and would not be recommended for the elementary school population. Empirical school safety studies using self-report surveys on student safety perception are limited. There are no comprehensive self-report surveys for elementary-grade students measuring relevant safety concerns for schools today.

One reason for this gap in school safety measures could be the many challenges in developing such a survey. Not only are psychometricians faced with the plethora of safety factors to define and test for relevancy, but also constructing self-report surveys for children is time-consuming and a delicate psychological procedure that must meet strict regulations governed by many committees and boards. Risk assessments on survey item content must be administered to avoid psychological safety issues involving young children, while keeping the content relevant enough for a comprehensive scale. Psychometricians also must pay special attention to the structure of the questions (length and readability) flow, item placement, and terminology throughout the survey to avoid bias (DeVellis, 2017). Other challenges may arise by using Likert-type scales; participants may respond to a question on the survey differently due to misinterpretation of the question based on their background (e.g., race, age, culture, ethnicity, socioeconomic situations, and family dynamics) (DeVellis, 2017). Inconsistencies with item response are known as differential item functioning (DIF) or "heterogeneity in reporting

behavior" (Vonkova & Hullegie, 2011). To resolve this issue, simplifying the questions by using a repeated "if" question and adding a scenario to this question may lengthen children's attention span and strengthen their comprehension of the question being asked (i.e., How safe do I feel *if* […]?) "Using a semantic differential scale is easier for young children to interpret than a traditional Likert scale" (Gahagan, 1987 as cited in Coaley, 2010). Further, researchers have investigated the use of anchoring vignette methods for domain specific self-report measures for cognition, breathing, and mobility with adequate success (Vonkova & Hullegie, 2011). The anchoring vignette method minimizes cross-cultural bias (Weiss & Roberts, 2018). However, the full-length anchoring vignette method is not recommended for young children due to its complexity in interpretation (O'Dell et al., 2012). Further, if a narrative of a scenario is used, the scenario must be very closely linked to actual real-world situations (Neff, 1995) because "the more hypothetical vignettes appear, the less likely it's reactions will correspond to actual behavior" (O'Dell et al., 2012. p. 6). An investigation of these methods will be reviewed with these limitations in mind and offer a solution to scale construction for children; develop a self-report method like a Likert-type scale combined with bi-polar adjectives (i.e., unsafe to safe) similar to the semantic differential scale with a vignette modification to a concise, real-world event narrative using a repeated question (i.e. "How safe do I feel *if*…?") at the start of each item.

This study will focus on the development and content validation of a scale through assessing expert ratings of relevance of the items and items to theoretical factors. To accomplish the scale development goal, for item content construction, this study investigates past research of violence and weapons, school climate and safety involving behavior

management within the parameters of the student code of conduct, school safe practices and procedures, national target hardening measures implemented, CDC recommendations for student health-related safety, pedestrian safety involving children, and FDOT bus safety procedures. The researcher also emerged into the safety climate through observational studies and attending meetings and active assailant drills at schools. Child growth and cognitive development research is referenced to support scale length, item content and structure. The Flesch-Kincaid readability test grade level formula was used to indicate a grade-appropriate reading level. To avoid possible psychological issues, psychologists reviewed the scale content to offer suggestions for item elimination and/or word modifications. Messick's (1980) validity theories and Crocker and Algina's (2008) scale development outline were consulted to structure a systematic development of the SPSS Scale. Law enforcement and school guardians (SSO's) within a county of a southeastern state in the U.S. were recruited to serve as expert reviewers to complete a survey regarding the relevance of the items and items to the theoretical factors of school safety in the construction of the Student Perception of School Safety (SPSS) Scale; the SPSS Scale was not administered in schools nor to children for this current study.

Scope and Delimitations

While the Covid-19 pandemic and violence are global concerns, school safety concerns are internationally diverse. Some school safety concerns focus on environmental issues such as the type of construction materials used to withstand mudslides and other natural disasters (Paci-Green, Varchetta, McFarlane, Iyer, & Goyeneche, 2020); this is comprehensive school safety (CSS) which acts as a framework for disaster risk reduction" (p. 1). While the topic of

natural disaster drills is included as school crises procedures, this study addresses the topic as a human action or non-action that could prevent or provoke harm while at school; this study will not investigate disaster risk reduction. Further, overseas, student abductions from school as a source for “armed group recruitment” and ransom are high safety priorities and an everyday fear (Uloko & Ada, 2022. p. 85), however this study excludes student kidnapping or abductions.

Researchers have found that schools need a balance of physical and psychological safety to ensure a feeling of safety at school. This current study includes both physical and psychological factors and were strategically narrowed to develop survey items for the SPSS Scale with an age-appropriate fit. The Code of Student Conduct Handbooks (2020-2021) from a southeastern state with the U.S., from two different counties of the public school system were analyzed, categorized, and narrowed for this study to decipher acts of physical safety offenses (PSO) (i.e., harmful behavior which includes verbal abuse that could escalate to physical harm), and non-compliance of order and control offenses (OCO) (i.e., behavior management and physical disorder such as property damage) among students. Behavior management or psychological issues found in prior research that influence perception of safety are categorized as OCO’s among students such as: disruption of class or school (Bradshaw et al., 2014; Capp, Astor, & Gilreath, 2020); cheating, stealing, destruction, vandalism (Bradshaw et al., 2014); theft of property; and the physical comfort and cleanliness of the school (Bradshaw et al., 2014). Student’s perception of safety is not affected by non-physical security measures such as: hall passes; visitor sign-in; students not permitted to leave school; student parking on campus; and student dress code (Perumean-Chaney & Sutton, 2013) therefore, was excluded.

However, the 2017 School Crime Supplement FORM SCS-1 (SCS) offers items on security measures which was found under the environmental section that offers one non-physical security measure (i.e., wearing student badges or picture identification) that is included in this study.

Nationally, school safety research includes factors such as playground environments (i.e., sun exposure, equipment height and surface materials, or loose equipment ropes) (Olsen & Kennedy, 2020), target hardening (Warnick & Kapa, 2003), behavior management such as social disorder (Plank, Bradshaw, & Young, 2009; Perumean-Chaney & Sutton, 2013; 2017 School Crime Supplement Form), school physical disorder (Plank, Bradshaw, & Young, 2009), bullying (Plank, Bradshaw, & Young, 2009; Adolescent Behaviors and Experiences Survey (ABES), gang violence (Richters & Martinez, 1993), pedestrian safety (Chu, 2003; Zegeer, *et* al., 2004; Scott, 2014), sexual harassment, drugs, and alcohol use (Adolescent Behaviors and Experiences Survey (ABES). There are safety offences measured in past studies and schools' code of conduct that are not relevant to this study (i.e., sexual offences, gang related, drugs, alcohol, smoking, vaping, homicides, and kidnapping) and are excluded from this current study. Additionally, offenses that do not cause disruption or is not directed at any one person or does no harm to another person or property (i.e., dress code, failure to report to detention, false or misleading information, profane, obscene, or abusive language, tardiness, minor insubordination, trespassing, unauthorized assembly, illegal organizations, or electronic device violations) were excluded.

To support the need for safety measures at schools, a discussion of national and school-related violence and deaths unfolds at the beginning of the literature review. Although

the topics of violence, bullying, victimization, weapons, contraband, and threats are often used as variables of school safety and school climate and will be discussed in the review, the newest version of the scale to measure school safety for this study will not include these variables or any other violence-related behavior that could cause unintentional stress. After psychological review, these variables were removed from the scale by the university's IRB.

Problem Statement

Our children are being exposed to "adult-world violence issues" through television, computer games, on our streets (Cornell, 2015), through peers, and at school. The 2018 shooting at Marjory Stoneman Douglas High School in Florida and the shooting at Sante Fe High School in Texas, marked the nation's deadliest year on record until recently with the Robb Elementary School shooting in Uvalde, Texas in 2022. (Fox, 2023). The news jolted the public's conscience by reporting what the students did to stay alive (e.g., rubbing the blood of a dead classmate on themselves to appear dead to the shooter; or climbing to safety through a broken window). Some of these decisions kept the students alive, while other compliance behaviors did not (yelling "help" only to be shot for making noise during the school invasion). These dangerous and deadly circumstances have been continuously reported in 2021, 2022, 2023 in the news. The fear of becoming the norm within our society and schools is child-shooters (e.g., young people with access to guns influenced by violence) (FBI, 2022).

Today, school leaders are faced with school safety issues that are multifaceted: violence, non-compliance of the student code of conduct, accidents at school, and with school violence and cases of COVID-19 that remain active within our schools. Student pedestrian and school bus safety are on-going concerns that cannot be ignored. Further, researchers argue

that schools are safe in comparison to other places such as homes, parking lots and roadways where most homicides take place (Cornell, 2015). According to the CDC study on youth homicides, school grounds only account for about two percent of youth deaths which leads to a conclusion that "school shootings are not an epidemic" and that the "risk of being killed at school is extremely low, and schools are safe" (Fox & Fridel, 2018. p.2). However, according to the FBI, the number of active shooter incidents are on the rise with 258 casualties in 2019, up from 213 in 2018 with an added 313 in 2022 which is higher than 2021 with 243 casualties. Additionally, there was a total of 28 active shooter incidents in the United States in 2019, three of which occurred in Florida (Active Shooter Incidents in the United States, 2019). The Active Shooter Incidents in the United States in 2020 report of the FBI cited 40 cases with 164 casualties, five of which were mass shooting, in 2020; this is a 100% increase from four years prior (Active Shooter Incidents in the United States, 2020). In the year 2021, the Center for Homeland Defense and Security reported nine active shooters incidents and 240 non-active shooter incidents within schools (Riedman, Oneill & Jernegan, 2020), with 691 total mass shootings (FBI, 2022) in the United States. Researchers find that the number of days between school shootings have decreased (Melgar, 2019) with two active shooters and 146 non-active shooters within our country's schools halfway through 2022 (Center of Homeland Defense and Security, 2022). By the end of 2022, according to the U.S. Department of Justice FBI, Active Shooter Incidents in the United States 2022 report, there were "50 active shooter incidents within 25 states and the District of Columbia" (p. 1). While despite the decrease from 2021 (61 active shooters) the upward trend of active shooter incidents since 2018 validates the need for exploring school safety measures and finds this topic relevant to conduct this study.

The year 2020 offered a new concern of health and hygiene: contamination of a microorganism called “novel coronavirus,” the type of coronavirus the world continues to fight. The term COVID-19 or coronavirus disease 2019 is the type of disease that the novel coronavirus causes and from here on will be referred to as COVID-19. Nationwide, there have been over 42 million cases of COVID-19 reported to the CDC and counting, of which, 672,738 deaths reported by September 19, 2021. The most recent death count (November 4, 2023) reported by the CDC is at 1,152,647. Florida accounted for 23,342 fatalities in 2020; 39,861 fatalities in 2021; 21,278 fatalities in 2022; and 7,698 in 2023 (CDC, November 2023). At the start of the fall school term within a one-month period (August 16, through September 3, 2021) for one central Florida county of interest, there were approximately 2,372 recorded cases of COVID-19. Within a neighboring county during that same time there were 609 reported school cases. While school target-hardening will not protect students from this hazard, safeguards through social distancing, vaccines, and wearing masks could be beneficial to the containment of the virus. However, the vaccine is not required and not popular for children under 12 years of age. Moreover, the mask requirement is still up for debate within some public-school districts, where parents are making the decision for the children to wear or not wear a mask. The CDC recommended safe distance for contamination has decreased from six feet in 2020 to only three feet in 2021, in 2022-2024, distance is no longer being controlled at schools.

During the pandemic in 2020 there were fewer vehicles on the road, however road hazards are a continued threat to student safety. Pedestrian fatalities still rose by 20% when comparing mileage driven and fatalities. From 2010 to 2019, there were 53,494 pedestrian

fatalities in the United States (FDOT, 2020). Further, 2,260 child pedestrian (<15 years of age) fatalities were recorded of the 11, 396 total child fatalities in that nine-year span. Between 2018 and 2019 there were 34 child pedestrian fatalities in Florida. In 2019, there were 6,205 pedestrians killed in traffic accidents in the United States (NCSA, 2021), 181 were that of children (<15years) and 16 children (<15years) were in Florida. The number of pedestrian fatalities has increased in 2020. During the first six months of 2020, there were 2,957 pedestrian fatalities. There are an increased number of children walking to and from school daily, riding their bikes and scooters without helmets or protective gear adding to the risk of harm or death.

Parents want to believe that they are in control of their children's environment and their safety. However, while children are at school or on their way to school, parents are not in control; they rely on others to protect their child from harm adding to the concerns of parents wanting to increase school security measures (Addington, 2009). School infrastructure safety is monitored through school safety personnel, metal detectors, gates surrounding the perimeter, and cameras (Crepeau-Hobson, Filaccio, & Gottfried, 2005) while school safe practices and procedures are kept through red alerts, fire drills, locked doors (Crepeau-Hobson, Filaccio, & Gottfried, 2005), visitor sign in, and student code of conduct. Health-related hazards are regulated using CDC recommendations such as wearing masks, social distancing, frequent hand washing, temperature checks, and clear plastic barriers between students' desks. However ultimately, we must trust that our children can make safe decisions at school to avoid dangers. There may be debate on whether schools are safe from active shooters, however, contamination of viruses and pedestrian risks are taken daily among students. With the spread

and influence of unpredictable violent behaviors, positive cases of COVID-19, and mode of transportation from bus to pedestrians increasing student accidents, have prompted this study to compile a list of items and theoretical factors to measure relevance through expert ratings of law enforcement and Guardians to develop a scale focused on children's perception of school safety.

Purpose of the Study

There were four objectives for this study: 1) to investigate relevant dimensions of school safety and understand safety procedures that are currently in use; 2) to formulate and organize questions that would be approved to gauge elementary school students' perceptions about school safety; 3) to assess validity and reliability of expert's perceived school safety relevancy scores of the SPSS Scale's items and theoretical factors of school safety; and 4) to determine whether school guardians and law enforcement share the same concerns about school safety. This SPSS Scale tool is intended for young children regarding a sensitive school topic which includes many school safety dimensions. Although the SPSS Scale's targeted population is elementary students, this current study measured law enforcement and school guardian's perception of relevant items for the development of the scale. It is important to use a systematic method for constructing a large scale with a vulnerable population, on a highly debated issue, therefore the use of Crocker and Algina's (2008) first five steps for survey/test development was used as a guide and is interpreted as:

1. Identify the purpose of the scores.

   This first step is to decide what will be measured, to determine the intended population of the scale, and to create a list of delimitations.

2. Define the domain and dimension of the domain.

   This is accomplished through a review of prior research on the domain. Through direct observations and becoming involved with the research topic and through suggestions made from experts in the field.

3. Develop a blueprint.

   The blueprint is a way to organize the dimensions of the domain based on past research, observations and through expert advice.

4. Develop a list of questions.

   Formulate questions in an appropriate format for the intended audience. There are many item construction rules to employ such as: Readability of the questions, concise wording, the use of <20 words for each question to avoid confusing sentence structure, the use of age-appropriate vocabulary for the population of interest, and avoiding the use of negative words (e.g., not, none, never). Item response format such as Likert-type scales or binary response are also an important step to consider as it will determine the method for analyzing the data.

5. Review and revise the items.

   The list of questions is reviewed by a panel of experts specific to the field of study, or experts regarding the participants, this depends on the topic of study. This review is done systematically and as the edits are made, so too is the blueprint updated. Once the list is revised, the formal review begins with a separate group of experts to critique each item. Analyze the data for a detailed review to complete a final version.

The Student Perception of School Safety (SPSS) Scale was developed as a self-report, comprehensive school safety measure designed for fifth-grade students who attend brick and mortar public elementary schools in the southeastern United States. The SPSS Scale uses descriptive questions on a 6-point Likert-type scale to assess students' perception of school safety. To find relevant dimensions of the school safety domains, an investigation of school safety and school climate was conducted through observations, interviews and through a literature review. Additionally, two panels of experts on school safety procedures were examined. The first was a preliminary study with teachers and law enforcement officers who judged the relevance of the items using a dichotomous response (yes, no). The second panel of experts (primary study) was with law enforcement and school guardians. They judged the relevance of the items to school safety and items to dimensions of school safety. The expert ratings (law enforcement and school guardians) are measured on a 4-point Likert-type scale to analyze relevancy scores.

This study addresses school districts' strategic goal/plan to promote/ensure a "Positive Climate and Safe Environment" and "School Safety, Security, and Student Support" to ensure a safe environment for students and school personnel. Future research of implementation of the scale and further validation of the SPSS Scale will support efforts of the objectives by gaining insight to pre-adolescent students' perception of safety at school, which could promote student academic learning free from fear. The completion of this scale will close the gap that has been found in school safety research and could be utilized in public schools as a proactive, preventative measure of school-related dangers while promoting school safety.

Structure

The introduction (Chapter One) provides an overview of this present study which includes: delimitations; the problem statement; purpose of the study; significance; research questions; and the structure for the remainder of the paper. The literature review (Chapter Two) is a multi-step process with an attempt to recognize past studies on violence, the complexities of school safety including topics in the code of student conduct handbook, health, and hygiene, which includes the pandemic of COVID-19 and other school-related health hazards, student pedestrian hazards and school bus safety. Cognition and child development research was investigated to validate the need for younger students' perception of safety. The scale and item development section addresses past research on scale development including text readability, reliability, validity, acquiescence, and social desirability. Research design and methodology (Chapter Three) presents a plan for data collection and data inspection of the scale through a Relevancy Assessment Survey (RAS). This chapter includes the approval process, participants (sample and recruitment), instrumentation, design, and procedures. The results (Chapter Four) report the findings discovered. Lastly, Chapter Five, includes a discussion of the findings, conclusions made and a discussion on limitations and recommendations for future research.

Research Questions

RQ1: To what degree do expert ratings of item relevance reflect a common viewpoint regarding school safety?

RQ2: Do the expert ratings of perceived school safety relevance scores demonstrate adequate reliability?

RQ3: Is there a difference among school safety personnel classifications when enquiring about target hardening item relevance to school safety, addressed on the SPSS Scale?

The null hypothesis (H0): There is no difference in perceived relevance among school safety personnel classifications regarding target hardening items.

The alternative hypothesis (H1): There is a difference in perceived relevance among school safety personnel classifications regarding target hardening items.

RQ4: Is there a difference among school safety personnel classifications when enquiring about the suitability of the SPSS Scale regarding school safety?

RQ5: Are there relevant themes that emerge from the omitted topics of the SPSS Scale among school safety personnel classifications?

CHAPTER TWO: LITERATURE REVIEW

At school, students encounter risky circumstances that influence how safe they feel. These risks, which are numerous and include school violence and crises, non-compliance with the student code of conduct, disregarding health and hygiene regulations, and accidents at school, are the main causes of school safety fears that might prompt students to become uncomfortable. These include safety concerns involving breaking school rules in emergency situations (e.g., racing down the school hallway during a fire drill); breaking the student code of conduct (e.g., verbal, written, and/or physical threats to others and/or physical bullying); violating pedestrian safety regulations (e.g., riding a bike or scooter without a helmet); or even just friends sharing a drink of water from the same cup; a violation of the school health/ hygiene regulation.

These are examples of safety issues involving our children's well-being and are choices made by children daily. Many of these safety concerns are addressed by teachers and staff, the first responders, who attempt to maintain order and control throughout the school day through safety enforcement measures such as: target hardening, school crises procedures, the student code of conduct enforcement, health and hygiene practices, student pedestrian safety laws, school bus safety. However, regardless of the school's efforts towards school safety, chances of harm through human error, or through student noncompliance, are still present.

The most prominent protection against school threats are those individuals standing guard at the schools: School Resource Deputies (SRD's), School Resource Officers (SRO's), and School Guardians, which are also called Safe School Officers (SSO's). The duties of these school safety personnel are to safeguard the students and staff from any outside threats. Law

enforcement is also there to enforce any laws that are broken on campus and to be mediators for any issues that may arise on campus with students, parents, and school staff. Alongside school administration, SRDs, SRO, and Guardians ensure that doors remain securely locked. It is the responsibility of every SRD, SRO and Guardian to be aware of how their school's entrances and exits are laid out and to be ready for any situation. These teams differ even though they have the same objective in mind: to keep our schools safe from attacks.

SROs are employed through the nine municipalities and SRDs are employed through the county Sheriff's office. Both departments are "sworn peace officers" trained to protect and serve citizens within the county and/or municipalities. Apart from the SRDs having more opportunities (due to funding) for more intensive instruction, the training programs of these two departments are nearly identical. They train together at schools during the year on teacher workdays and at the schools during the summer break. Some of the types of training are: FDLE solo response to active shooter, tactical emergency casualty care (Stop the Bleed), and moving to contact. They are required to attend a school resource basic training, a 40-hour course.

"After SWAT, school resource deputies receive the second-highest level of active shooter training within the agency" stated XXX County Sheriff Peyton Grinnell (Daily Commercial, 2022). In addition to their training alongside the SROs, the SRDs are trained in juvenile behavior and mediation, the resource deputies collaborate closely with the Department of Juvenile Justice and the State Attorney's Office to identify alternatives to making juvenile arrests. The SRDs also train in radio communication under pressure and have Emotional Intelligence Training. The SRDs have more opportunities: The SRDs are the leading

law enforcement agency in the county, they are contacted by the FBI through their Intel Unit regarding school threats. “Our Intel Unit routinely collaborates on a wide range of issues with the FBI and Secret Service” (Lt. O’Brien, XXX County Sheriff’s Office, 2024).

A portion of the Guardians, also known as SSOs, work for the school system and perform various duties as safety officers at both public and charter schools. There are essentially two units: 1. Uniformed Guardians, and 2. Administrative Guardians. Uniformed Guardians are paid, open-carry (the gun is visible) officers and look very similar to police officers, while the Administrative Guardians are concealed-carry (guns are hidden) volunteers and are school administrators (principals, vice principals, school counselors) or custodial personnel. The Administrative Guardians are broken down even further; a small portion are not assigned to a school, per se, they are located within the building of the county school board. This small group act as substitutes for the guardians, much like a substitute teacher for the school system. The guardians (both uniformed and administrative) have a diverse background: while some have been in the field of education for years, others are ex-military, ex-law enforcement, retired fire fighters, retired FBI, while others do not have any prior law enforcement training or educational background. After qualifications, they have quarterly training courses, single response training (a two-day course), and simulation training. They are all placed through an intense 144 hours of active assailant and school safety training operated by the county Sheriff’s Office; however, they are not sworn peace officers. The Guardians strengthen the SRO and SRD efforts and work as a team to identify threats and secure the school campus.

The perception of safety among children has been measured by researchers in the past on a variety of constructs and correlations between various variables: safety and academic achievement (Ruiz, McMahon & Jason, 2018); community violence on academic achievement and feelings of safety at school (Henrich, Schwab-Stone, Fanti, Jones, & Ruchkin, 2004); perceived school safety as a moderator of relational and physical victimizations and symptoms of depression and anxiety (Fite, et al., 2019); and closely linked to this study is adolescents' perceived school safety as evidence to modify school security procedures (Perumean-Chaney & Sutton, 2013). To ascertain the pertinent aspects of school safety that apply today, an investigation of school safety was launched; researchers have not looked at elementary school students' views of safety using a self-reported scale on a comprehensive level.

This investigation begins with a literature review to define school safety and what researchers mean by the term "at school." This precedes all other sections because we want to know what to investigate. The broader topics of national views of theft, violence, and weapons introduce the statistics of dangers within schools, which emphasize the need for school safety. Then the school climate introduces prior research on safety and its important role involving schools. Empirical research on school safety is discussed within subsections of school safety that are identified in prior research. The health and hygiene section of safety will offer the statistics and recommendations from the CDC on the COVID-19 pandemic and other health hazards at school; empirical research is limited. Past studies on health and hygiene concerns at school will offer structure for development of the scale items. Pedestrian safety is discussed at a school and student level and addresses accidents and pedestrian safety concerns based on research and information found through the Department of Transportation. School bus safety

while traveling to/from school is discussed through empirical research, FDOT and Florida Highway Safety and Motor Vehicles reports. Cognitive psychology and child development were examined to provide a strong case for why I decided to evaluate younger children rather than adolescents and the importance of younger students' perceptions of safety. The SPSS Scale development area discusses previous studies on scale development including item structure, text readability, reliability, validity, and acquiescence and children's social desirability measures.

Defining School Safety

There is debate over what "safe" is at school, and even what "at school" means. However, this study is not about whether our schools are safe, rather, this study aims to compile a list of items and factors to measure relevancy regarding school safety. There have not been any previous comprehensive surveys that gauge elementary grade students' view of school safety on pertinent issues. Therefore, we must define the terms "school safety" and "at school" to investigate relevant safety issues within schools to create scale items for measurement.

There is no single definition for "school safety" because the issues are global in scope. Kidnappings of students, conflict zones, environmental problems, and the materials used in construction are among the global safety concerns. Nationally, construction standards are far superior to third world countries and have a rigorous code. This is not to say that the U.S. is immune to mudslides and floods; each county in every state in the U.S. has its own department (i.e., Building Code Compliance) for permit applications and inspection requests. Furthermore, for this study's state of interest, "Compliance with the Florida Building Codes,

Florida Fire Preventive Codes, State Requirements for Educational Facilities (SREF), Florida Statutes, Florida Administrative Codes and National Electric Code" (found on the county school's website) are needed for new construction and renovations. Construction and building codes, although important to a sound structure, are outside the parameter of this study, therefore, were not included as part of school safety for this study.

One applicable definition of the term "school safety" is "any threat, [whether it is self-inflicted or otherwise], to a student's well-being that could result from human action" (Duke, 2002). Furthermore, Kitsantas, Ware and Martinez-Arias (2004) define school safety as "perceived instances of threats to or actions against one's well-being" (p. 416). School safety is further defined as "schools and school-related activities where students are safe from violence, bullying, harassment, and substance use" (Kitsantas, Ware, & Martinez-Arias, 2004). For this study, school safety uses a combination of the above definitions, which includes the perception of a threat of harm, and the theory that harm could result from human action. Incidentally, during this investigation, the term "at school" is used often and is not operationally defined in all studies, therefore, the term "at school" was explored. The School-associated Violent Deaths Study (SAVD) defines "at school" as "on school property, on the way to or from regular sessions at school, and while attending or traveling to or from a school-sponsored event". Furthermore, the National Crime Victimization Survey (NCVS), defines "at school" as "the school building, on school property, on a school bus, and going to and from school." Although these definitions are similar, the latter uses terms such as "school bus," "school building" and the phrase "going to and from school" which evokes the thought of bus safety and pedestrian safety such as children riding bikes and walking to school. Therefore, for

this study, the latter will be used in the operational definition of “school safety”. To that end, for this study, school safety is defined as protection from any threat or perception of threat of harm (self-inflicted or otherwise), from physical safety offenses (PSO) (i.e., harmful behavior which includes verbal abuse that could escalate to physical harm), and non-compliance of order and control offenses (OCO) (i.e., behavior management and physical disorder such as property damage), school bus procedure compliance, pedestrian hazard avoidance, and protection against dangerous viruses at school.

National View of Theft, Violence, and Weapons

Perhaps as a result of Proposition 47, there is no fear of prosecution for theft or vandalism in San Francisco, California (FOX News, 2021). It is arguable that additional states in the USA will adopt this mindset. According to the FBI's 2020 Crime Statistics review, there has been approximately an 8% decrease in property crime from 2019. The following offenses are included under property crime: motor vehicle theft, larceny-theft, and burglary (FBI, 2020). The goal of California's 2014 passage of Proposition 47 was to try and downgrade non-violent felonies (like shoplifting) to misdemeanors to free up funds for the prosecution of violent crimes. The referendum's outcome permits drug use and shoplifting in public places if the total value of the offense is less than $950. Prop 47 was in force for almost eight years, but this problem has only recently come to light due to media coverage.

With the decline of reported property crime, comes the rise of violent crime. In 2018, Orange County, Florida’s total non-violent crimes declined by 11% and the total violent crimes increased by 10%. In 2019, the crime totals were balanced with a 2% decrease and a 2% increase (respectively). It is noteworthy to mention that “crime in Orange County declined by

18% in 2020" (Orange County Sheriff's Office Annual Report, 2020). Violent crimes are the "offenses of murder and nonnegligent manslaughter, rape, robbery, and aggravated assault" (FBI, 2021). Not to be confused with violent victimizations: "rape, sexual assault, robbery, and aggravated assault with simple assault" (Morgan & Thompson, 2022. p. 1) as defined in the National Crime Victimization Survey (NCVS). Although Morgan & Thompson (2022) refer to the victimizations as violent crimes. This category includes both attempted (i.e., verbal) and completed crimes" and excludes theft (e.g., taking a purse or wallet). Interestingly, while murder is included in the definition of violent crimes, murder is not measured by the National Crime Victimization Survey (NCVS) because of an "inability to question the victim" (p. 5). Further, it is important to note that "threats, as well as attacks without a weapon that do not result in serious injury" are categorized as a simple assault (NCVS, p. 6).

Media coverage of crimes (mostly property crime) is caught on video (e.g., 2021 United States Capitol invasion: and the Union Pacific train theft, downtown Los Angeles) influencing others and exposing our children to these acts of crime. When there are high levels of community crime or danger, feelings of safety decrease and people feel uncomfortable in that environment (Anderson, 2016). These dangerous circumstances have become the norm within our society and schools. Schools have been invaded with community violence (Cauffman, 2001; Mulvey & Cauffman, 2001) and students (6^{th} grade) who have witnessed violence feel unsafe at school and will eventually have lower academic scores (Henrich, Schwab-Stone, Fanti, Jones, & Ruchkin, 2004). "The establishment of safe schools is inseparable from the issue of violence and crime in a larger community" (Stephens, 1998. p. 273).

"Crime in schools […] is one of the most troublesome social problems in the Nation today" (FBI, 2007. p. 1). That statement was written nearly 14 years ago, and more recently, there is evidence to support that claim. The 2020 National Crime Victimization Survey (NCVS) indicated that students (ages 12 to 18 years), while at school, "experienced 764,600 total victimizations (i.e., thefts and nonfatal violent victimizations)," which is 255,300 more than those away from school (p. 1) which "translates to a rate of 30 victimizations per 1,000 students at school" (Irwin, Wang, Cui, Zhang, & Thompson, 2021. p 4).

Meanwhile, researchers argue that schools are safe in comparison to other places such as homes, parking lots and roadways where most homicides take place (Cornell, 2015). Additionally, according to the CDC study on youth homicides, school grounds only account for about two percent of youth deaths and others report that "school-associated homicides are rare, accounting for approximately 1% of all deaths among school-age children" (Wang et al., 2020). These lead to the conclusion that "school shootings are not an epidemic" (Fox, 2019) and that the "risk of being killed at school is extremely low, and schools are safe" (as cited in Fox, 2019 p.). "The SAVD-SS defines a school-associated violent death as "a homicide, suicide, or legal intervention death (involving a law enforcement officer), in which the fatal injury occurred on the campus of a functioning elementary or secondary school in the United States." This definition uses the "at school" terminology to define the location. "Victims of school-associated violent deaths may include not only students and staff members but also others at school, such as students' parents and community members" (Irwin, Wang, Cui, Zhang, & Thompson, 2021. p. 3).

In 2018, data showed that it was our nation's most "deadliest year on record" with the shootings at Marjory Stoneman Douglas High School in Florida, Sante Fe High School in Texas, and Marshall County High School in Kentucky (FBI. 2021). Within educational environments in 2018, there were 52 wounded and 29 killed by an active shooter (FBI, 2020). In the summer of 2018, after the Marjory Stoneman Douglas High School shootings, the Marjory Stoneman Douglas High School Public Safety Act (Senate Bill 7026) was signed into law to combat school safety threats. Threats to staff members, teachers, and students were not gathered and kept as data prior to 2018 (OCSO Annual Report, 2018). Senate Bill 7026 addresses school shootings and enhances "school safety policies" (Plakon, 2020).

While the school safety policies are enhanced, according to the FBI's report, the number of total active shooter incidents are on the rise. According to The United States Department of Homeland Security (DHS) and the FBI, an active shooter is "an individual actively engaged in killing or intending to kill people in a confined space or populated area", whereas a non-active shooter is someone who "has a gun, has made threats, or is acting suspicious, or has been arrested, captured, incapacitated, or killed" (FBI, 2020). In most cases, "active shooters use firearms and there is no pattern or method to their selection of victims" (DHS). An interesting discovery: the term "school shooting" is not reliably defined or categorized in research and may offer confusion when reporting numbers of incidents. For example, one source states that 27 school shootings with injuries or deaths were reported in the first six months of 2022 (Education Week, 2022), while another source (more reliable) states that in the first six months of 2022, there were two active shooters and 146 non-active shooters incidents in K-12 schools (Center for Homeland Defense and Security, 2022). Another

find was that the FBI reported two active shooters within an educational setting in 2021 (i.e., Rigby Middle School, Rigby, ID in May; and Oxford High School, Oxford, MI in November) (FBI, 2022) and the Center for Homeland Defense and Security reported nine active shooters. School shootings are also frequently categorized as a mass shooting, which adds to the confusion. Mass shootings are usually described as "an incident in which four or more people, including the perpetrator, are injured by gunfire." This definition is applied to the FBI reports of active shooters for inclusion criteria. (For additional inclusion and exclusion criteria for the FBI reports, see FBI, 2022). The definition of school shootings used by the Center for Homeland Defense and Security's K–12 School Shooting Database (K–12 SSDB) for active and non-active shooters, states: "a gun is brandished, is fired, or a bullet hits school property for any reason, regardless of the number of victims (including zero), time, day of the week, or reason" (as cited in Irwin, Wang, Cui, Zhang, & Thompson, 2021. p. 3). School shootings are also often confused in research with targeted school violence. Although targeted school violence is a useful construct because it does not limit the choice of weapon, it does limit the type of perpetrator. Targeted school violence is defined as: "Any incident where (1) a current student or recent former student attacked someone at his or her school with lethal means (e.g., a gun or knife); and (2) where the student attacker purposefully chose his or her school as the location of the attack" (Vossekuil *et* al., 2002. p. 7).

According to FBI data (FBI, 2021; Advanced Law Enforcement Rapid Response Training (ALERRT), 2021), there were 258 active shooter events in total in 2019, up from 213 in 2018. (FBI, 2020; ALERRT, 2020). The number of casualties shows an upward trend with a spike in casualty count of 313 in 2022. This was the greatest number of casualties within the five-year

calendar. There were 333 active shooters in the United States from 2000 to 2019, 44 of those occurred in Pre-K-12 schools (FBI, 2021). In 2019, there were 30 active shooter incidents in the United States (FBI, 2021) (Figure 1); five killed and 15 wounded (FBI, 2020). In 2020, there were 40 active shooter incidents in the United States in 19 states with 164 casualties, five of which were mass shootings. There is a 100.03% increase of number of active shooter incidents from 2018 to 2021. There was a spike of incidents from 2020 to 2021 with a 52.5% increase (12 defined as mass shootings). Active shooter incidents in the United States shows an upward trend of 66.7% from 2018 to 2022, despite the 18% decrease from 61 in 2021 to 50 in 2022.

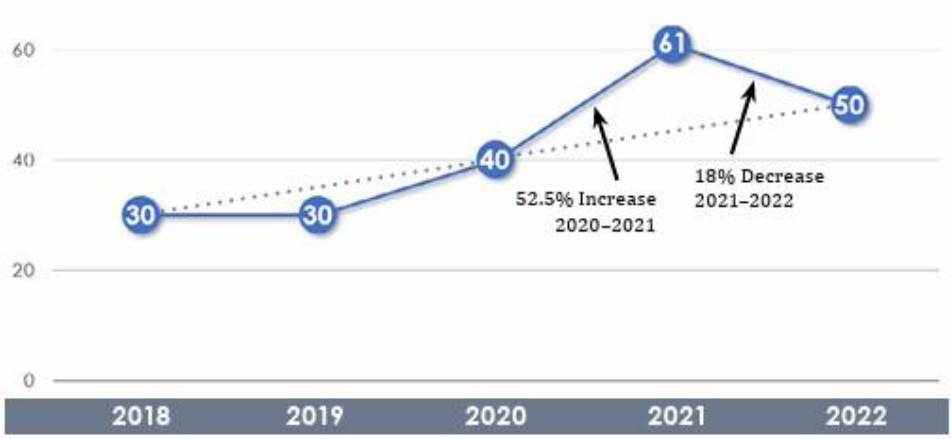

Figure 1: FBI Report of Active Shooter Incidents 2018 – 2022
Source: Active Shooter Incidents in the United States in 2022 — FBI approval (Appendix D).

The number of casualties from active shooter incidents show an upward trend with a spike in casualty count of 313 in 2022, 28.8% from 2021 to 2022. This was the greatest number of casualties within the five-year calendar.

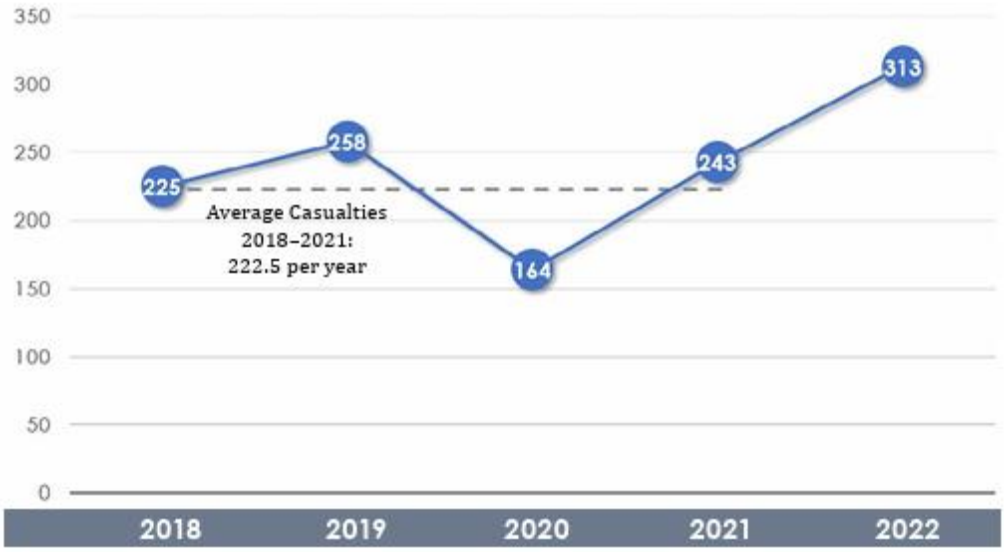

Figure 2: FBI Report of Casualties from Active Shooter Incidents
Source: Active Shooter Incidents in the United States in 2022 — FBI approval (Appendix D).

The Center for Homeland Defense and Security, Naval Post Graduate School conducted a study as part of the Homeland Security Advanced Thinking Program (HSx). Their efforts compiled data of school shooting incidents at K-12 schools from 1970 to 2021 from a wide range of data sources (e.g., U.S. Secret Service, FBI, Department of Education, including media and advocacy groups). This list underwent scrutiny as inclusions and exclusions of the criteria was enforced based of the operational definition of "school shootings" for the data to make the list. Looking at the past decade and skipping every other year (Table 1), we see a trend of an increase of both active and non-active shooter reports in K-12 schools. In 2009 there was one active shooter incident and 30 non-active shooter incidents; 2011 shows two and 14 (a slight decrease); 2013 shows four and 30; 2015 shows four and 36; 2017 shows six and 51; 2019 shows seven and 112; and 2021 shows nine and 240 (respectively) (Riedman & O'Neill, 2020). According to the Center for Homeland Defense and Security, 2022 data, in six months there were two active shooters and 148 non-active shooters incidents in the K-12 School

Shooting Database (Riedman & O'Neill, 2020). The year 2021 ends with 691 mass shootings (FBI, 2022) in the United States which includes 249 school shootings (Riedman, Oneill & Jernegan, 2020).

Table 1
School Shooter Incidents from 2009 to 2021 (Center for Homeland Defense and Security)

Year	Active Shooter Incidents	Non-Active Shooter Incidents
2021	9	240
2019	7	112
2017	6	51
2015	4	36
2013	4	30
2011	2	14
2009	1	30

Active shooter. "An individual (or individuals) actively engaged in killing or attempting to kill people in a populated area" (FBI Report, 2020) this does not include violence of gangs and "accidental discharges of a gun" (FBI Report, 2020).

Just 144 days into the year 2022, there was a mass school shooting. May 24, 2022, an 18-year-old man walked into the Robb Elementary School through an opened, unsecured door, and killed 19 children and 2 adults, and physically injuring 16. The Robb Elementary School shooting is considered the second deadliest school shooting since the 2012 Sandy Hook shooting. Researchers find that the number of days between school shootings have decreased (Melgar, 2019) making school safety relevant for this study. According to the NCES, K-12 School Shooting Database there have been 54 school shooting incidents with 54 victims within the first three months of 2024.

School Climate

There is a correlation among school climate, school violence, peer victimizations, and student dropout rates (Astor, Benbenishty, Zeira, & Vinokur, 2002; Espelage & Swearer, 2003). Further, student delinquency and substance use are connected to the school environment

(Thapa et al., 2013; Zullig, Koopman, Patton, & Ubbes, 2010). There is a simple definition that speaks volumes: school climate is "an invisible element of school life that is felt by all participants" (Chirkina & Khavenson, 2018. p. 134). School safety is one of many factors of school climate. It is necessary to investigate the climate of the school to find empirical research on school safety and its relationship to feelings of safety while at school. Although building a positive school climate may take years (Keefe, Kelley, & Miller, 1985), research on school climate is an evidence-based technique for improving school programming (Thapa, Cohen, & Higgins-D'Alessandro, 2013).

In 1908 Arthur C. Perry's book, The Management of a City School, was the first study on school climate, which today plays a significant role in educational policies (Freiberg, 1999). In the late 1920's the Hawthorne effect emerged from the Western Electric Company in Illinois. Henry A. Landsberger coined the term "Hawthorne effect" which refers to a phenomenon that occurs when people modify their behavior when they are aware that they are being observed. The original study was conducted at the Western Electric Company by George Elton Mayo, a psychologist, industrial researcher, and organizational theorist and "attracted the attention of educational researchers" (Chirkina & Khavenson, 2018. p. 137) such as James Coleman, who found this kind of reasoning to be influential in student behavior (Chirkina & Khavenson, 2018; Freiberg, 1999; Coleman *et* al. 1966). However, more than a century later, "there is not one universally agreed-upon definition of school climate" (Cohen, et al., 2009. p. 182). There are various terms for school climate such as: "atmosphere, feelings, tone, setting, or milieu of the school (Freiberg, 1999; Homana, Barber, & Torney-Purta, 2006; Tagiuri, 1968)" (as cited in Cohen, et al., 2009. p. 182). Keefe, Kelley, and Miller (1985), consider school climate as a

mediating variable of the school or classroom environment. Keefe, Kelley, and Miller (1985), defined school climate as "the relatively enduring pattern of shared perceptions about the characteristics of an organization and its members" (p. 72). Haynes *et* al (1997) defined school climate as ''the quality and consistency of interpersonal interactions within the school community that influence children's cognitive, social, and psychological development' (p. 322). Cohen et al., (2009) simply states that school climate "refers to the quality and character of school life" (p. 182). This debate over the "definition and measurement of school climate" (Bradshaw, et al., 2014. p. 594) is ongoing due to the argument that school climate is a "multidimensional construct" operationally defined according to researchers' interest and its complexity (Shukla et al., 2019). Prior research on school climate finds that it consists of "individual factors such as interactions among students, teachers, and administrators and organizational factors such as policies and procedures" (Wang & Degol, 2016). School climate also encompasses "environmental, social emotional, structural and linguistic elements" (Freiberg, 1999. p. 3) and its primary focus is towards learning goals (Keefe, Kelley, & Miller, 1985), social-emotional learning (Astor, De Pedro, Gilreath, Esqueda, & Benbenishty, 2013), and on the "health of the learning environment" (Freiberg, 1999. p. 5). It represents the experiences throughout the day at school (Cohen et al., 2009) measured from the "shared norms, beliefs and behaviors of students and staff" (Johnson, Pas, & Bradshaw, 2015; LaSalle, Meyers, Varjas, & Roach, 2015); and interestingly, most research is from the student's perspective (Berkowitz et al., 2017), though not self-report scales with elementary students.

Moreover, the core domains of school climate vary, as there is no universal agreement of the domains (Thapa, Cohen & Higgins-D'Alessandro, 2013). However, relevant for this

current study, school climate includes “safety and the physical environment” (Bradshaw, et al., 2014. p. 594). Researchers agree today that climate is “constructed from the academic, community, safety and institutional environments” (Wang & Degol, 2016). Researchers found that school climate is influenced by the perception of safety (Kitsantas, Ware, & Martinez-Arias, 2004), along with the degree of bullying and school violence (Astor & Benbenishty, 2018; Espelage & Swearer, 2010). Therefore, student’s perception of school safety as “peer victimization and internalizing symptoms,” was added within the school climate’s construct of safety (Astor, Benbenishty, & Estrada, 2009; Gower, McMorris, & Eisenberg, 2015).

Current Measures of School Climate (safety and environment factors)

The school climate includes other school safety dimensions of interest for this current study (i.e., bullying, violence, weapons, environment, and the code of student conduct), therefore there is unavoidable overlap. This overlap formed because school climate was used as a source for investigating school safety. Past research shows that school climate’s factor of safety includes order and student discipline (McGeeney, Clark, & Birkby, 2017); “how the school responds to discipline” (Capp, Astor, & Gilreath, 2020. p. 418); clarity of school rules and perception of rule enforcement (Brand, Felner, Shim, Seitsinger, & Dumas, 2003; Cohen, McCabe, Michelli, & Pickeral, 2009; Furlong, et al., 2005; McGeeney, Clark, & Birkby, 2017; Wilson, 2004). Moreover, under the school climate umbrella, the school safety factor includes student behavior such as: bullying, fighting, and disruptive or disrespectful behavior of students (Capp, Astor, & Gilreath, 2020), rules and norms which are measured by indicators on rules about physical violence, verbal abuse, harassment, teasing along with enforcement and adult intervention. School climate also includes a sense of physical security which is measured

by indicators on feelings of safety while at school and a sense of social-emotional security which is measured by indicators on feelings of safety from verbal abuse, teasing, and exclusion.

Cohen et al., (2009) conducted a meta-analysis on school climate to identify common concepts, four were found: safety, teaching and learning, relationships, and physical environment. To assess the suitability of the Maryland Safe and Supportive School Survey (MDS3) which was created by the John Hopkins Center for Youth Violence Prevention and was based on the US Department of Education (USDOE) safe and supportive school model of school climate, Bradshaw, et al., (2014) conducted a factor analysis. Three factors (engagement, safety, and environment) make up the 56-item MDS3. "Emotional safety, physical safety, and substance use" are included in the relevant domain of safety (Bradshaw *et* al., 2014). Bradshaw *et* al's (2014) EFA on school climate revealed three factors of safety: 1) perceived safety for the emotional safety aspect; 2) bullying and aggression for the physical aspect; and 3) general drug use. Perceived safety was measured by four items on a four-point Likert-type scale from "a large problem" to "not a problem at all" (i.e., 1. "I feel safe at this school", 2."I feel safe going to and from school", 3. "adequate programs for violence and conflict at the school", and 4. whether they thought "students carrying guns or knives was perceived as a problem"). Number two, "I feel safe going to and from school", was used for the pedestrian section of this current study, and number four, "students carrying guns or knives was perceived as a problem" was modified for the weapons and contraband section of this current study. Bullying and aggression, mentioned here under the school climate and then again in the violence, bullying, and victimization section of this current study, was measured by

four items with a four-point Likert-type scale from “a large problem” to “not a problem at all.” The students were asked about 1. “Physical fights between students” and 2. “harassment or bullying of students”. The other two questions were dichotomous (yes/no). The students were asked “if they had seen someone else being bullied and if the students at the school try to stop bullying”. Students’ concerns about student substance use, which on the scale it was titled “General drug use,” was measured using three items that reflect the perception of a problem with drug use (i.e., marijuana, LSD, cocaine, and ecstasy), tobacco (i.e., cigarettes, chew, and cigars), and alcohol (i.e., beer, wine, and liquor). However, this concept is beyond the scope of this current study. Bradshaw’s (2014) CFA second wave confirmed the first fit model (“CFI = 0.975, TLI = 0.966, RMSEA = 0.056, and SRMR = 0.064”) (p. 599). Bradshaw et al., (2014) found that “bullying and substance use played a role in student perceptions of safety” (p. 601). However, due to the age that this scale is created for, the third subscale (general drug use) was not included. Further, the engagement domain is outside the scope of this study and will not be addressed.

It is important, however, to mention that the third domain of “environment” is necessary for this current study due to its overlapping components of rules, consequences, and disorder, congruent with this current study’s code of student conduct section and school physical disorder section discussed later in this report.

Monitoring and assessing school climate differ among states. Common practice is the Thirteen (13) States’ Leadership Standards, while some states have their own formal assessment such as: The Mississippi Safe and Orderly School Instrument; The California School Climate, Health, and Learning Survey (CALSCHLS); and Tennessee whose instrument includes

safety and the school environment (Piscatelli, 2011). According to the National School Climate Center (NSCC), the Comprehensive School Climate Inventory (CSCI) is “one of the top school climate surveys in the field” and is “one of the “nation’s most scientifically sound” surveys with strong internal consistency which provides the coefficient alphas for each response group (Guo *et* al., 2011). While there are several versions of the survey being used, the most recent version of the CSCI measures twelve dimensions of school climate under five categories or factors (1. safety; 2. teaching and learning; 3. interpersonal relationships; 4. institutional environment; and 5. social media). For this construction of a scale on students’ perception of safety in brick-and-mortar public schools, three of the five were excluded: teaching and learning, interpersonal relationships, and social medial; while focusing on the relevant remaining two: safety and institutional environment. The factor of safety within the CSCI consists of three dimensions: “1. Rules and norms (measured by indicators on rules about physical violence, verbal abuse, harassment, teasing along with enforcement and adult intervention); 2. Sense of physical security (measured by indicators on feelings of safety for students and adults while at school); 3. Sense of social-emotional security (measured by indicators on feeling of safety from verbal abuse, teasing, and exclusion). The “institutional environment” factor includes three dimensions: 1. School connectedness/engagement (measured by indicators of positive identification with the school and norms for broad participation in school life for students, staff, and families); 2. Physical surroundings (measured by cleanliness, order, and appeal of facilities and adequate resources and materials); 3. Social inclusion (measured by acceptance of students with disabilities as members of the school community, including enhanced opportunities for socialization, extracurricular activities,

leadership, and decision-making) (NSCC, 2020). While school connectedness, engagement and social inclusion are important factors of school climate, these factors were excluded from this study on school safety.

The Comprehensive School Climate Inventory (CSCI) measures school climate for elementary school students' learning, however, they overlap with other sections in this report (i.e., bullying and the code of student conduct – regarding rules). The following questions are relevant to this current study for scale development: "Students in my school respect differences in other students (for example, where they come from, what they look like, if they are a boy or girl, etc.)"; In my school, we learn ways to solve arguments so that everyone can be happy with the result"; "I have been called names, teased, or made fun of more than once in my school"; In my school, we talk about how our actions makes others feel"; "Many students in my school will try to stop other students from saying mean things to others online or through the phone" "In my school, we talk about ways to be a good person"; "In my school, there are clear rules about not hurting other people (for example, hitting, pushing, tripping, etc.)" (p. 2). Although this current study will not measure online behaviors, the remaining question content is relevant for the item construction of school safety.

Conclusion: School Climate

While this current study is not on the climate of the school, the school climate model was a critical tool when searching for relevant indicators to measure school safety. School climate research was helpful for item construction as it introduced significant factors such as bullying, fighting, and disruptive or disrespectful behavior of students (Capp, Astor, & Gilreath, 2020) rules and consequences, physical comfort and cleanliness, support; physical and

behavior disorders (Bradshaw et al. 2014) which was included in the SPSS Scale for this current study. School climate and school safety are often considered to be directly related in that if students feel unsafe, the climate will be negative (Boreen et al., 2011). Therefore, school climate is a beneficial resource. While one key component of climate is safety at school, school climate measures a general sense of safety (i.e., "I feel safe at this school") (Bradshaw et al., 2014) and should not be confused with factor measurements of school safety, which are more specific.

Safety at School Research

School safety and community safety are often measured simultaneously. This association of neighborhood conditions and school violence was discovered nearly fifty years ago with the development of the first comprehensive national assessment of school safety through the Safe School Study (National Institute of Education [NIE], 1978). Later, student perception of school safety emerged. The Yale Child Study Center's Social and Health Assessment (SAHA) consists of 300 items and typically takes one hour to complete (Items and survey length is discussed in the reliability section of this report). The SAHA feelings of safety subscale assess safety in four domains; 1. homes; 2. neighborhoods; 3. schools; and 4. transportation to school (Weissberg, Voyce, & Kasprow, 1991; Schwab-Stone et al., 1995, 1999) which followed the school/community concept. Henrich, Schwab-Stone, Fanti, Jones, and Ruchkin (2004) adapted the Yale Child Study Center's Social and Health Assessment (SAHA), to assess children's perceived safety exclusively at school. Henrich *et* al., (2004) conducted a study on feelings of safety at school. The items were rated on a four-point Likert-type scale from 1 (definitely not true) to 4 (definitely true), that used five items from SAHA

which were: “(a) I feel safe on the school bus or while walking to school; (b) I feel safe standing in front of my school building; (c) I feel safe at after-school activities at my school; (d) I feel safe in the restrooms at my school; and (e) I feel safe at my school” (p. 334). These items were modified and used in this current study’s scale.

The 2017 School Crime Supplement FORM SCS-1 (SCS) for the National Crime Victimization Survey (NCVS) is a self-report measure that covers general questions (i.e., type of school, grade level, academic grades) and questions pertaining to the code of student conduct (whether the school has one and if the rules are fair), target hardening measures, fighting, bullying and hate behaviors, along with avoidance, fear, weapons, and gangs. The SCS asks questions related to students' perceptions of crime and school safety, (i.e., “preventive measures employed by schools; students' participation in after school activities; students' perception of school rules and enforcement of these rules; the presence of weapons, drugs, alcohol, and gangs in school; student bullying; hate-related incidents; and attitudinal questions relating to the fear of victimization at school”). Although the SCS Survey covers many concepts of school safety, this method of collecting school-related data in school safety research is for updates in school policies, and programs; it is not designed for younger students. A discovery was made through this literature search that dating back as far as 1989, this survey only covers those students in the sixth grade and higher. At the start of the survey, it states for the participant to “skip to end” if they are in the fifth grade or under. The most recent data on establishing reliable indicators for research on school crime involving 12- to 18-year-olds, are reported in the Indicators of School Crime and Safety. Musu, Zhang, Wang, Zhang, and Oudekert (2019) state that the indicators are drawn from a multitude of surveys, some

covering school safety, while others include items related to homicide, suicide, victimization, crime, drug and alcohol use, teacher working conditions, student attitudes and performance, legal issues, and even death rates (Table 2).

Table 2
Surveys Used in the Indicators of School Crime and Safety Reports

#	Survey	Construct/ Purpose
1	The School-Associated Violent Death Surveillance System, sponsored by the U.S. Department of Education, the U.S. Department of Justice, and the Centers for Disease Control and Prevention (CDC)	Homicides, suicides, legal intervention, death rates
2	National Vital Statistics System, sponsored by CDC	Death rates
3	National Crime Victimization Survey and School Crime Supplement to that survey, sponsored by BJS and NCES	Victimizations, crime, and safety at school
4	Youth Risk Behavior Survey, sponsored by CDC https://www.cdc.gov/healthyyouth/data/yrbs/data.htm	Alcohol, drug use, tobacco use and sexual risk behaviors.
5	Schools and Staffing Survey (SASS) sponsored by NCES	Characteristics of schools (includes private)
6	National Teacher and Principal Survey sponsored by NCES	Teaching and working conditions in public elementary and secondary US schools
7	School Survey on Crime and Safety sponsored by NCES	School crime data collected from school principals and administrators
8	Fast Response Survey System sponsored by NCES	Data on number of school and colleges, teachers, enrollment, graduating students, educational attainment, federal funds used for education, libraires and more.
9	ED Facts, sponsored by NCES	PreK - 12th grade performance data
10	Studies of Active Shooter Incidents, sponsored by the Federal Bureau of Investigation	Provide federal, state, and local law enforcement with data to better understand how to prevent, prepare for, respond to, and recover from these incidents.
11	Campus Safety and Security Survey, sponsored by the U.S. Department of Education	Campus crime and fire data
12	Monitoring the Future Survey, sponsored by the National Institute on Drug Abuse of the U.S. Department of Health and Human Services	Attitude of adolescents on drug and alcohol use

There is an increase in the frequency of school incidents, which are having detrimental, long-term repercussions on kids, parents, educators, and the community. The National PTA states that “school safety is a multi-faceted issue with no one clear solution for each community.” However, to promote learning, safe schools are essential. According to the CISA (2022) there are “five elements” to physical security for schools: “equipment and technology; site and building design features; school security personnel; training, exercises, and drills; policies and procedures” (p. 7). The National Association of School Psychologists (NASP) has a Framework for Safe and Successful Schools which outlines policies and best practices for school safety and climate improvements with successful learning. The Florida Safe Schools Assessment Tool (FSSAT) is the primary security assessment used by public school officials in Florida (Florida Statutes, 2021). The FSSAT helps “identify threats, vulnerabilities, and appropriate safety controls for the schools” (Florida Statutes, 2021) which includes: “1. School emergency and crisis preparedness planning; 2. Security, crime, and violence prevention policies and procedures; 3. Physical security measures; 4. Professional development training needs; 5. An examination of support service roles in school safety, security, and emergency planning; 6. School security and school police staffing, operational practices, and related services; 7. School and community collaboration on school safety; and 8. A return on investment analysis of the recommended physical security controls.” The FSSAT is a comprehensive safety control tool that serves as a framework for this current study. As a result, for item development, this section will concentrate on school safety from the perspective of children as it pertains to physical safety.

The 2021 Florida Statutes Title XLVIII Chapter 1006.07 “District school board duties relating to student discipline and school safety,” states that “the district school board shall provide for the proper accounting for all students, for the attendance and control of students at school, and for proper attention to health, safety, and other matters relating to the welfare of students, including: 1) Control of students; 2) Code of Student conduct; 3) Student crime watch program; 4) Emergency drills and emergency procedures; 5) Educational services in detention facilities; 6) Safety and security best practices; 7) Threat assessment teams; 8) Safety in construction planning; 9) School environmental safety incident reporting.” Chapter 1006.07 mentions “attention to health” however, after review, it refers to mental health of the student, not physical health. Health and safety concerns will be addressed in the health and hygiene section of this report. This section of the literature review, under safety at school, addresses school safety by reporting on four of the safety controls of the FSSAT and the 2021 Florida Statutes Title XLVIII Chapter 1006.07. Dangerous spaces at school, target hardening, school safe practices and procedures, and school climate. We must start with these four dimensions of school safety to “lay the foundation” so to speak, to build a clear path to understand the multidimensional domain of school safety.

Locations at School

Safety research often uses the phrase: “I feel safe” followed by a location. The questions and scales change as the domains change. This section is a necessary component of school safety to determine the locations in which students feel most unsafe and are considered problematic locations at schools. When constructing the items for this current

study, the locations that were considered dangerous in past research were implemented throughout each section of the SPSS Scale.

Over twenty years ago, we learned the importance of play and recess on cognitive development (Jarret et al., 1998). It allows for concentration on schoolwork because children are less likely to fidget during class after play (Jarret et al., 1998). Play time is also a valuable activity for other child development areas such as: physical, emotional, and social (Ramstetter, Murray, & Garner, 2010). Because it fosters creativity, even unstructured play—in which kids make up their own games—is beneficial for development. Generally, the gender of children determines the types of games played in the students' free time; boys play more physical games such as tag, kick ball, soccer, and other ball games, whereas girls play less physical, verbal games (Pelligrini, et al., 2002). While educators recognize the value of play, we also need to take advantage of the tools available to give kids access to secure play spaces.

Playgrounds at schools are the leading cause for hospital visits for children with over 218,000 on average per year from 1990 to 2012 across the United States (Adelson, Chounthirath, Hodges, Collins, & Smith, 2018). Most injuries (68.6%) sustained by children (5 to 12 years old) (M = 6.5 years, SE = 0.039) were in the upper limbs, accounting for 42.9%, and the head and neck for 35.8%. Fractures accounted for 34.1% of hospital visits, followed by soft tissue injuries (20.7%) and lacerations (20.5%). The upper limbs, 69.0% were fractures and the head and neck injuries were lacerations (48.8%). Patients between five and twelve years of age are more susceptible to receive fractures than patients less than four years and over thirteen years (Adelson, Chounthirath, Hodges, Collins, & Smith, 2018), which makes elementary age students the target population to consider as participants in a perception of safety study.

Playgrounds at school are considered violence-prone areas (Astor, Meyer, & Behre, 1999), as are bathrooms and hallways (i.e., undefined spaces). Astor, Meyer, and Behre (1999) interviewed 78 students and 22 teachers in five high schools with high violence rates. By using maps of the school and interviews, the results showed that violence takes place where there is an absence of teachers (i.e., hallways, lunchrooms, and parking lots). In a study to determine perception of safety in schools between elementary and middle school students, Astor, Meyer, and Pitner (2001) found that more elementary students than middle school students thought that playgrounds are dangerous areas. Moreover, the study found the underlying reason for their belief was stated best by one of their young elementary school participants: “Lot’s of kids like to pick on people there while everybody else plays football, and they just beat up other people” (p. 521). However, the “middle school students did not have recess and did not use the playground area (partially due to a history of violent student behavior during recess)” (p. 521). Although elementary students perceived "undefined spaces" (unsupervised areas) as dangerous, middle school students overall reported perceptions of dangerous spaces more than elementary students, which is consistent with previous studies on dangerous spaces in high schools (Astor, Meyer, & Behre, 1999). Astor, Meyer, and Pitner (2001) reported on other undefined dangerous spaces, relevant to this study, by grade level, and by numbering each space by the degree of danger (Table 3) (p. 522) (For further results see Astor, Meyer, & Pitner, 2001).

Table 3
Percentage of Students Nominating Undefined Dangerous Spaces by Grade Level

Dangerous areas at schools	Grade Level Percentage			
	Second n=82	Fourth n = 89	Sixth n = 105	Eighth n =101
Hallways	17%	12%	18%	51%
Classrooms	16%	23%	17%	20%
Outside	13%	27%	16%	29%
Bathrooms	7%	11%	20%	18%
Cafeteria	9%	8%	4%	25%
Gym	10%	9%	10%	16%
Stairs	6%	2%	8%	10%
Playgrounds	20%	23%	15%	2%

There were themes found as to why students believe certain spaces to be dangerous or violent: “No monitoring or supervision, crowding, and bullying (big/small children)” (Astor, Meyer, & Pitner, 2001. p. 520). Elementary students reported that bullying happens in the bathrooms, hallways, and stairways. One of their participants said something quite disturbing, “[…] everybody beats up all kinds of little kids in the bathroom” (p. 520). Astor, Meyer, and Pitner (2001) reported that there was no monitoring or supervision in elementary school hallways and bathrooms. When asked about the most dangerous space at school, a participant replied “in the hallway… ‘cause it’s like the biggest space in the school. And like most teachers don’t look in the hallway if they’re going to get coffee” (p. 520). In other words, the students did not feel safe because they perceived the teachers were more focused on getting a drink from the breakroom than on watching the students. Middle schools had similar results; no monitoring in the hallways and anywhere outside; crowding in the hallways (“usually after lunch, fights break out”); and bullying in the hallways (“big kids pick on little kids”). It is important to note that school hardening has improved since this study and if duplicated, the results may have different outcomes. However, one valuable discovery from Astor, Meyer, and

Pitner, (2001) was that elementary school teachers feel responsible for all the students within the school regardless of location, whereas middle school teachers report their responsibilities are primarily in the classroom.

Current Measures of Dangerous Locations at School

Perumean-Chaney and Sutton (2013) used a sample of 13,386 adolescents (7^{th} -12^{th} grade) taken from the National Longitudinal Study of Adolescent Health (AddHealth) consisting of over 20,000 students. The students completed the In-Home Adolescent Survey consisting of questions on students' perception of safety at school which offered the individual-level data. The perception of school safety was measured with one item; "You feel safe in your school" (p. 575). This question was measured dichotomously as 1 = yes ("strongly agree" and "agree") and 0 = No ("disagree" and "strongly disagree") (p. 575). Although I like this straightforward question, the SPSS Scale's items will incorporate previous research on students' perceptions of undefined spaces, like hallways, stairs, classrooms, bathrooms, cafeterias, gyms, outside the school building and playgrounds, because they have limited supervision and/or cameras that students notice. Henrich *et* al., (2004) added the location to the questions on how students report safety: "I feel safe in the restrooms at my school". While another study, closer to this current study's plan, measured elementary school students' perception of safety of more than one location. The participants were to rate the responses on a 4-point Likert scale (strongly disagree to strongly agree) "How safe do you feel in the hallways of school; in the bathrooms of the school; outside around the school; traveling between home and school; in your classes?" (Ruiz, McMahon, & Jason, 2018. p. 301). This scale also included three other questions: one on violence and two regarding bullying. Ruiz, McMahon, and Jason (2018)

measure a few concepts of safety with limited indicators, they also include the use of a different measure (5Essentials) to investigate school climate (leaders, teachers, type of instruction, student family involvement, and supportive environments). Their aim was to investigate safety, climate, and socio-economic status to academic achievement. While this is useful, they only scratch the surface of this current study's objective – development of a scale to measure perception of student safety at school on a physical security level.

Target Hardening

There is debate over how to ensure safety perception at schools. Prevention strategies such as: placing school resource officers (SROs) on campuses, installing metal detectors, safeguarding the school perimeters, and installing cameras, are considered a "hardening" of the school (Crepeau-Hobson, Filaccio, & Gottfried, 2005). The Cybersecurity and Infrastructure Security Agency (2022) offers a guide that includes instruction for layered security at schools to "help avoid gaps in protection and mitigate against single points of failure" (p. 9). The four layers of school security are: 1. "the grounds perimeter" (i.e., the school boarder) controlled by gates; 2. "the school grounds layer" (i.e., outdoor spaces at school) controlled by outer protective measure such as lights, RSO's or police, and cameras; 3. "the building perimeter layer" (i.e., walls of the school) controlled by access to the school such as security keypads, keys, RSO's or police, and cameras; and 4. "the building interior layer" (i.e., inside the school) is controlled by indoor protective measures such as radio or communication devices, keys, RSO's or police, and cameras (p. 9). The debate continues: what works best and how to implement security for each school district.

Prior research examined security measures through opinions of students and school principal surveys and found that school resource officers (SROs) positively impact the feeling of safety at schools (McDevitt & Panniello, 2005; May, Fessel, & Means, 2004) and police officers and security officers on campus increase the feeling of a safe school environment (Brown, 2006). Yet, while the school principals reported that the SRO's on campus made them *feel* safe (24.3%) at school, the SRO presence made the school *appear* to be unsafe (14.9%) (May, Fessel, & Means, 2004). Utilizing the AddHealth dataset, Gastic (2011), found that metal detectors have negative impact on the students' feeling of safety compared students who attend schools without metal detectors. Prior research on school safety found that a physical security measure (i.e., use of metal detectors) combined with at least two other physical security measures (i.e., patrol officer, surveillance cameras, bars, or locked doors) resulted in a significant decrease of student's safety perception (Perumean-Chaney & Sutton, 2013). Additionally, there is evidence to show that "actions taken by the school" to improve school safety is the "weakest predictor of student perception of safety" (Kitsantas, Ware, and Martinez-Arias, 2004. p. 412). Yet, school officials, the community, and parents want strict target hardening procedures to ensure safety. In other words, more is not always better.

The debate over how to ensure safety perception at schools may be influenced by the unchartered topic of the effect that target hardening measures have on student's perception of safety (Perumean-Chaney & Sutton, 2013). The neighborhood and school environment characteristics are considered "inseparable" (Stephens, 1998) and are almost always included in research on target hardening as a measure of school safety (Kitsantas, et al., 2004;

Perumean-Chaney & Sutton, 2013). Additionally, target hardening is frequently assessed based on the safety measures schools take to secure the facility (Kitsantas, et al., 2004).

Kitsantas, *et* al., (2004) conducted a path analysis to find relationships among students' perceptions of school safety, students' perception of substance use, two community variables ("community safety and relative school safety"), and school environment characteristics ("fairness of disciplinary code, school climate, school safety actions"). The participants were 3,092 sixth, seventh and eighth graders who responded to the "School Safety and Discipline component of the 1993 National Household Education Survey. School safety actions were assessed with eight questions that pertain to the use of "school guards on campus, metal detectors, visitor's passes, restroom restrictions, school locks, locker checks, hall passes, and teacher supervision in the hallways" (p. 419). Kitsantas, et al., (2004) found that having school locks and metal detectors did not load on the factor of school safety actions and was dropped from the EFA. However, "school environment variables (school climate, discipline code fairness, and school safety actions) strongly influence a student's perceptions of school safety" (Kitsantas, et al., 2004. p. 423). School safety actions (i.e., school guards on campus, visitor's passes, restroom restrictions, locker checks, hall passes, and teacher supervision in the hallways) were predicted by students' perception of community safety. However, from the students' perspective, the safety actions taken by the school are not influenced by relative school safety ("the students' perception of safety of the school relative to the community). Interestingly, "community safety and school safety relative to the community do influence adolescents' perception of school safety" (Kitsantas, et al., 2004. p. 423). "Relative school safety had […] a strong direct effect on students' perceptions of school safety" (p. 423). In

other words, students' sense of safety in their community is reflected in their sense of safety at school, which supports earlier research findings that indicate how community experiences impact students' overall wellbeing and can either improve or worsen school safety (Elliott et al., 1998). The emphasis of this section is on target hardening, which is determined by "school safety actions" that are predicted by students' perceptions of the community. However, it is important to note that Kitsantas et al.'s (2004) study has limitations related to its external validity, namely the requirement for an operational definition of the terms "neighborhood" and "community." Moreover, the study's applicability to students now is limited because the findings are based on data that was gathered in the early 1990s, before the Columbine school shooting. The authors also mentioned the estimates of the survey's reliability is low, however no further explanation was given. NCES (2015) surveyed public school principals on their safety and security procedures using the Fast Response Survey System (FRSS) and found that within 93% of schools in the U.S., between 2013 – 2014, reported using a controlled system for locking and monitoring doors during school hours, this is an increase from 75% during 1999-2000. Additionally, there was an increase in security cameras from 1999-2000 at 19% which jumped to 75% in 2013-2014 calendar years (NCES, 2015).

In the end, the feeling of safety comes from a balance of security measures maintained by the school. Avoiding invasive measures (i.e., "metal detectors and armed guards") but instead combining reasonable security measures (i.e., supervised public areas) with initiatives to improve school culture (Cowan, et al., 2013). However, the challenge is to find the right balance for each school, within each district due to the relationship between community and school safety (Elliott et al., 1998).

Current Measures of Target Hardening

Perumean-Chaney and Sutton (2013) used a sample of 13,386 adolescents (7^{th} -12^{th} grade) taken from the National Longitudinal Study of Adolescent Health (AddHealth) consisting of over 20,000 students. The students completed the In-Home Adolescent Survey consisting of questions on students' perception of safety at school which offered individual-level data. The perception of school safety (dependent variable) was measured with one item; "You feel safe in your school" (p. 575). This question was measured dichotomously as 1 = yes ("strongly agree" and "agree") and 0 = No ("disagree" and "strongly disagree") (p. 575). The School Administrator Questionnaire supplied the school-level data such as: school security measures and school characteristics on the 130 schools the students attended. "The independent variables were categorized into two groups: physical security measures and non-physical security policies" (p. 575). Perumean-Chaney and Sutton (2013) considered "visible, target-hardening approaches to improve school safety such as student resource officers, metal detectors, video cameras, and bars/locked doors" as physical security measures (p. 576). Three questions were asked regarding physical security: 1. "Is there a security officer or police officer on duty at your school during school hours?" 2. "Do students walk through a metal detector when they enter the school building?" measured with a dichotomous response of 1 = presence and 0 = absence. The third question was also dichotomous 1 = yes or 0 = no, however had four categories: 1) Officer/Patrol, 2) Metal Detector/Wand, 3) Video Cameras, and 4) Bars/Locked Doors to answer the question: "Does your school have any other special safety or security feature?" (p. 576). The non-physical security policies (i.e., behavior management) were "hall passes, visitor sign in, closed campuses, parking regulations, and dress codes" (p. 576). The five

items: “1) Hall passes are required; 2) Visitors must sign in at the main office; 3) Students may not leave the school grounds; 4) Students may not park their cars on school grounds; and 5) Students must obey a dress code” were measured dichotomously as 1 = presence or 0 = absence. The results of Perumean-Chaney & Sutton’s (2013) study found that student’s perception of safety is not affected by non-physical security measures (i.e., hall passes; visitor sign-in; students not permitted to leave school; no students parking on campus; and student dress code) and will therefore not be indicators on the SPSS Scale.

“Individual and school characteristics impact student perceptions of school safety” therefore, Perumean-Chaney and Sutton (2013) included both as control variables “(Addington & Yalalon, 2011; May et al., 2004; McDevitt & Panniello, 2005; Phaneuf, 2009; Schreck & Miller, 2003)” (as cited in Perumean-Chaney & Sutton, 2013. p. 576). The student-level variables include “gender (1 = Male; 0 = Female), age (in years), and race (1 = White; 0 = Non-White)” A dichotomous variable for race was created. The explanation is below:
“Race was originally coded as White, Black, American Indian, Asian, and other race. The categories, American Indian (n = 342), Asian (n = 962), and other races (n = 159), accounted for only 11 % of the variable which would not justify creating a third race category. […] we needed to preserve the degrees of freedom in the multivariate analysis” (Perumean-Chaney & Sutton, 2013. p. 577). Like other safety research, neighborhood safety was measured dichotomously, students “indicated whether or not they usually felt safe in their neighborhood (1 = Yes; 0 = No)” (p. 577). There were two other variables: delinquent friends and victimization. However, for this current study on elementary school students, the “delinquent friends” variable will not

be considered, and victimization items are discussed in the section titled violence, bullying, and peer victimizations.

The 2017 School Crime Supplement FORM SCS-1 (SCS) offers items on security measures, which overlap with safety procedures, the code of student conduct, and classroom management or distraction. The survey asks students in the sixth grade and higher: “Does your school have: security guards or assigned police officers?”; “Other adults supervising the hallway, such as teachers, administrators, or parent volunteers?”; “Metal detectors?”; “Locked entrance or exit doors during the day?”; “A requirement that visitors sign in AND wear visitor badges or stickers”; “Locker checks”; “A requirement that student wear badges or picture identification”; “One or more security cameras to monitor the school”; “A code of student conduct, that is, a set of written rules or guidelines that the school provides you”; “If you hear about a threat to school or student safety, do you have a way to report it without having to give your name”; “In your classes, how often are you distracted from doing your schoolwork because other students are misbehaving, for example, talking or fighting” (p. 5). Although these items overlap with other sections of this current study, they are mentioned here. These items were formatted as (1 = yes, 2 = no, 3 = don’t know). The question about the locker checks offers a category: “4 = school does not have lockers.” This is useful information when creating a scale; to allow alternative responses if the item is not applicable to the student. The last question is measuring distraction and offers four categories (1 = never, 2 = almost never, 3 = sometimes, 4 = most of the time).

Items for the SPSS Scale include modified versions of the questions listed above and ask, “how safe do I feel if…?” It is important to note that Kitsantas, et al., (2004) found items

not loading on the EFA (i.e., school locks and metal detectors), however, they may be relevant for this current study.

School Safe Practices and Procedures

Concern for the safety of our children while they learn at school is increasing (Allen, Loreck & Joseph, 2008; Astor, Meyer, & Behre, 1999; Dalton-Noblitt, 2012). Teachers and school administration are being taught weapons identification (Alger, 2008; Butterfield & Turner, 1989) and target hardening measures, like implementing metal detectors, have become common practice (Barone, 2007). Different from target hardening measures, are safety practices; although one such common practice that is also considered a target-hardening measure is locking children into schools every day. School and district leaders are faced with challenges when trying to find the best practice to ensure school safety for specific crisis events because "there is no one-size fits all approach to school physical security […]" (Cybersecurity & Infrastructure Security Agency, 2022. p. 7).

The most common school safe practice and procedures are red alerts, fire drills, and locked doors (Crepeau-Hobson, Filaccio, & Gottfried, 2005) to protect in the event of a school crisis. A school crisis is defined as "a sudden, generally unanticipated event that profoundly and negatively affects a significant segment of the school population and often involves serious injury or death" (Decker, 2007. p. 116. as cited in Javed & Niazi, 2015). This includes natural disasters, fires, or school shootings. During a school crisis, following protocol and quick actions can save lives. A failed example was that of the 2022 Robb Elementary School shooting. According to the Texas Department of Public Safety, the police arrived on campus within minutes, entered the school through the same unsecured door as the shooter, but were

unable to “get to the suspect due to gunfire they were receiving” and called for additional backup: “specialty equipment, body armor, tactical teams, precision riflemen, and negotiators”. After one hour, action was taken by the U.S. Border Patrol tactical team: they entered the school, shot, and killed the suspect. Meanwhile inside the school, children were dying. After police entered the school, but before the tactical team arrived, (as recalled by a fourth-grade student) the officer told students to “yell if you need help.” A little girl said “help” and was immediately shot by the gunman. Thus, providing a fatal consequence of school safety policy and police protocols not being met. During a hearing on the school tragedy, Col. Steve McCraw, Director of the Texas Department of Public Safety, stated, "Plain and simple, not enough training was done in this situation." There were issues with radios not working, doors not being checked to make sure they were closed, police waiting for unnecessary equipment, mistakes in school layout schematics, and cops standing by while the gunman killed kids and teachers.

Over thirty states in the US are required by law to undertake active shooter drills. The Somerville School in Boston developed a contentious method of instructing young children on what to do in the event of a school invasion. This method is a song set to the catchy toon of “Twinkle, Twinkle Little Star” which reads:

“Lockdown, Lockdown, Lock the door, Shut the lights off, say no more, Go behind the desk and hide, Wait until it’s safe inside, Lockdown, Lockdown It’s all done, Now it’s time to have some fun!” SchoolSafety.gov was created by the federal government to provide schools and districts with “actionable recommendations to create a safe and supportive learning environment” (SchoolSafety.gov). There has been want, for schools to participate in crisis training such as the

"Run, Hide, Fight" model, (U.S. Department of Education, 2013) however, if the training is not implemented with precise measures because of the sensorial experiences, it could cause more harm than good, both physically and psychologically (Zhe & Nickerson, 2007). For decades, schools have conducted effective drills as part of the school's safety preparedness for fire and hazardous weather, which do not elevate student's level of anxiety. Drill practice increases both knowledge and skills needed for response to threats at school (U.S. Department of Education, 2013). Lockdown drills, known as red drills in recent years, offer an "opt-out" policy which is an alternative training for those students who have been previously involved in school violence. Alyssa's Law, named after Alyssa Alhadeff, who was killed in the Marjorie Stoneman Douglas High School shooting, mandates to have a panic alarm system in place at schools. Mutualink K-12 (certified by the U.S. Department of Homeland Security) is one such app that connects school staff to first responders (i.e., police, EMT, fire, and hospitals) and offers the Incident Command System (ICS) best practices to the K-12 school districts. Mutualink K-12 works like a command center, in that the school's security systems are linked through multimedia. Additionally, first responders share this technology through video, telephone (landline and cellular), and radio access with the schools to provide situational awareness.

While there are new measures in place for crisis preparedness, there is always human error. For instance, at the Robb Elementary School shooting, the first 911 call was at 11:30am on May 24th, 2022. The school was not secured when the gun man started shooting outside of the school at 11:31am. The gunman was able to enter the school at 11:40 am through the unsecured door, according to the Department of Public Safety South Texas Regional Director, Victor Escalon. Ten minutes later, at 11:43 am the school used Facebook as a platform to

announce that the school is on lockdown and stated that “due to gunshots in the area […] the students and staff are safe in the building” (Langmaid, Maxouris, & Gray, 2022, para. 6). At 12:17, another announcement on Facebook is posted from Robb Elementary, “there is an active shooter at the school and authorities are at the scene” (Langmaid, Maxouris, & Gray, 2022, para. 15). However, as we know, the shooter was in the building and not subdued for another 33 minutes (12:50 pm); 21 people (19 children and 2 adults) lost their lives.

The issue of reunification is at a developmental status of the Office of Disease Prevention and Health Promotion (ODPHP) at the U.S. Department of Health and Human Services. In other words, the goal to “increase the proportion of parents and/or guardians aware of the emergency or evacuation plan in their child(ren)’s school (PREP-D01), including the evacuation location and how to get information about the child in the event of a disaster” is a “high-priority public health issue that has evidence-based interventions to address it, but doesn’t yet have reliable baseline data” (ODPHP, 2021, para 1). Once this baseline is determined, this parent reunification goal may be considered a “2030 Healthy People” objective.

An organization that has taken the lead in the field of international and domestic school crisis prevention and response is the National Association of School Psychologists (NASP). NASP members later created the National Emergency Assistance Team (NEAT) in 1996. NEAT’s original purpose was to help individuals, families, schools, and communities cope with crisis situations (Zenere, 1999). In 2003, members of the National Emergency Assistance Team (NEAT) created a school crisis prevention and intervention training for schools: Prevent, Reaffirm, Evaluate, Provide and Respond, and Examine (PREPaRE) Model (Brock et al., 2009)

which was run as a pilot study in 2006. In 2011 a revision was made to the curriculum and the second edition of PREPaRE was launched. Nickerson et al., (2014) conducted a study to examine the latest version of PREPaRE. The PREPaRE Workshop 1, Crisis Prevention and Preparedness: Comprehensive School Safety Planning is a one-day workshop that provides information to assist with the establishment of crisis prevention and preparedness within schools. Workshop 1 focuses on the development of safety crisis plans and how to exercise and evaluate the plan. The PREPaRE Workshop 2, Crisis Intervention and Recovery: The Roles of School-Based Mental Health Professionals. The results of the Workshop I intervention found a significant difference, the participants were "more knowledgeable about school crisis prevention and preparedness and were more enthusiastic and confident in their ability to collaborate with others to develop a comprehensive school crisis response management plan" (Nickerson et al., 2014. p. 474). Threat assessment teams within schools are necessary to determine the level of threat and which course of action should be taken. These teams have a leader who is responsible for school safety and include administrators from the school, such as the principal or vice-principal, a school psychologist or counselor and a police officer who is trained to work within schools. These teams work to evaluate and prevent possible violent threats to students, staff, and faculty (Cornell & Allen, 2011).

Current Measures of School Safe Practices and Procedures

Nickerson and Osborne (2006) surveyed school staff and found that they were not adequately prepared for crisis situations. Allen and colleges (2008) examined emergency management research and found that in a survey from three Eastern states in the U.S. 95% had emergency crisis management plans, however, 26% of the districts did not have a full day

crisis training course, 32% stated that a full-scale practice drill had never been completed and 11% of the district surveyed were unaware of such a drill. After a survey conducted through the U.S. Government Accountability Office in 2007, “school district administrators reported a lack of necessary skills and equipment” (as cited in Nickerson et al., 2014). However, other research (Lorek, & Mensia-Joseph, 2008) shows that even with a written plan, individuals do not follow all the necessary procedures to ensure a safe environment during a crisis.

Allen, Lorek, and Mensia-Joseph (2008) conducted a study of 500 participants from federal, state, and local agencies. Their purpose was two-fold: first, to find a “systematic process for planning, executing, and evaluating a multiagency mock drill exercise, and (2) to evaluate the ability of one school district’s administrators to use the emergency management procedures to respond during a multiagency mock drill” (p. 192). This mock drill took place in a vacant middle school. Each participant was given a specific role (i.e., teacher, principal, vice-principal, janitor, or observer). Students from a military school were assigned to play the part of the students. The participants were given a timeline of scheduled events (e.g., “school shooting - terrorists take over cafeteria” between 10:00 a.m. and 10:29 a.m.). The observers recorded the behavior of the participants and rated the atmosphere of the situation and perception of the training. A four-point scale (1 = catastrophic, 2 = chaotic, 3 = stressful, and 4 = calm) was used for the atmosphere of the situation; a three-point scale (1 = not secure, 2 = stable, 3 = secure) was used to measure the perception of the training situation. The behavior was measured by an observation checklist to determine whether proper crisis procedures were followed (e.g., lockdown or evacuation). Allen, Lorek, and Mensia-Joseph (2008) found that 78% of participants correctly relocated the students away from the windows and doors

and 63% used proper procedures by locking the windows. However, 63% did not follow the procedure of turning off the lights or posting an “All Clear” or “Need Help” sign on the outside of the classroom door. Furthermore, 50% of the participants failed to lock the classroom doors, while 55% of the observers reported that in those areas, the atmosphere was calm, although 77% found the area “not secure”. Although this research is dated, and is an observational study with a short survey, it offers direction and focus for school safe practices and procedures item development. When formulating procedural questions, the focus must remain on the perception of students’ safety during a drill because each school district has its own system and procedures, we must remember that “there is no one-size fits all approach to school physical security […]” (Cybersecurity & Infrastructure Security Agency, 2022. p. 27).

Empirical research that supports red drills with sensorial experience (i.e., armed attackers) has not been found within relevant school demographics and self-report measures. However, the education and training of the teachers and staff are important for the safety of the students. The way an adult (e.g., teacher, administrator, janitor) acts during emergency situations has a direct impact on the children’s safety, both physically and mentally (Allen, Lorek, & Mensia-Joseph (2008). The above-mentioned studies offer ideas for item content for this current study; the students should be asked questions regarding red drills separately from fire drills and whether knowing the procedures for their classrooms and other locations throughout the school campus (e.g., bathrooms, gymnasium, lunchroom, or outside) enhances their perception of safety at school.

In recent developments following the Robb Elementary School shooting, students from other school shootings have been interviewed, which has shed some light on safety protocols

from a student's perspective. Questions should include structures and locked doors or windows. According to this review, the SPSS Scale questions were formatted to ask about the perception of how safe the student feels during the drills, the location of where they are, and if their perception of the teachers' behavior (i.e., stressed out or calm) affects their perception of safety.

Code of Student Conduct

The 2021 Florida Statutes Title XLVIII Chapter 1006.07 is addressed through the code of student conduct which includes dimensions found in past studies. When investigating school safety scales, it was discovered that items refer to bullying, threats, crime, violence, victimization, and/or in-school location of student safety (i.e., bathrooms, hallways, classrooms, etc.) were used within the same scale (i.e., Ruiz, McMahon, & Jason, 2018; Henrich *et* al., 2004). However, they were limited, only a few indicators within the constructs of the safety domain. To provide item structure and content for the SPSS Scale in this section, two counties in a south-eastern state's code of student conduct handbooks were analyzed. The infractions were categorized based on their theoretical significance for school safety.

The degree to which students felt that the disciplinary code was fair had a direct impact on school safety (Kitsantas, Ware, & Martinez-Arias, 2004). This emphasizes the importance of "policies that students perceive as fair and validates the belief that firm (and fair) enforcement influences students' perceptions about his or her school" (Kitsantas, Ware, & Martinez-Arias, 2004. p. 424). Wherefore, The Code of Student Conduct Handbooks (2020-2021) from two counties were examined to further define school safety. Minor differences among the districts can be found, but both have the same agenda: "to safeguard students while on campus".

Findings from the Code of Student Conduct Handbook terms of offenses, offer clear definitions and levels of offenses which includes a breakdown of consequences of the acts. The terms were categorized, narrowed, and the descriptions were paraphrased for this study (Table 4). The items kept for this current study include physical safety offences (PSO) that could cause injury (i.e., arson, battery, bullying, extortion, fighting, possession of any weapon or something that could cause harm, harassment, hazing, horseplay, and intimidation). Physical safety has subsections, which include empirical research that offer item development for the SPSS Scale. The subsections are identified as: 1. Violence, bullying, and peer victimization; 2. Weapons and contraband; and 3. Threats. The non-compliance of "order and control" (OCO) among students (i.e., burglary, bullying, disorderly conduct, disrespect, extortion, gross insubordination, harassment, hazing, horseplay, intimidation, stealing, destruction, theft, or vandalism), are considered non-injury offenses or behavior management issues. The OCO section offers the same format as the PSO section. There are five offenses that fit both PSO and OCO categories (i.e., bullying, harassment, hazing, horseplay, and intimidation) depending on the level of offense. However, horseplay, though categorized as both PSO and OCO, will be mentioned under the OCO section regarding behavior management. All other offenses that overlap will remain in the PSO section due to the possible escalation to harm.

Table 4
Code of Student Conduct Safety Offences (Physical and Order/Control Non-injury)

Category	Level of Offence	Offense	Description
PSO	L4	Arson	The deliberate, malevolent, and/or intentional burning of school property or other people's property.
PSO	L4	Battery	The deliberate or actual act of touching or striking someone against their will that results in more severe physical injury, such as the use of a deadly weapon, severe physical pain, lasting disfigurement, or a substantial risk of death.
PSO/OCO	L2, L3, L4	Bullying	Cruelly treating someone else over and over, such as by name-calling, teasing, and light physical contact. NOTE: L3 comprises causing physical harm or psychological anguish on another person on a regular basis. Examples of such acts include calling someone names and threatening them, making physical contact that results in minor injuries, and sending written texts, images, or videos to several people. L4 progresses to severe physical harm and involves stalking.
OCO	L4	Burglary	Unauthorized access or stay in a building, or vehicle with the intention of causing harm or committing a crime there.
OCO	L1	Cheating	Knowingly or purposefully using someone else's work or notes without permission to complete a task for class or an exam.
OCO	L1	Disorderly conduct	Conduct or behavior that tampers with or disturbs the classroom environment, the school's operations, or the orderly process of learning.
OCO	L1, L2, L3	Disrespect	Behavior that is devoid of consideration, civility, politeness, or courteousness towards others.
PSO	L3	Extortion/ Blackmail	The deliberate or intentional threat of violence, injury, or harm to another person's person, property, or reputation with the goal of obtaining cash, valuable information, services, or goods. This can entail making false charges or stealing lunch money.
PSO	L2, L3	Fighting	Depending on the severity of the offense, which can range from light physical contact like pushing or shoving to physical violence that needs to be stopped or causes harm.
PSO	L4	Firearms/Weapons	The ownership, use, or management of any weapon or firearm as those terms are defined in Florida Statutes, Chapter 790, whether loaded or unloaded. This also applies to using or attempting to use any object that has the potential to cause harm to another individual.
PSO	L3	Fireworks	Unlit firecrackers or fireworks being brought into or stored in a school without permission.

Category	Level of Offence	Offense	Description
OCO	L2	Forgery	To falsify another person's signature or paper to commit fraud.
OCO	L3	Gross Insubordination/ Open Defiance	The deliberate rejection of authority; displaying disdain or overt defiance of a direct command; openly defying authority in front of others and causing a disturbance.
PSO/OCO	L1, L2, L3, L4	Harassment	The use of data or computer software, threats, insults, dehumanizing motions, and written, verbal, or physical acts that reasonably cause someone to fear harm to themselves or their property can all have a significant negative impact on a student's academic performance or opportunities. produces mental discomfort or tampers with the school's orderly functioning. This can involve, but is not restricted to, making fun of someone else, calling names, gossiping, spreading untruths, and/or intentionally making someone feel uncomfortable. NOTE: L2 progresses to mild physical contact, cursing, and name-calling. L3 comprises teasing someone while threatening them, making physical contact that results in harm, and sending written texts, images, or videos to numerous people. Stalking and instilling a credible fear of death or serious injury are included in L4.
PSO/OCO	L3, L4	Hazing (Code states that this is for grades 6 to 12)	Any circumstance or activity that puts a student's physical or mental health in jeopardy to initiate or admit them into any organization that has the approval of the school. NOTE: False imprisonment that necessitates medical attention, verbal or physical behavior that causes harm that necessitates medical attention, and any other act that poses a significant risk of death or serious injury are all included in L4.
PSO	L4	Homicide	The senseless murder of one person by another
PSO/OCO	L1, L2	Horseplay	Any hard, unruly games or jokes involving two or more students that, despite adult guidance, do not cease. NOTE: L2 Involves possibility of damage; L3 Actual damage; L4 Serious Injury
PSO/OCO	L2, L3, L4	Intimidation	Any explicit or implicit threat to cause damage to someone else's property, to assault, brawl, or batter someone else, or to endanger the life of another student NOTE: L1 if it is spoken rhetorically, in jest, or with rage or annoyance, or if it is ambiguous. Escalated threats L3 and L4, which contain threats against personnel, are made with the intent to use violence.
PSO	L4	Kidnapping	Confining, capture, or imprisoning someone else against their will and without a valid warrant, either physically or by threat.
OCO	L4	Larceny/Theft ($750 or more)	The act of taking, carrying, or attempting to ride away with anything. or removing things without threatening violence or bodily damage from another person's possession or constructive ownership.

Category	Level of Offence	Offense	Description
OCO	L4	Major Disruption on Campus	Major disruption of school-sponsored events, school bus service, or all or a substantial portion of campus activity. disruptive conduct that endangers the welfare, health, or safety of others, as well as the learning environment. provoking a riot, setting off a fictitious fire alarm, situations that force the cafeteria to close, and/or situations that prohibit pupils from moving on to the next lesson.
PSO	L4	Other Dangerous Objects	The ownership, transfer, or possession of any tool or item that could be used to threaten or damage someone else, excluding firearms and other weapons as those terms are specified under Level 4 H crime. Airsoft or paintball guns, BB guns, pellet guns, replicas of any kind of gun or weapon, blunt-bladed table knives, chains, pipes, regular household tools, razor blades, box cutters, utility knives, ice picks, other pointed objects, nunchucks, Chinese stars, pepper spray, ammunition, firearm clips, or cartridges are all included in this. Setting off firecrackers or fireworks is included in this violation.
PSO	L4	Physical Attack	An act of purposeful or real striking that causes less severe physical harm to the target of the strike. NOTE: If the students are mutual combatants, this excludes injuries sustained during a battle.
PSO	L3	Possession of Contraband Material	Control, usage, and/or distribution of objects or materials (apart from guns and other weapons) that are prohibited.
OCO	L4	Robbery/Extortion	The act of taking, taking part in, or attempting to possess something valuable that belongs to another person or organization while using force, threatening violence, or instilling fear in the victim. NOTE: this can entail removing clothing, phones, purses, and other items.
OCO	L2, L3	Stealing	Stealing another person's property without their consent
OCO	L4	Threats to the School	Any threat, whether direct or indirect, that could endanger the school or interfere with its operations. This includes threats made via text, social media, or verbal or nonverbal acts. Threats to carry out a mass shooting or an act of terrorism, as well as threats to use firearms violently, may fall under this category.
OCO	L2, L3, L4	Vandalism L2 (under $100), L3($100 - $999), L4 ($1,000+)	Deliberate destruction of another person's or the school's property. L4: the deliberate and malevolent destruction, damage, or defacement of public or private property, including the act of damaging a room or car with graffiti, keying, or scratches.

Students' perception of safety is not affected by non-physical security measures (i.e., hall passes; visitor sign-in; students not permitted to leave school; no students parking on campus; and student dress code) as we learned earlier (Perumean-Chaney & Sutton, 2013). Therefore, exclusions mentioned in Perumean-Chaney and Sutton's (2013) study were visitor sign in and parking regulations. Other exclusions are offenses that do not cause disruption or is not directed at any persons or does no harm to another person or property (i.e., dress code, failure to report to detention, false or misleading information, cheating, forgery, profane, obscene, or abusive language, tardiness, minor insubordination, trespassing, unauthorized assembly, illegal organizations, or electronic device violations). Due to the age of the participant, the use or possession of drugs or alcohol, sexual harassment/battery, any sexual offence, smoking /vaping, gangs, and gambling were not included. Additionally, homicides and kidnapping are excluded because the SPSS Scale will not ask about these potentially traumatizing events. However, violence in the community and at school was written as questions with caution and placed in the bullying and peer victimization section.

Current Measures of the Code of Student Conduct

To ascertain the relationships between students' perceptions of school safety and substance use, two community variables (community safety and relative school safety), and features of the school environment (fairness of the disciplinary code, school climate, and school safety actions), Kitsantas et al. (2004) performed a path analysis. There was a correlation between the fairness of the disciplinary code and school climate (r = .54) which indicated a degree of reliability. Therefore, the fairness of using the disciplinary code as a means of creating scaled questions was examined. In Kitsantas et al. (2004) study, the

participants were 3,092 sixth, seventh and eighth graders who responded to the "School Safety and Discipline component of the 1993 National Household Education Survey. For the fairness measure, a five-point Likert-type scale ranging from 1 (strongly agree) to 5 (strongly disagree) asked the following questions: "Everyone knows what the school rules are"; "The school rules are fair;" "The punishment for breaking school rules is the same no matter who you are;" "The school rules are strictly enforced;" and "If a school rule is broken, students know what kind of punishment will follow" (Kitsantas, et al., 2004. p. 418). There was internal consistency found in the fairness of the school disciplinary code scale ($\alpha = .73$). The school climate measure was discussed because it measures teachers' ability to maintain classroom discipline and fits within the student code of conduct, behavior management. A four-point Likert-type scale ranging from 1 (strongly agree) to 4 (strongly disagree); was used with items of: "being challenged at school," "enjoyment of school," "degree to which teachers maintain good discipline in the classroom," "extent to which students and teachers respect each other," and "extent to which the principal and assistant principal maintain good discipline" (Kitsantas, et al., 2004. p. 418).

The 2017 School Crime Supplement FORM SCS-1 (SCS) (for sixth grade and higher) for the National Crime Victimization Survey (NCVS) is a self-report measure that addresses the code of student conduct (whether the school has one and if the rules are fair) among other safety dimensions mentioned earlier in this report. The SCS asks questions related to students' perceptions of crime and school safety and students' perception of school rules and enforcement of the rules. The SCS is used with students in grades six and higher: Thinking about your school, would you strongly agree, agree, disagree, or strongly disagree (four-point

Likert-type scale) with the following: “The school rules are fair”; “The punishment for breaking school rules is the same no matter who you are”; “The school rules are strictly enforced”; “If a school rule is broken, students know what kind of punishment will follow”; and “Teachers treat students with respect” (p. 6). While these questions are identical to Kitsantas, et al., (2004), the SCS defines the meaning of “strictly enforced” within the question, as “the school consistently carries out disciplinary actions against any student who breaks the school rules” (p. 6). This is a beneficial practice that was used in the development of this current study’s scale. Additionally, the SCS uses a four-point Likert-type scale as opposed to a five-point Likert-type scale; this diminishes the vague descriptors for item response.

Violence, Bullying, and Peer Victimization at School

Collaborative efforts have been made to understand and interpret the significance of bullying. Bullying is a popular topic in research and includes school characteristics such as classroom size (Bowes et al., 2009); and school climate (Bradshaw *et* al., 2014). Other factors such as parents and teachers’ perspective among Asian and Latino children (Shea, Wang, Shi, Gonzalez, & Espelage, 2016) are measured. Individual characteristics of children, such as age, gender, and social perceptions (Cook, Williams, Guerra, Kim, & Sadek, 2010); ethnic demographics (Huang & Cornell, 2019; Whitney & Smith, 1993); socioeconomic status (SES) (Bradshaw et al., 2009; Whitney & Smith, 1993); attitudes and behaviors (Bradshaw, Sawyer, & O’Brennen, 2009); and aggressive attitudes (Huang, Cornell, & Konold, 2015) are also popular factors when measuring aggressive behavior. Physical safety offences include peer victimization, bullying and violence often called aggressive behavior, such as battery, fighting, harassment, hazing, intimidation, or physical attack. Peer victimization is an “aggressive act

intending to cause hurt, harm, or discomfort to a targeted victim" (Vernberg & Biggs, 2010). There are two types of victimization: "1. Relational (i.e., exclusion and gossip) (not relevant for this current study) and 2. Physical (i.e., physical force or threats of force)" (Putallaz et al., 2007). "Bullying […] plays a role in student perceptions of safety" (Bradshaw et al., 2014. p. 601) possibly because bullying is a general word that encompasses both PSO's and OCO's specified for this current study in the code of student conduct handbook and is closely associated to both forms of peer victimization. Bullying is considered purposeful, a deliberate repeating of an act, whether it is verbal or physical. Bullying includes actions such as taunting, hitting, threatening, name-calling, ignoring, and purposefully leaving someone out (Olweus, 1993; Nansel et al., 2001) much like physical and relational peer victimizations. Another definition of bullying that includes more relevant factors for this study can be found in the Florida Statutes 1006.147 Bullying and harassment, also known as the "Jeffrey Johnston Stand Up for All Students Act." It reads "systematically and chronically inflicting physical hurt or psychological distress on one or more students and may involve: teasing; social exclusion; threat; intimidation; stalking; physical violence; theft; sexual, religious, or racial harassment; public or private humiliation; or destruction of property" (Florida Statues, 2021). Just to be clear, theft and destruction of property are categorized later in this current study as order and control offences (OCO). The statute further defines cyber bullying. While cyber bullying and sexual relations (sexting) are popular topics in school safety, online presence is beyond the scope of this current study, therefore excluded. The Center for Disease Control and Prevention and U.S. Department of Education define bullying as an "intentional act to inflict harm by the (typically more powerful) perpetrator(s) repeatedly on the victim over time (Gladden, Vivolo,

Kantor, Hamburger, & Lumpkin, 2014). Bullying in schools is a serious issue that negatively affects later psychosocial development in numerous capacities (Glew, Fan, Katon, Rivara, & Kernic, 2005). Empirical research on bullying shows a variability between 1% and 7% of behavior is accounted for by school environments (Bradshaw et al., 2009; Saarento, Garandeau, & Salmivalli, 2015). Findings consistently show that poor school climate and school deprivation (proportion of eligible students for free and reduced meals at school) are predictors of bullying behavior (Fink, Patalay, Sharpe, & Wolpert, 2018). Furthermore, opportunities for bullying may arise due to teacher-student ratios (Bowes et al., 2009). Large class sizes in schools put a strain on instructors' ability to supervise the classroom, which can lead to possibilities for bullying and victimization. This can affect students' perceptions of safety (Koth, *et* al., 2008).

Examining bullying [and peer victimizations] in elementary schools (i.e., younger children) are important because experiences of bullying [and peer victimizations] emerge during these critical years (Bowes *et* al., 2009; Wolke, Woods, Bloomfield, & Karstadt, 2000) and are on a day-to-day level of safety concerns. An estimate of 32% of elementary students and 28% of middle school students reported being a victim of bullying. This aligns with prior research; elementary school students are more often victimized at school than middle school students (Olweus, 1993). It is frequently discovered that older pupils are the offenders and younger students are the victims (Borg, 1999) and the transition between schools (elementary school to middle school) show a sharp increase in the concentration of reported bullying behaviors (Pellegrini & Long, 2002). Approximately 60% of elementary students have been exposed to peer victimization at least once at school (Cooley, Fite, & Pederson, 2018) and

within different locations (Williford, Fite, DePaolis, & Cooley, 2018). Girls are reported as less likely than boys to bully and to be victims of bullying (Bradshaw, Sawyer & O'Brennen, 2009; Craig & Pepler, 2003). Further, boys are more likely to retaliate (Bradshaw, Sawyer & O'Brennen, 2009) using physical violence. Depression and anxiety lower levels of school connectedness (Reijntjes et al., 2010), and perceived safety are associated with peer victimization (Leadbeater, Sukhawathanakul, Smith, & Bowen, 2015).

Current Measures of Violence, Bullying and Peer Victimization

Henrich *et* al., (2004) measured the overall feeling of school safety, asking how safe children feel at various school locations (e.g., "I feel safe on the school bus"; "I feel safe in the restrooms at my school"). More specific to this section for item development is their work on violence exposure. To determine whether schools may serve as a "safe haven from violence," Henrich *et* al. (2004) studied 759 middle school students to "examine the effects of violence exposure on the academic achievement of urban adolescents" (pp. 328, 330). Henrich et al., (2004) tested three hypotheses, the first was relevant to this present study: "1. Violence exposure would have effects on academic achievement and feeling safe at school, controlling for violence commission; 2. the effects would be mediated by depressive symptoms and aggression; and 3. parent support would buffer students from the effects of violence exposure on school adjustment" (p. 343). The items assessing whether the students witness certain types of violence were adapted from the "Survey of Exposure to Community Violence" survey (Richters & Martinez, 1993). There were seven dichotomous (yes/no) items that asked about witness of violence, such as: "whether they had seen others chased by gangs or individuals, seen others threatened with serious physical harm, beaten up or mugged, attacked, or

stabbed with a knife, shot or shot at with a gun, threatened or harmed because of their ethnicity, or seen a seriously wounded person after an incident of violence" (Henrich et al., 2004, pp. 332-333). The questionnaire also included other factors such as victimization by violence, violence commission, parent support, poverty-risk index, academic achievement, feelings of safety at school, depressive symptoms, and aggression. The victimization by violence was assessed using seven items like the witnessing violence index questions and asked whether the students themselves had been "chased by gangs, threatened with serious physical harm, beaten up or mugged, attacked, or stabbed with a knife, shot, or shot at with a gun, threatened or harmed because of their ethnicity" (p. 333). The violence commission utilized six questions to investigate student involvement as the perpetrator of violence: They were asked, in the past year, "how many times they started a fight, hurt someone badly in a fight, carried a gun, been in gang fights, been arrested, and carried a knife" (p. 333). For this current study's item development, these types of questions were modified to measure perception of safety and did not necessarily address violence with details. Additionally, the indexes of parent support, poverty-risk, academic achievement, and depressive symptoms are outside the scope of this research. (For information, see Henrich et al., 2004).

The National Adolescent Student Health Survey (American School Health Association et al., 1990) was used for the five items on aggression that assessed "willingness to use physical aggression in conflict situations" (Henrich *et* al., 2004. p. 334). The "students were asked whether they thought they should fight if someone insulted them in front of their friends, insulted a member of their family, stole something from them, hit on their boyfriend / girlfriend, or hit them" (p. 334). The questions were rated a 1 to 4 (1 = no, 2 = probably no, 3 =

probably yes, and 4 = yes), which were then added to find the sum. This method was modeled after Schwab-Stone *et* al., (1999, 2003) scale. The results showed that "girls (6th grade) had higher levels of academic achievement than boys, and "the more violence students reported committing and the greater their poverty risk, the less well they performed academically and the less safe they felt at school" (p. 338). This was also true for the longitudinal study. Over time, students (girls in the eighth grade) who were more violent and those who had higher indicators of poverty saw a decline in their sense of safety at school. Students (both girls and boys in the sixth grade) who saw acts of violence felt less secure at school and were more likely to perform poorly academically. There were limitations to the validity of the construct of violence exposure; the students were not asked the location of the exposure (i.e., home, school, community, media) and the relationship between victimization and feelings of safety was not statistically significant. (For further results see Henrich et al., 2004).

Ruiz, McMahon, and Jason (2018) measured the effect of perceived student safety of elementary school students on academic achievement and whether "violent crime (i.e., homicide, assault and battery) will mediate the relation between SES and academic achievement" (p.301). Although this current study does not measure academic achievement, Ruiz, McMahon, and Jason's (2018) four-point Likert-type scale on feelings of safety demonstrated concurrent and construct validity, and therefore worth mentioning. Ruiz, McMahon, and Jason (2018) defined safety as "students feel safe in and around the school building and traveling to and from school" (p. 301). There were two categories of questions: 1. "How much do you agree with the following statements about your school (ranging from strongly disagree to strongly agree): I worry about crime and violence in this school; students

at this school are often teased or picked on; students at this school are often threatened or bullied" (p. 301) and 2. "How safe do you feel (ranging from not safe to very safe): in the hallways of school; in the bathrooms of the school; outside around the school; traveling between home and school; in your classes?" (p. 301). Ruiz, McMahon, and Jason (2018) "revealed school safety as a key dimension to consider when studying academic achievement in the context of neighborhood characteristics like violence and SES" (p. 306). According to Ruiz, McMahon, and Jason (2018), there might be an unfair disparity in how safe students feel in school with diverse student body. They recommend that future studies take student diversity into account when measuring and creating interventions aimed at improving school climate (p. 306), including school safety.

Bradshaw et al., (2014) conducted a factor analysis on school climate using the Maryland Safe and Supportive School Survey (MDS3) that offers support for item construction on bullying under their Factor 2. bullying and aggression (mentioned earlier in the school climate section of this report). The Cronbach alpha estimate for the first wave of bullying and aggression had adequate reliability (a = .65). There are four items using a four-point Likert-type scale from "a large problem" to "not a problem at all" asking students about: 1. "physical fights between students" and 2. "harassment or bullying of students". The other two questions were dichotomous (yes/no). The students were asked "if they had seen someone else being bullied and if the students at the school try to stop bullying." There was evidence to support the claim that there is a relationship between bullying and aggression and poor school climate which is "consistent with prior research" (Bradshaw *et* al., 2014. p. 601).

Fink, Patalay, Sharpe, and Wolpert (2018) conducted a study on 648 elementary schools, which was over 23,000 participants, examining bully behavior using "multilevel modeling with ML estimation" (p. 20) on predictors at student-level and school-level by answering questions on student demographics, school demographics, and school climate. Fink et al., (2018) examined the validity of the bullying scale through two analyses: Strengths and Difficulties Questionnaire (Goodman, 1997) and the Me and My School Questionnaire (Deighton et al., 2013). "Correlational analyses show a significant positive association between children's self-reported bullying using the single item and both teacher-reported ($r = .32$, $p < .001$) and self-reported ($r = .46$, $p < .001$) externalizing problems. For contrast, the correlation between the bullying item and children's teacher-rated ($r = .09$) and self-reported ($r = .015$) emotional problems were considerably lower" (p. 20). However, Fink *et* al., (2018) does report limitations to the self-report measure; it has but one item addressing bullying, "I bully others" with responses ("sometimes and always") collapsed (p. 23). Bullying was not defined, offering no indication of the type of bullying being measured (e.g., "teasing; social exclusion; threat; intimidation; stalking; physical violence; theft; sexual, religious, or racial harassment; public or private humiliation; or destruction of property") as stated in the Florida Statues, 2021, which could lead to validity concerns. The authors report that further research is needed using a scale that has more items addressing bullying behaviors along with a large sample size allowing for additional explanation on the "association between child- and school-level characteristics and different forms of bullying behavior" (Fink *et* al., 2018. p. 24).

Bradshaw, Sawyer, and O'Brennan (2009) examined student-level and school-levels associated with an "increased risk for involvement in bullying, diminished perceptions of

safety, and attitudes supporting aggressive retaliation using data from a web-based survey of elementary and middle schools (grades 4th - 8th)" (p. 206). The item for safety perception was "I feel safe at school" and measured dichotomously: strongly agree/agree and strongly disagree/disagree (p. 207). Bradshaw, Sawyer, and O'Brennan (2009) used the World Health Organization's International Study of Bullying (Nansel *et* al. 2001) measures students' victimization of bullying with one item: ''How often have you been bullied during the last month?'' Response options were ''not at all'', ''once a month'', ''2–3 times during the month'', ''once a week'', and ''several times a week." Students were grouped as "victimized frequently" if they selected "2-3 times during the month" or more, which corresponds with Solberg and Olweus (2003). Although the fourth grade was indicated as participants, the one item on bullying was not asked of elementary students, only middle school students. The World Health Organization's International Study of Bullying (Nansel *et* al. 2001) was used for this item: "How often have you bullied someone else during the last month?" (p. 207). The item was measured by "not at all: "once a month", "2-3 times during the last month", "once a week", and "several times a week" (p. 207). If they bullied someone two or more times within the month, they are classified as a "frequent bully" (p. 207) based on Solberg and Olweus's (2003) definition. Nansel *et* al., (2001) offers the category of "not at all" which is a good format when addressing sensitive material in contrast to the research of Fink *et* al., (2018) where their item states "I bully others" with only two response options (sometimes and always) (p. 23) and not offering the participant to state that they do not bully others.

The Trends in International Mathematics and Science Study (TIMSS, 2015) Student Questionnaire's "purpose is to study the home, community, school, and student factors

associated with student achievement in mathematics and science at the fourth and eighth grades" and is sighted as a reference for measuring safety (IEA, 2019). However, it only offers limited indicators on student safety, "I feel safe when I am at school". A section of the questionnaire asks students to reflect on past actions of others over the course of one year: "During this school year, how often have other students from your school done any of the following things to you (including through texting or the internet)?" This addresses bullying, exclusion, theft, intimidation, and threats, by asking the following eight questions: "1. Made fun of me or called me names, 2. Left me out of their games or activities. 3. Spread lies about me, 4. Stole something from me, 5. Hit or hurt me (e.g., shoving, hitting, kicking), 6. Made me do things I didn't want to do, 7. Shared embarrassing information about me, and 8. Threatened me". These were answered by filling in one of the four circles that best fits (i.e., "at least once a week, once or twice a month, a few times a year, or never") (p. 10). However, without a point-system or Likert-type scale, which makes data analysis more time consuming. Additionally, the question that states: "made me do things I didn't want to do", is unclear on how another student "made" them do something. This could be classified as an element of extortion or bullying, depending on the influence that led to the behavior. When someone threatens to reveal humiliating information to others in exchange for a refusal to comply, that is regarded as extortion.

Retaliatory attitudes come to mind when researching bullying. Huesmann et al., (1992) measured students' attitudes toward aggressive retaliation and were assessed through a single item, 'It is OK to hit someone if they hit me first' (Huesmann et al. 1992). Students indicated the extent to which they agreed with the statement on a four-point Likert-type scale, from

‘‘strongly disagree’’ to “strongly agree.” Inspection of a histogram indicated that the response distribution was heavily skewed; therefore, this item was dichotomized into strongly agree/agree and strongly disagree/disagree prior to analysis. Huang, Cornell, & Konold (2015) took a different approach to item construction: they asked six questions, with item response from 1 – Strongly Disagree to 4 – Strongly Agree, with the results of percentage noted after each: “If someone threatens you, it is okay to hit that person” (41%), “It feels good when I hit someone” (21%), “Bullying is sometimes fun to do” (6%), “Students who are bullied or teased mostly deserve it” (8%), “If you fight a lot, everyone will look up to you” (13%), “If you are afraid to fight, you won’t have many friends” (17%) (p. 510). This perspective on bullying would be beneficial to include on the SPSS Scale. It offers consistency to capture the construct being measured which strengthens the reliability of the scale. The internal consistency of the scale’s reliability was strong (α = .89). Another important dimension to include for item development is the location of occurrence.

Perumean-Chaney and Sutton (2013) measured victimization as a control variable for student’s perception of safety (dependent variable) with five questions answering how many times “during the past 12 months: 1) you saw someone shoot or stab another person, 2) someone pulled a knife or gun on you, 3) someone shot you, 4) someone cut or stabbed you, and 5) you were jumped” (p. 577). These items were measured by the sum of the items. The higher the score, the higher the victimization level. Perumean-Chaney and Sutton’s (2013) research was on a sample of 13,386 adolescents (7^{th} -12^{th} grade) taken from the National Longitudinal Study of Adolescent Health (AddHealth) consisting of over 20,000 students. The complete study is addressed in the “Target Hardening” section of this report.

Though these scales have their limitations and the distinction between bullying and victimizations is hazy, and these scales also overlap with items that address violence and weapons, they provide useful information for framing questions about bullying and victimization. These questions should include the frequency of these acts, the locations of the acts, and the specific types of acts that could be explained in a hypothetical situation. Previous studies also recommend taking school and student demographics into account. Although the "Know the Signs" programs from Sandy Hook Promise trains students and faculty on how to spot at-risk behaviors and implement next steps protocols, it does not gather statistics on school safety.

Weapons, Firearms, and Contraband

We have already established that witnessing violence in the community or neighborhood affects perceptions of safety at school, which challenges us to understand students' perception of safety when it comes to weapons and contraband. The 2020 Florida Statutes section 1006.07 District school board duties relating to student discipline and school safety, subsection 2.g. Code of Student Conduct states that "the possession of a firearm or weapon as defined in Chapter 790 by any student while the student is on school property or in attendance at a school function is grounds for disciplinary action and may also result in criminal prosecution". Furthermore, a student could be "subject to disciplinary action if simulating a firearm or weapon while playing substantially disrupts student learning, causes bodily harm to another person, or places another person in reasonable fear of bodily harm". For this study, contraband is defined under the student code of conduct as "possession, use and/or distribution of materials or items (other than firearms or weapons) which are

forbidden" in the school. A firearm is defined in the OCPS Code of Student Conduct 2020 – 2021 as "any weapon which will, is designed to, or may readily be converted to expel a projectile by action of an explosive; the frame or the receiver of any such weapon; any firearm muffler or firearm silencer; any destructive device; or any machine gun. A weapon means any dirk knife (blade length is 2.5 inches or more), metallic knuckles, slingshot, Billie club, tear gas gun, chemical weapon or device, or other deadly weapon" (p. 40).

The second leading cause of deaths in the United States is with firearms (Jewett, et al., 2021). "Nearly every American will know at least one victim of gun violence in their lifetime" (Kalesan, Winberg, & Galea, 2016). There is a decrease in number of days between school shootings (Melgar, 2019) and 2020 brought the highest gun-related deaths in "40 years, with 45,222 deaths" overall (Center for Disease Control and Prevention, 2020). The FBI reported "40 active shooter incidents in 2020" within 19 states of the United States, five of which were mass shootings (Figure 1) (Active Shooter Incidents in the United States, 2020. p. 7). Even though the nationwide number of active shooter incidents increased by 100% in four years (2016 to 2020) and 52.5% increase in active shooters from 2020 to 2021(FBI, 2022), the number of casualties of school shootings in 2020 was at an all-time low. Specialists speculate that these low numbers of casualties were due to the COVID-19 lockdown, a time where people avoided public places, which limited the opportunities for active shooters to commit their acts of terror (Active Shooter Incidents in the United States, 2020). However, public spaces are open once again and schools are back in session ending 2021, with 249 school shootings (Riedman, Oneill & Jernegan, 2020) and with only five months into 2022, there have been 30 reported school shootings. The Youth Risk Behavior Surveillance System (YRBSS) for

2019, measured the percentage of students (grades 9 – 12) who have carried a weapon at least once in a 30-day time on school grounds. Montana had the highest percentage (23%), and Massachusetts had the lowest (10%). A small portion of students (6%) reported carrying a weapon for six or more days (National Center for Education Statistics, 2023).

Current Measures of Weapons, Firearms, and Contraband

Surveys measuring bullying and victimization can provide information for creating indicators for weapons and contraband (e.g., Perumean-Chaney & Sutton, 2013). Three aspects of safety are revealed by Bradshaw et al.'s (2014) EFA on school climate: perceived safety, physical safety, and general drug usage. Like earlier scales (such as Plank, Bradshaw, & Young, 2009), Bradshaw et al. (2014) uses four items to gauge perceived safety: 1. “I feel safe at this school”, 2. “I feel safe going to and from school”, 3. “adequate programs for violence and conflict at the school”, and 4. whether they thought “students carrying guns or knives was perceived as a problem” (p. 596). These questions were measured on a four-point Likert-type scale from “a large problem” to “not a problem at all.” The CFA confirmed the fit indices of all three factors. Although Bradshaw et al., (2014) conducted their research on school climate, their contribution is useful for the construction of the items for weapons and contraband for school safety.

Plank, Bradshaw, and Young (2009) show similar items measuring “interpersonal aggression or violence” with two items that could be used to measure perception of safety regarding possession of weapons or contraband: “students possess weapons like guns and knives” and “fires are set at the school” (p. 235). These were asked as: “To what extent is each of the following a problem at your school?” While Plank and colleagues investigated social

disorder and school climate, their items offer suggestions for item construction for weapons and contraband. Whereas Jewett, et al., (2021) conducted an analysis on weapon carrying at school using 1993-2019 Youth Risk Behavior Surveillance (YRBS) System, a self-report survey. The survey was conducted with high school boys; however, the questions are somewhat relevant for this current study with elementary students. There were four questions: "During the past 30 days, how many days did you carry a weapon, such as a gun, knife, or club, on school property?" The question was dichotomous (never = 0 days and brought a weapon = 1 to 6 or more days). The last three questions were measured as "never (0 times) verses ever (greater or equal to 1) versus more often (greater or equal to 2 times)" (p. 3). School safety perception was included by asking "During the past 30 days, how many days did you not go to school because you felt you would be unsafe at school or on your way to or from school?" They also measured threats within the same question, which is also mentioned in the "threat" section of this report. The factor of threat and injury was measured by the question: "During the past 12 months, how many times has someone threatened or injured you with a weapon, such as a gun, knife, or club, on school property?" and "During the past 12 months, how many times were in in a physical fight on school property?" Although this current study is to develop a scale on school safety, it is noteworthy to mention Jewett, et al's., (2021) findings. Their research measured the differences in race and ethnicity of boys and their likelihood of bringing a weapon to school. Perception of school safety was associated with weapon carrying and over the twenty-year research span, white boys were found to be more likely than black or Hispanic boys to carry a gun or weapon to school. However, when the question was regarding being threatened or injured, Black and Hispanic boys were found to be more likely to carry a weapon

to school, this could be because Black and Hispanic boys experience more violence at school than white boys and carry for self-preservation (Jewett, et al., 2021). However, in more recent years, there are "no overall differences in weapon carrying by race and/or ethnicity" (p. 7). Jewett, et al., (2021) suggest that future research should "probe the types of threat experiences by different racial and/or ethnic group" for school policy improvement. Moreover, due to the delicate subject matter of carrying weapons and gun violence research (i.e., the Dickey Amendment), the focus of this present study is perception of safety and not behavior, therefore the questions were modified from "how often have you *carried* a gun or weapon to school" (Rostron, 2018) to "*how safe do I feel"* if I bring a gun or weapon to school referring back to the self-preservation concept.

Threats Against and Within Schools

Threats can be personal, such as the threat of harm to another person (Jewett et al., 2021), or they can be against the school as a unit, such as the threat of violence against the school or several people there. A written or spoken declaration of intent to cause pain or harm to a person, group, or property is referred to as a threat. Words of violence against teachers and schools were widespread forty years ago because spoken words were not taken seriously as threats. Folk music, for example, is renowned for its upbeat melodies. School-age children loved folk songs in the late 1970s and early 1980s, especially when the words were altered to add violent threats. For example, the parody of "The Battle Hymn of the Republic" was retitled "The Burning of the School." This was "allowed" in schools. A portion of the lyrics are written:

"Mine eyes have seen the glory of the burning of the school.

We have tortured all the teachers we have broken every rule.

We have hung the secretary, and we'll drown the principal…

Our rights keep marching on!

Glory, glory, hallelujah,

Teacher hit me with a ruler.

I hid behind a door with a loaded 44 and there ain't no teacher anymore!"

There were different versions of the song depending on the students' situation, what the children felt at the time, and their creativity of the lyrics. This would not be tolerated in schools today.

A new way of violence prevention was introduced in the 1990's: assessing school threats (Fein et al., 2002). Threat assessments are used to differentiate between serious and "nonserious threats" (i.e., signs of frustration, unresolved conflict, or disputes that might be amenable to resolve" (Cornell, et al., 2018. p. 214) and are designed as a flexible responsive alternative to the inflexible zero tolerance policy. However, it was not until 2018 that a law was passed to protect teachers and school staff from such threats (OCSO Annual Report, 2018). After the Marjory Stoneman Douglas High School shootings, the Marjory Stoneman Douglas High School Public Safety Act (Senate Bill 7026) was signed into law to combat school threats. This Act addresses school shootings and enhances "school safety policies" (Plakon, 2020). However today, children are getting felony charges for writing, texting, and tweeting or any other means of written anger expressions (e.g., "I'm so angry that I'm gonna shoot up the school"). In 2021 a post on Snapchat circulated a student's anger expression; he wrote a detailed threat against Central High School in St. Joseph, MO:

"I hate Ms. [school principal]. … On Friday, October 29, I am going to take my dad's shotgun and shoot her … after that I will go into my first period class and shoot it up. … I know the lockdown protocols, don't even bother hiding. At the beginning of 6th period, I will pull a Glock 17 out of my backpack and unleash hellfire on the lunchroom."

In the end, the child was angry because he received a detention for punching another student at recess. A written threat etched with a marker on a bathroom mirror is an example of a more recent occurrence, 2023 (Figure 3). Two 13-year-old girls were investigated and charged with a felony of "written threats to kill" and "disruption of a school function." They wrote the time and date that of the threat of a school shooting, along with the note: "everybody is dead!" (Figure 3) (XXX News.com, 2023).

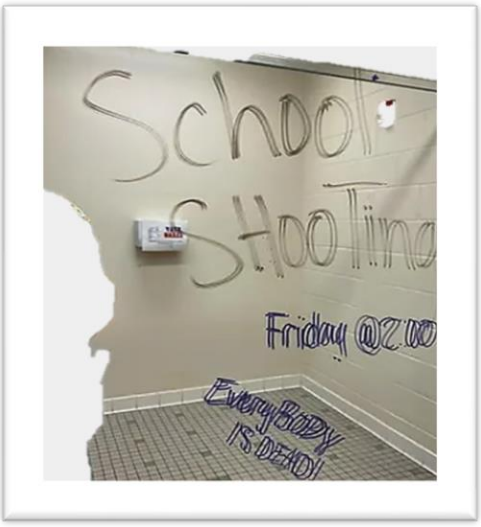

Figure 3: Illustration of a school threat
Source: A local online news report. The picture was taken by a local law enforcement office within the county of interest. Law enforcement was removed from the photo to protect the identity of the county and department (XXX News.com, 2023).

Salvador Ramos (the Robb Elementary School shooter) who posted on social media, to a teenage girl who lives in Germany, "Ima go shoot up a(n) elementary school rn (right now)" (Langmaid, Maxouris, & Gray, 2022, section. 3), this was months after he posted social media reports about buying a gun and being suspected of being a school shooter. Additionally, a

verbal threat was made during the shooting, the gunman told the students, “It’s time to die” (Cohen, 2022). This was a direct threat to the students as they tried to hide under tables in the classrooms.

It is important to determine whether the threat is serious or not – is there intent to follow through with the threat? A student survey showed that the number of perceived serious threats are lower than the number of perceived nonserious threats made. “Approximately 12% of students reported being threatened […] and only 23% of those considered the threat serious, moreover, only 9% stated that the threat turned into action” (Nekvasil & Cornell, 2012) (as cited in Cornell et al 2017 p. 214). That is only 9% of the 12% of reported threats. Is this to say threats are not being made? Or are the threats being made but not reported? Only 86% of students said that they would report someone possessing a gun at school, and 82% would report a threat to kill (Millspaugh, Cornell, Datta, & Heilbrum, 2015). As aggressive attitudes increase, these reports of threats of violence decrease (Millspaugh, Cornell, Datta, & Heilbrum, 2015). Minority boys were least likely to report gun possession (74%) and threats to kill (78%). These disturbing results that shows a considerable number of students would not report threats of aggression, even as serious as a threat to kill (Millspaugh, Cornell, Datta, & Heilbrum, 2015).

Empirical studies on threats made are limited, however, there is evidence to support item development on threats in elementary schools through data collected from local Sherrif’s offices and news reports. Van Dyke and Schroeder, (2006) measured risk assessment and violence with the Dallas Threat of Violence Risk Assessment and found that 73% of all threats made came from elementary students and the majority were from males. Moreover, “the

greatest number of threats (11.0%) were made by 4th graders, followed by 5th graders (10.9%)" (Cornell et al 2018. p. 216), emphasizing that elementary age students make threats of violence.

Current Measures of Threats Against and Within Schools

"Has another student threatened to harm you in the past 30 days?" This was one general threat question asked of students (Nekvasil & Cornell, 2012). Cornell et al., (2018) found that threat cases could be associated with preteen boys' aggressive behavior (Espelage & Holt, 2012). Threat assessment teams' efforts to determine the threat's source and whether the student believed the threat to be severe demonstrate the significance of threat assessment. Cornell et al., (2018) conducted a statewide study of "785 elementary, middle, and high schools" (p. 213) with threat assessment teams to answer three questions: "What are the demographic characteristics of students who threaten violence?" They hypothesized that violence is threatened by elementary school students (Cornell et al., 2012) who are male (Losen, Hodson, Keith, Morrison & Belway, 2015); with evidence to reject the null hypothesis. To determine the seriousness of the threat, the question was: "What student and case characteristics are associated with the team's determination that a threat was serious?" Cornell *et* al., (2018) used threat characteristics of: "(a) threat of battery; (b) threat to kill; (c) threat involved use of a weapon (either student had possession of a weapon or had a weapon on school property)" to answer the questions and measured them dichotomously, 0 = absence and 1 = presence of each item (p. 216). Their results found that the "greatest number of threats were made by fourth graders, followed by fifth graders" (p. 216). Threats of homicide was the most often made threat (22.5%) with threat of battery as second (18.2%). "There were

101 cases (5.4%) in which a student had a weapon in their possession or on school property at the time of the threat" (p. 217). The threat assessment team categorized 30.5% of threats as serious (i.e., involving weapon possession, involved an administrator, threat of battery, homicide, or threats made by special education students). Middle school students were more likely than elementary students to be involved in such threats. 3.3% of threat cases were attempted, however they were "more likely to have been categorized as serious and involve a threat of battery" and indirectly reported. (p. 217). Serious cases (9.1%) were reported as attempted threats. This is "12.5 times greater than those classified as not serious" (p. 217). It is important to highlight that elementary students were observed verbally threatening to "kill", however the threat assessment team interpreted this as an anger expression of rage rather than a real threat to kill.

It was suggested that future research should consider types of threat experiences and within different racial and/or ethnic groups (Jewett, et al., 2021). Specific types of threat characteristics offered by Cornell et al., (2018) such as "(a) threat of battery; (b) threat to kill; (c) threat involved use of a" (p. 216) should be added to the scale. Moreover, student demographics should be addressed at the start of the questionnaire. There were several limitations mentioned in the threat assessment study for violence prevention, one being that threats went without intervention, and relevant to this current study is that Cornell et al., (2018) "does not examine the difference in how schools conduct threat assessment" (p. 220). They did not use a self-report measure, nor was it observational. For a full list of limitations and implications (see Cornell et al., 2018).

Included in this study is threat reporting; items on whether a student has been threatened, has made threats, knows how to report threats, and whether the student would report threats. The 2017 School Crime Supplement Form asked, "If you hear about a threat to school or student safety, do you have a way to report it without having to give your name" (p. 5). This item is formatted as (1 = yes, 2 = no, 3 = don't know). Millspaugh, Cornell, Datta, and Heilbrum (2015) conducted a self-report examination of violence in middle schools by asking students their likelihood to report certain threats of school violence. Their sample consisted of over 39,000 seventh and eighth grade students. The items were within a school climate survey and measured with a four-point Likert-type scale (1 – Strongly to 4 – Strongly Agree) that asked two questions: "If another student brought a gun to school, I would tell one of the teachers or staff at school" (p.13) and "If another student talked about killing someone, I would tell one of the teachers or staff at school" (p.13). Millspaugh, Cornell, Datta, and Heilbrum (2015) incorporated the Aggressive Attitude scale (mentioned in the bullying and peer victimizations section) to run a multilevel logistic regression analysis. Only 86% would report gun possession at school, and a mere 82% would report a threat to kill. White female students were most likely to report threats of both gun possession (93%) and threats to kill (88%) while minority males were least likely to report gun possession (74%) and threats to kill (78%). As aggressive attitudes increase, reports of threats of violence decrease. This study contributed to research on threats of aggression by offering their disturbing results that shows a considerable number of students would not report threats of aggression, even as serious as a threat to kill.

A handbook from the Texas School Safety Center, titled Proactive Guide for the Threat of Terrorism in School (2001), provides a preventive and awareness checklist with questions that involve student engagement for school staff. For instance, do students "understand that there is no such thing as a threat intended as a joke?"; "Do students […] know that they are responsible for informing the building principle about any information or knowledge of a possible or actual terrorist threat or act?" and "Do students know that hoaxes are crimes […]?" (p. 7). By inquiring about students' willingness to disclose threats and their knowledge of whether a prank threat is illegal, school administrators can use the information to develop tactics that will help students understand the significance school violence prevention.

Order and Control Offences: School Physical Disorder and Behavior Management

The non-compliance of order and control offenses (OCO) in schools for school safety is just as serious as physical injury to others. The OCO among students are categorized for this section as: burglary, destruction, disorderly conduct, disrespect, gross insubordination, horseplay, stealing, theft, or vandalism. Bullying, harassment, and intimidation, though categorized in the code of student conduct as both PSO and OCO, are mentioned under the physical safety offence (PSO) section due to the level of offence and physical harm to others. This section discusses the OCO issues and the relationship between the OCO's and student's perception of school safety. The OCO is grouped into two categories: 1. School physical disorder (i.e., destruction and vandalism), and 2. behavior management (i.e., burglary, disorderly conduct, disrespect, gross insubordination, horseplay, stealing, and theft). However, due to the overlap of items in surveys found in prior research (i.e., bullying, behavior management, and social disorder), this section is limited. Social disorder is "threatening,

violent, or disruptive interactions among people within a school setting" (p. 230) and is also addressed in the violence, bullying, and peer victimization section of this report. For this current study, social disorders are like OCO of behavior management issues (i.e., burglary, disorderly conduct, disrespect, gross insubordination, horseplay, stealing, and theft), however, OCO behavior management does not have the violent tendencies and threats of social disorder. The discovery that social disorder and physical disorder—such as broken windows, trash, and graffiti—are directly related (Plank, Bradshaw, & Young, 2009). This makes sense, as violent and disruptive interactions have the potential to cause property damage in schools. For this study, empirical research on school safety, school climate, physical disorder, and the OCO offences listed, are used to find survey questions for the development of the items for the SPSS Scale.

Current Measures of School Physical Disorder

School Physical disorder, a result of vandalism and destruction of school property, is one of the factors that decrease perception of school safety. In other words, broken or vandalized school property are contributors of students feeling unsafe at school. Plank, Bradshaw, and Young (2009) contributed to this field of research by a unique examination of disorder at school. They kept social disorder separate from physical disorder to find the connection between the two and to find the associations among physical disorder, social disorder, collective efficacy, and fear. Plank, Bradshaw, and Young (2009) used a path analysis on 33 public middle schools' students' responses to safety questions (developed by the school district). The items of interest for this section are five questions measuring physical disorder: 1. "the school building is clean"; 2. "the temperature in my school is comfortable all year-round";

3. “the bathrooms in my school are clean”; 4. “there are a lot of broken windows, doors, or desks at my school”; and 5. “vandalism of school property is a problem at the school” (p. 235). The items were measured on a four-point Likert-type scale from agree to disagree and summed for analysis. The study suggests a “a robust association between physical disorder and social disorder” (p. 243). Within one school year, a direct association was found and over time, the association of physical disorder (e.g., broken windows and broken school property, cleanliness of schools and vandalism) with social disorder (e.g., fighting among students, student possession of guns and weapons, teasing, and acts of aggression) was linked “indirectly through fear and collective efficacy” (p. 243). Their findings were not without limitations, classroom characteristics such as classroom management, teacher characteristics and student’s aggressive attitudes were not measured that may contribute to student’s perception of disorder.

Current Measures of Behavior Management

Disorderly conduct, disrespect, gross insubordination, and horseplay are behavior management issues listed in the student code of conduct that have been categorized under OCO that could be considered as disorder, however without violent tendencies and threats. Other OCO categorized as behavior management issues are burglary, stealing, and theft. For this current study, these order and control offences (OCO) will be referred to as behavior management issues. “Shared expectations” also considered in research as behavior management, was measured by Plank, Bradshaw, and Young (2009) by asking five questions: 1. “teachers can handle students who disrupt class”; 2. “my school has clear rules about student behavior”; 3. “students are rewarded for positive behavior”; 4. “my school has programs to

deal with violence and conflicts between students"; and 5. "when I do something bad at school, my parent or guardian hears about it" (p. 326). These questions contribute to the code of student conduct section regarding rules, which overlap with bullying and peer victimization is discovered in the fourth question on violence in schools. Regardless of my perceived overlap, the internal consistency of the five items were strong (α = .95). Plank, Bradshaw, and Young (2009) also measured social disorder and fear, however these items are mentioned within the bullying and peer victimization and general safety sections. The cohesion questions (e.g., "most of the teachers at school know me by name") (p. 236) were not addressed because they are outside the scope of this study on perception of safety. Although they found both a direct connection between physical disorder and social disorder and an indirect connection overtime through collective efficacy and fear, and the items showed high reliability, the study is not generalizable to include those students within rural or suburban school districts and do not include elementary age students. Further, the level of aggressive students in the class were not considered for the study on student's perception (Plank, Bradshaw, & Young, 2009).

The 2017 School Crime Supplement Form asks students, "In your classes, how often are you distracted from doing your schoolwork because other students are misbehaving: talking or fighting" (p. 5). This question was modified to ask about the students' perception of safety when others are misbehaving, horseplaying or goofing around, being disrespectful of the teacher, or refusing to do the assignment. As we learned from Jewett, et al., (2021), types of specific incidences are needed. Cornell et al., (2018) demonstrated how to incorporate types of threat characteristics with a scale. This method is surely transferable to other indicators of

school safety. Therefore, it is seemingly just as relevant to describe the acts of misbehavior made by students that could cause distractions that could lead to the student's perception of safety.

Health/Hygiene Safety

School safety now includes student health and hygiene in addition to the protection against violence, bullying, threats, physical disorder, misbehavior, and other safety dimensions previously mentioned. Schools are fighting to protect students from contracting viruses and diseases today more than ever before. The health of our children can be compromised by a multitude of biological diseases. Children are exposed to biological hazards in schools, and these are just one of four environmental hazards that can cause infections and illness (Plog, Niland, & Quinlan, 1996), with more than 200 biological agents that can be infectious, toxic, and cause allergies with three categories of agents: 1. microorganisms and their toxins, 2. arthropods and 3. allergens (Plog, et al, 1996). Microorganisms will be of special interest for this research because viruses, bacteria, and fungi, which can be inhaled or absorbed through the skin, are within this category.

One popular microorganism is known as Novel Coronavirus Disease 2019 (COVID-19); a "worldwide threat to health, economic stability, and education, among many other economic consequences for individuals and their societies" (Samuelsson, Wagner, & Ødegaard, 2020. p. 131). In 2020, with COVID-19 (Delta variant) rapidly spreading worldwide, many countries including the United States chose to shut down "non-essential" businesses including restaurants, theme parks and keep "socially distant" to slow the spread of the disease. January 30, 2020, the World Health Organization (WHO) declared the outbreak a "Public Health

Emergency of International Concern" (Ho et al., 2020) and announced COVID-19 as a pandemic on March 11, 2020 (CDC COVID-19 Response Team, 2020). The organization stated that "it is still possible to interrupt virus spread, provided that countries put in place strong measures to detect disease early, isolate and treat cases, trace contacts, and promote social distancing measures" (as cited in Kennedy, 2020, p. 15). To protect the children, starting in early March 2020, the United States government provided "voluntary guidelines" allowing each state their own decisions until the announcement of all "in-person" schools to close starting with Ohio until it became a nationwide shutdown (Kennedy, 2020).

School closures with confinement to homes offered many disruptions due to short and long-term psychosocial impacts such as: depression, anxiety, show of guilt, feeling of threat (Dalton et al., 2020) grief (Liu et al., 2020) and behavioral problems (Dalton et al., 2020) including "magnifying children's behavior with attention-deficit/hyperactive disorder" (Zhang et al., 2020). Closing schools also result in poorer test scores because they decrease academic efficiency and students' perceptions of their own intellect, raise dropout rates, and cover less content in the classroom. Additionally, researchers found that children were at high-risk of post-traumatic stress disorder due to isolation during infection of COVID-19 (Liu et al., 2020). On a positive note, due to the COVID-19 lockdown, specialists speculated that it would lower the number of active shooter casualties in 2020. (Active Shooter Incidents in the United States, 2020), which was accurate.

With public spaces open and schools back in session, it was feared that students would still feel the effect of the pandemic. Not continuing health and hygiene safe practices at school regardless of new surges and variants of the virus were risky. Viruses that cause COVID-19

mutated and new variants developed. The Delta variant was downgraded from a “Variant of Concern (VOC) to a Variant Being Monitored (VBM)” on April 4, 2022, by the U.S. government SARS-CoV-2 Interagency Group (SIG). Currently there are eleven variants categorized as VBM: Alpha (B.1.1.7 and Q lineages; Beta (B.1.351 and descendent lineages); Gamma (P.1 and descendent lineages); Delta (B.1.617.2 and AY lineages); Epsilon (B.1.427 and B.1.429); Eta (B.1.525); Iota (B.1.526); Kappa (B.1.617.1); 1.617.3; Mu (B.1.521, B.1.621.1); Zeta (P.2). Currently there are no classifications of Variant of Interest (VOI) nor are there SARS-CoV-2 variants designated as Variant of High Consequence (VOHC) (CDC, 2022). However, mutations (changes in genetic code) or variations of the disease are resistant to vaccines and spread more easily. This fast spreading, lingering, variant is often considered more dangerous (CDC, 2022). The Omicron variant was first identified in Botswana on November 11, 2021, and in South Africa three days later. The Omicron variant spread to the United States and the first confirmed case was December 1, 2021. In nineteen days, December 20, 2021, “Omicron had been detected in every U.S. state and territory and continues to be the dominant variant in the United States” (CDC, 2022). There are several “lineages and sublineages” of the Omicron variant (B.1.1.529; BA.1; BA.1.1; BA.2; BA.3; BA.4 and BA.5) and are categorized as Variant of Concern (VOC). The Omicron variant is considered less severe than the previous variants, specifically the Delta variant, but there were those who needed hospitalization and “could die from the infection with this variant” (CDC, 2022); therefore, it should be taken seriously, and schools should continue to monitor student and staff. The Omicron variant spreads faster than the Delta variant because regardless of the persons’ vaccination status. The Omicron, like the Delta variant can be transferred person-to-person (Chu et al., 2020), though children infected

with the virus are more likely to be asymptomatic and hospitalization and death are less likely (Ehrhardt et al., 2020). Consequently, the Omicron BA.2.121 cases are currently on the rise across the country (May 2022).

According to the CDC, (May 4, 2022), there were approximately 514,269,025 confirmed cases of COVID-19 globally with approximately 6,238,328 deaths (CDC, 2022). In the United States, there are 81,391,274 cases of COVID-19 reported with a seven-day average of 431,990 new cases and 996,696 deaths involving Covid-19, from 1/4/2020 to 5/4/2022 (CDC, 2022 from NCHS). Mid-May 2022 marked the one millionth death in the United States. Florida is the third most infected state with COVID-19 of approximately 5,946,185 cases and 74,010 deaths in the two-year pandemic, as of 5/4/2022.

Due to these large numbers of cases and deaths, the Federal Emergency Management Agency (FEMA) and the U.S. Department of Health & Human Services (HHS) wrote a three-part strategy to "Be Covid Prepared": prevent, prepare, and be informed. To prevent the spread of COVID-19 it states to practice three ways of prevention: 1. Wear a mask; 2. Watch your distance (6+ feet from others in 2020, reduced to 3 feet in 2021, reduced to zero distance 2022), and 3. Wash your hands and common surfaces frequently. At the beginning of the reopening of school, health-related hazards at school are regulated using CDC recommendations such as wearing masks, social distancing, frequent hand washing, temperature checks, and clear plastic barriers between students' desks.

Covid-19 is a microorganism. This means that it is a virus that can be spread person to person "mainly through respiratory droplets produced when an infected person coughs or sneezes […] and then inhaled into the lungs" (Guner, Hasanoğlu, & Aktaş, 2020. p. 571). A

single layer mask does not block the virus (Guner, Hasanoğlu, & Aktaş, 2020) and if the mask is worn improperly, “the mask actually increases the risk of COVID-19 infection” (Guner, Hasanoğlu, & Aktaş, 2020. p. 572). The CDC updated the mask guidance in March 2021 which stipulated specifics on when and how a mask should be worn: “First, wash your hands, put the mask on your face with loops behind your ears, it must cover your nose, mouth, fit under your chin and be snug on your face making sure that it is easy to breathe. Wear a mask in public places where there are a lot of people; wear a mask if you visit someone at risk of infection; you may wear a mask inside or outside in public places” (CDC, 2022). Beckage, Buckley, and Beckage (2021) found that only 75.5% of observed individuals wore face masks. Males (67.6%) were less likely to wear a face mask than females (83.8%) (Beckage, Buckley, & Beckage, 2021), younger people (under 14) (53.3%) were less likely to wear masks than older people (over 60) (91.4%) additionally, males under 14 were the least likely (43.8%) (Beckage, Buckley, & Beckage, 2021). Schools that required the use of masks for teachers and staff showed fewer (37%) COVID-19 cases (Gettings, et al., 2021) however, the “21% lower incidents in schools that required mask use among students was not statistically significant compared with schools where mask use was optional” Gettings, 2021. p. 783). Frequent hand washing and the use of hand sanitizers (hand hygiene) are important strategies to avoid infection. The CDC recommended washing your hands with soap and water to at least 20 seconds (“the length of time to sing the happy birthday song twice”) (CDC, 2022); avoid touching your face (e.g., eyes and mouth) after possible interactions with a contaminated items and areas (Guner, Hasanoğlu, & Aktaş, 2020); this includes only touching the strings of the mask and not the outside front of the mask (CDC. 2022).

With of the CDC recommendation guidelines no longer followed in some schools (e.g., plastic barriers between desks, wearing masks, and 3 to 6 feet distance between persons) and despite the health and hygiene measures implemented in schools, although with fewer cases than before school closure, COVID-19 outbreaks still occur (Ehrhardt, et al., 2020). According to Scheuer, Nagarajan-Swenson, and Koshgarian (2020) to truly ensure health and safety, school must provide students and their families with sufficient access to school nurses. Researchers have also found that "strong social distancing" with optimal timing and duration is the most effective measure to combat the spread of COVID-19 (Chu, et al, 2020; Fong, 2020; Kissler, Tedijanto, Lipsitch & Grad, 2020. p. 4; Mahtani, Heneghan, & Aronson, 2020).

Current Measures of Health and Hygiene Safety

Student self-report surveys on health and hygiene during or after COVID-19 are limited. A study on hand-washing stations at schools and whether the students wash their hands correctly with soap and water (Wada & Oloruntoba, 2021) was found. Though this study was conducted oversees in a remote part of the world in Badagry Local Government Area (LGA) and beyond the scope of this current study, the basic understanding of how and when children wash their hands can aid our understanding of children's' hygiene to protect against diseases.

To better understand strategies of COVID -19 prevention in schools, the CDC worked with ICF on the National School COVID-19 Prevention Study (NSCPS) during the 2020-2021 school year. The longitudinal series of surveys were used to collect data on several COVID-19 topics such as: "efforts to promote COVID-19 vaccinations; mask use policies and practices; physical distancing; screening and diagnostic testing for COVID-19; ventilation improvements and practices; quarantine, isolation, and contact tracing; and COVID-19 cases among students

and staff. Although the information about how schools might prevent COVID-19 is found valuable to this current item development, the surveys were "completed by a school-level designee (e.g., principals)" and not by students (NSCPS, 2020-2021).

The Adolescent Behaviors and Experiences Survey (ABES) is a new survey developed by the CDC that measures the impact of COVID-19 pandemic on high school students. More specifically it is a self-report measure designed to report health risk behaviors and emotional well-being of students. While the ABES has items related to COVID-19, the items are not useful to this current study's section on health safety and children. Questions 88 through 99 cover the COVID-19 pandemic. The students are asked to report on their own mental health during the pandemic as "not good" (i.e., "During the COVID-19 pandemic, how often was your mental health not good? (Poor mental health includes stress, anxiety, and depression"). There are a multitude of related issues that a person could be experiencing during the pandemic and we, as researchers, should not assume that the participants' mental health is related to the variable being measured. In other words, the student could be depressed because their pet died, or they could be anxious due to the transition to online classes from face to face; it is not specific. Question 95 presumes that the student drank alcohol during the pandemic with no option to state otherwise: "Do you agree or disagree that you drank more alcohol during the COVID-19 pandemic than before it started?" The survey continues to presume the same about drug use. Some of the other questions are listed, which may be useful to researchers with older participants and studies unrelated to COVID-19: "How often do you wear a seat belt when riding in a car driven by someone else?" Violence-related behaviors and experiences include questions on physical fights, forcing sexual encounters and carrying a weapon on and

off school property. The ABES then proceeds to ask two questions related to bullying, and on feelings of mistreatment as it pertains to race; asking the student to reflect over the course of their entire lifetime. (i.e., “During your life, how often have you felt that you were treated badly or unfairly in school because of your race or ethnicity? A. Never B. Rarely C. Sometimes D. Most of the time E. Always”). The ABES includes a large portion of questions pertaining to tobacco use and vapor products, alcohol, and illegal and prescription drug use. Two questions are on body weight followed by eleven questions pertaining to food and beverage consumption within a seven-day period. These items are very specific on the type of food students eat (e.g., fruit; green salad; potatoes, but not French fries, fried potatoes, or potato chips; carrots; soda, but not diet soda; sports drinks, not low-calorie). There are five questions on physical activity which includes a question on “screen time” however, the survey instructs the student to not account for the time spent doing homework. Question 87 asks about concussions from playing a sport or a physical activity. The following questions ask about dentist and doctor visits and whether they have been tested for sexually transmitted diseases. The last question on the survey and under the health-related section, asks “How well do you speak English?” The findings of the ABES on the CDC website were related to mental health and sexual orientation identity. While the questions on COVID-19 were found irrelevant to this current study, the items for violence, bullying and physical activities were useful for this current study.

The Center of Disease Control and Prevention (CDC) collected data using the 2019 Youth Risk Behavior Surveillance System (YRBSS). The YRBS collects data on health-related behaviors like ABES, such as: unhealthy eating; low levels of exercise; sexual behaviors; drug

and alcohol use; and “unintentional injuries and violence” (Kann, *et* al. 2018). The YRBSS is a self-report measure designed for high school and middle school students, however, it does not capture the health-related issues of 2020-2022: COVID-19.

Considering the findings on item development for prevention of diseases and between-student contamination, the development of the health and hygiene items for the SPSS Scale was formed using the CDC recommendations: wearing masks (how to properly wear a mask), social distancing (three feet apart), frequent hand washing (for 20 seconds each time), temperature checks, and clear plastic barriers between students’ desks. Germ transfer between students such as: sharing a drink or food, sneezing, coughing, yelling, or screaming close to another student was included in the items on the SPSS Scale.

Student Pedestrian Safety

The National Crime Victimization Survey (NCVS) term “at school” includes the school building and grounds, traveling to or from school either on a bus or as a pedestrian. Pedestrian safety, and school bus safety research, such as children traveling to and from school by walking, biking, riding a scooter or hoverboard, and traveling on a bus, is included in this investigation as it refers to accidents or not following rules, therefore school safety.

Before school begins and after school ends, students ride their bikes, scooters, and even hoverboards on school property. Students walk near buses, on the sidewalks close to curbs, crossing the roads and even walking through the parking lot. Pedestrian hazards are ubiquitous, and accidents are inevitable. There are many factors that contribute to pedestrian injuries and fatalities such as: vehicle designs (e.g., emergency braking systems); land use planning; road design (e.g., interconnecting sidewalks, pedestrian bridges, and streetlights);

driver behaviors; and pedestrian behaviors (e.g., impaired, or distracted walking, not following pedestrian safety rules) (WHO, 2013). Hazard perception is defined as “the process of detecting, evaluating, and responding to dangerous events on the road that have a high likelihood of leading to a collision” (Crundall et al., 2012. p. 600). This section will discuss these hazards and find relevant content for item development for the SPSS Scale.

The year 2020 in the United States, brought 7,454 pedestrian deaths (Stewart, 2022); this is “about one death every 75 minutes” (CDC, 2022) and one in five, were children (<15 years of age). Even with the pandemic of COVID-19, there was an increase of pedestrian deaths (244) from 2019 (Stewart, 2022). Non-fatal pedestrian injuries were about 104,000 in 2020 (CDC, 2022) up from 76,000 in 2019 (NHTSA, 2021). Florida is ranked number two for the deadliest pedestrian state, with 713 pedestrian fatalities in 2019 (NHTSA, 2021). Pedestrians 14 and younger account for 17% of these deaths (NHTSA, 2021). Young pedestrians have a higher risk of death (Zegeer & Bushell, 2012) because they sustain more serious injuries due to their height; the impact of the vehicle is at “head or neck level” whereas adults are hit first in the leg or knee (WHO, 2013. p. 4). It is known that “the severity of injuries sustained is influenced by the: vehicle impact speed; type of vehicle; shape and stiffness of the vehicle front; age and height of the pedestrian; and standing position of the pedestrian relative to the vehicle front” (WHO, 2013. p. 4). Thirty percent fewer deaths could be prevented with just a 5% reduction of the average speed limit (WHO, 2013). The higher the speed of the vehicle at impact, the lower the chance the pedestrian will survive (Tefft, 2011). However, it does not imply that slower moving vehicles are safe for pedestrians, it only indicates that their chances of survival are higher.

Tefft (2011) found that out of 422 pedestrians (15 years +) hit by moving vehicles, 280 were hit at a speed of 20 mph or slower. The "median impact speed was 12 mph for all crashes and 35 mph for crashes in which the pedestrian was killed" (p. 7). Like the results of his previous work, Tefft (2013) used data from NHTSA's National Automotive Sampling System (NASS) Pedestrian Crash Data Study (PCDS, 2008) to conclude that "165 of the 315 [pedestrians] were struck at speeds slower than 15 mph" and six pedestrians were struck by vehicles at 60 mph or faster (p. 874). Pedestrians were killed at vehicles speeds of 35 mph (median) and the median speed for all the pedestrian impacts was 14 mph (Tefft, 2013). These studies did not include children in the analyses. However, based on previous work (WHO, 2013), there is reason to conclude that children struck by vehicles traveling at the median speeds (12 mph and 14 mph) would have severe injuries, if not death.

The posted speed limits in school zones are 15 – 20 mph before, during and after school (FDOT) and not all drivers obey these limits. With over 80% of children who live near their school (.5 miles) walk to school, and with those traveling in a personal vehicle who are not deemed 'car riders' must park near the school and walk the rest of the way, it is crucial to instruct children traveling to and from school on the sidewalks and along roadways to stay alert and safe. Ampofo-Boateng et al., (1993) found that "children can be trained to behave like more experienced pedestrians" (p. 43) who perceive road hazards with greater perception. Hazard perception is a term used in transportation research and is defined as "the process of detecting, evaluating, and responding to dangerous events on the road that have a high likelihood of leading to a collision" (Crundall et al., 2012. p. 600). Yet, researchers on pedestrian injuries state that the required assistance is due to children's maturation level of

their mind and body; they are not yet developed to understand the complexity of roadways (Ferenchal, 2022; Vinje, 1981). It is challenging to assess the pertinent material for the SPSS Scale because of these conflicting safety studies.

A false sense of security is felt on crosswalks (Chu, 2003) due to the zebra stripes (e.g., the white stripes of the crosswalk) creating an illusion of safety. People feel safe within the lines (FDOT). Researchers found that marked crosswalks also encourage children to cross at locations where it may not be safe to cross (Zegeer, *et* al., 2004). The Florida Department of Transportation (FDOT) suggests that when crossing busy streets, children under the age of ten should be assisted by an adult. Yet, children who are under ten years old cross streets alone (McDonald, 2008). According to one study, children understand that they should find an intersection to cross the street but when observed, they were not stopping at the edge of the street and not looking for traffic before stepping into the road (Mendoza, et al., 2012; Rosenbloom, Eliyahu, & Nemrodov, 2008). Charron, Festoc and Gueguén (2012) contribute this careless behavior to a sense of urgency felt by children.

Charron, Festoc, and Gueguén, (2012) conducted a simulated study on street crossing that found child pedestrians (ages 9 to 12) take unsafe routes when there is a time constraint. In other words, when children feel rushed (a sense of urgency) to get to their destination, they make poor choices when crossing streets. The sense of urgency is amplified with the countdown timers for pedestrian street crossing. There was a significant difference between intersections with and without timers; children ran across the street more often with the timers than without the timers (Fu & Zou, 2016). In accordance with dangerous behavior, children cross the street diagonally without staying on the crosswalk which exposes them to a

longer period of road dangers (Charron, Festoc & Gueguén, 2012). Research on pedestrian safety includes evaluating one's perception of risky behavior before acting. Peterson, Gillies, Cook, Snick and Little (1994) found that children judge risk by assessing personal safety differently; girls ask, "will I get hurt" while boys ask, "how hurt will I get" (as cited in Hillier and Morrongiello, 1998. p. 235). There is a significant difference between gender when crossing the road; boys were found to run across the street more often than girls (Fu & Zou, 2016).

Regardless of gender, children are especially vulnerable to accidents when traveling to and from school (Zegeer & Bushell, 2012) because they often run ahead of their adult and "parental warnings may be ignored or forgotten in the excitement of play" (Craig & Baucum, 2002, p. 322). Children do not pay attention to their surroundings as children feel a false sense of security when walking on sidewalks (Frattaroli, et al., 2006). Furthermore, children play near the street and often stand too close to the edge of the road (Frattaroli, et al., 2006), and they step into traffic without looking (Rosenbloom, Eliyahu, & Nemrodov, 2008). Additionally, using ear pods and texting while walking is referred to as distracted walking by the World Health Organization (WHO, 2013). This term could also be used to describe children talking with each other while walking or biking to school. Further, peers can negatively or positively influence pedestrian safety behaviors (Pfeffer & Hunter, 2013; Elliot, 2004). Children behave differently around their friends and do not follow safety rules especially if their friends are negative influencers. In a study on 718 eight-year-old's injuries reported by moms, 31% were due to children not following safety rules of bicycling. One silly, yet dangerous example is: "riding a bicycle with one's coat zipped over one's face" or "running into a pole" (Peterson & Saldana, 1996. p. 324, as cited in Ellis, 2014, p. 33). Morrongiello *et* al., (2019) included items on their

questionnaire that suggests walking with friends could be risky if they just follow the friend across the street without scanning the area for cars.

Although children make unsafe choices around peers (Morrongiello *et* al., 2019; Peterson & Saldana, 1996) and under pressure (Charron, Festoc, & Gueguen, 2012); Demetre et al., (1992) found when conducting a simulated study regarding traffic gaps with children (4 to 6 years of age) and adults (18 to 45 years), children rejected the gaps (opportunities to cross the street) more often than adults. Thus, demonstrating their cautious behavior around traffic. Furthermore, there was no significant difference between children and adults for the "tight fits" (possible pedestrian and vehicle collision). Although there are differences among the pedestrian safety studies, one might argue that the differences could be due to the year the studies were conducted 1992 to 2012, whether training influenced the child's ability to make safety decisions, or the method or tool used for training or data collection.

Morrongiello, Seasons, McAuley, and Koutsoulianos (2019) conducted a more recent virtual reality study on street crossing behaviors and found no significant difference between boys and girls (ages 8 – 10 years). Morrongiello *et* al., (2019) also used three questionnaires to collect data on personal and peer norms of street crossing with recent street crossing behavior. The three questionnaires were positively correlated; the "children held similar views about crossing streets as they believed their peers held, and their norms were reflected in their crossing behaviors" (p. 199). Their finding contributed to research in that children could change their risky behaviors of street crossing if the perception of their peers' norms changed. Morrongiello *et* al., (2019) suggested that the use of "behavioral norms marketing" could change their perception (p. 200). This is derived from social norm theory; a need for belonging

to a certain group to “fit in” and avoid being different (Paluck & Ball, 2010). Morrongiello *et* al., (2019) also found that the participants were self-aware of their risky street crossing choices and could “reliably report” their behavior using questionnaires (p. 200). This finding is useful for this current study on school safety and the development of the SPSS Scale because it endorses the use of questionnaires with elementary age children.

The World Health Organization (WHO) offers safety measures that pedestrians could take to stay safe regardless of the other factors. The first measure is not included because it is to enforce laws against “public intoxication” (WHO, 2013. p. 6). The second is education; to wear light-colored clothes and reflective materials, which will be used as items on the SPSS Scale. The last measure that pedestrians can take to stay safe, is to follow the rules and “to abide by road signs and signals” (WHO, 2010. p. 6). For more regionally specific rules and safety tips for pedestrians, refer to the Official Florida Driver’s License Handbook (rev. 5/22/2020); There are five rules mentioned: “1. Pedestrians must not walk on the roadway if a sidewalk is available”; 2. “When walking along a roadway without a sidewalk, always walk on the shoulder on the left side, facing traffic”; 3. “Cross the road at intersections or designated crosswalks. Crosswalks at intersections may be marked or unmarked”; 4. “Pedestrians must yield the right-of -way to vehicles if crossing a roadway at any time point other than within a crosswalk”; and 5. “Pedestrians must yield the right-of -way to vehicles in the crosswalk if the crosswalk signal is red or displays DON’T WALK” (p. 39). These rules will be incorporated into the SPSS Scale, however modified for children’s understanding. There are also five pedestrian safety tips that suggest ways of staying safe when walking: 1. “Never enter the street between parked cars. Always use a crosswalk”; 2. “Stop at the curb or edge of the road if there are no

curbs. Look left, then right, then left again for moving vehicles before you step into the street"; 3. "Be seen, wear bright, neon, reflective colors. Carry a flashlight at night"; 4. "Don't text while walking"; and 5. Avoid wearing headphones so that you can hear the traffic around you" (p. 40).

Meir, Oron-Gilad, and Parmet (2015) used cutting edge technology in a study to see if teaching children about hazard perception would help them recognize potentially dangerous situations and anticipate hazards before they exist: a 3D PerceptionTM "CompactClick" Dome screen with a 180° spherical screen 3.25 m in radius, in a "Virtual Environment Simulation Laboratory (Dome Projection Facility)" (p. 104).The participants were twenty-four 7–9-year-old children split into an experimental group (trainees) and control group (no training). The verbal descriptions of the reason to cross the street or not to cross were assigned to six categories: no presence of zebra-crossing, presence of moving vehicles, field of view, time, speed, and distance. While this current study is not on training, Meir, Oron-Gilad, and Parmet's (2015) categories will be useful for the item development of the SPSS Scale. A rather important finding of this work is that "pedestrians' skills are not utterly dependent on maturity factors" (p. 108). "In support of Barton et al., (2012), experience (not age) should be targeted as part of the effort to reduce children's crossing injury rate" (Meir, Oron-Gilad, & Parmet., 2015. p. 108). In other words, research on cognitive development (Zeedyk, Wallace, Carcary, Jones & Larter, 2001), past pedestrian research (Barton & Schwebel, 2006; Sandals, 1975; Vinje, 1981), and FDOT, have reported that children nine and younger do not have the capacity to handle complex traffic situations. Further, training did not improve pedestrian safety or street crossing behavior in children (Schwebel, Combs, Rodriguez, Severson, & Sisiopiku, 2016).

However, repetitive training on hazard perception skills (Meir, Oron-Gilad, & Parmet, 2015; Schwebel, et al., 2016) with individual practice (Rosenbloom et al., 2015) and with parental support (Zare et al., 2019) can improve children's choice to cross the street safely, which supports past research on improving pedestrian behaviors through training (e.g., Ampofo-Boateng et al., 1993; Rosenbloom et al., 2015). Repetitive training was also recommended by Schwebel, Combs, Rodriguez, Severson, & Sisiopiku (2016). Children's perception of pedestrian safety is linked with their knowledge of pedestrian safety rules and confidence to implement safe behaviors. However, pedestrian training has offered mixed results (Schweble & McClure, 2014). "Widely used videos and websites may not accomplish the goal" of individual learning, which is found to be the most effective method of teaching safe route selection skills to children (Schweble & McClure, 2014. p. 177).

A report for the National Traffic Safety Administration was written to educate the public on bicycle safety (Ellis, 2014). This report endorses the same general view of child development and complex traffic situations of pedestrians. Educating children to complete a task, and children retaining this task knowledge, does not imply that they will change their behavior and complete the task as they learned. In other words: "learning that one must stop at a stop sign does not mean that a child will actually do it" (Clark, 2007. p. v). "Motor skills do not just come as birthday presents. They must be nurtured, promoted, and practiced" (Clark, 2007. p. 43). This is the best way to say that with repetitive, individual instruction, children could in fact be taught to complete dual tasks (i.e., motor skills with cognitive skills required) (Pellecchia, 2005). The Official Florida Driver's License Handbook (rev. 5/22/2020) lists 15 bicyclists' rules and offers five safety tips. Children do not operate a bicycle in the same

manner as adults. We do not expect a child would ride on the roadway with vehicles, therefore rules on left turns in traffic and operating a bicycle under the influence of drugs and alcohol, along with transporting children and enfants are omitted. However, it could be relevant to include an item on the dangers of riding a bike while transporting a friend. Six of the fifteen rules relevant to this study on child safety are listed: Rule 1. “Bicyclists must never attach themselves or their bikes to any vehicle on the roadway”; 2. “If they are riding on a sidewalk or crosswalk, bicyclists have all the rights and duties of a pedestrian. However, they must yield the right-of-way to pedestrians and must give an audible signal before passing pedestrians”; 3. “Bicyclists must have brakes which can stop their bikes within 25 feet from a speed of 10 MPH”; 4. “All bicyclists and passengers under the age of 16 are required to wear helmets that meet federal safety standards”; 5. “If bicyclists are transporting a child under the age four, who weighs 40 pounds or less, they must use a backpack/sling, child seat, or trailer designed to carry children”; and 6. “Bicyclists must not wear headphones/ear buds while bicycling on the roadway” (p, 41). In addition, there are five bicyclists’ tips, four of which are relevant, of those four, two are the same as the pedestrian tips: 1. “No matter your age, wear a helmet”; 2. Keep both hands on the handlebars”; 3. “Be seen, wear neon or fluorescent colors when riding and wear something reflective”; 4. Don’t text while biking” (p. 41).

Current Measures of Student Pedestrian Safety

There are studies with limited self-report items that include perception of safety outside of the school building, around the school, and traveling to school. One such measure used in research is the SAHA. It includes feelings of safety at school, the items are rated on a four-point Likert-type scale from 1 (definitely not true) to 4 (definitely true). The two items

are: 1. “I feel safe on the school bus or while walking to school”; and 2. “I feel safe standing in front of my school building”; (Henrich *et* al., 2004. p. 334). There is a dual question in question one, which is not advised since it could result in a flawed response. Ruiz, McMahon, and Jason (2018) studied school safety with one question on safety perception traveling to school and one question asking about safety outside of the school: “How safe do you feel (ranging from not safe to very safe): outside around the school; traveling between home and school?” (p. 301). These questions are useful for this current study; however, specific mode of transportation, area in which they are walking or riding their bike, and time of day (before vs. after school) would narrow the item to enable the student to provide a more precise assessment of their sense of safety.

Granie, Pannetier, and Gueho (2013) created and tested a 47-item Pedestrian Behavior Scale (PBS) designed for individuals aged 15 to 78 (*M* = 33.86) on pedestrian behavior (p. 832). There were four factors: transgressions, lapses, aggressive behavior, and positive behavior. Aggressive and positive behavior are two dimensions used in pedestrian research. Factor 1. Transgressions covered violation of legal rules and errors and included items such as: “I cross diagonally to save time”; “I cross outside of the pedestrian crossing even if there is one less than 50 m away”; “I cross the street even if the pedestrian light is red”; “ I cross even though the light is still green for vehicles”; “I cross the street between parked cars”; “I start to cross on a pedestrian crossing and I finish crossing diagonally to save time”; “ I cross between vehicles stopped on the roadway in traffic jams”; “I walk on the roadway to be next to my friends on the sidewalk or to overtake someone who is walking slower than I am” (p. 838). Factor 2. Lapse: “I forget to look before crossing because I am thinking about something else”; “I forget

to look before crossing because I want to join someone on the sidewalk on the other side"; "I cross without looking because I am talking with someone"; "I realized that I have crossed several streets and intersections without paying attention to traffic" (p. 838). Factor 3. Aggressive behavior: "I get angry with another user and insult him" "I get angry with another user (pedestrian, driver, cyclist, etc.) and I yell at him"; "I get angry with another user (pedestrian, driver, cyclist, etc.) and I make a hand gesture"; "I get angry with a driver and hit his vehicle" (p. 838). Factor 4. Positive behavior: "I let a car go by, even if I have the right-of-way, if there is no other vehicle behind it"; "When I am accompanied by other pedestrians, I walk in a single file on narrow sidewalks so as not to bother the pedestrians I meet"; "I stop to let the other pedestrians I meet by"; I walk on the right-hand side of the sidewalk so as not to bother the pedestrians I meet" (p. 838). The 47 items were reduced to a 20-item scale. The authors claim that the "PBS can be useful to all researchers investigating pedestrian safety, whatever the age" (p. 837) yet it is designed for individuals ages 15 to 78. For this study on children's perception of safety, the items were modified to an age-appropriate scale and according to the rules and tips of the Florida Highway Safety and Motor Vehicles, the Official Florida Driver's License Handbook (rev. 5/22/2020) and tips from Safe Routes to School.

Morrongiello *et* al., (2019) conducted a virtual reality study on children (8-10 years) which included three self-report questionnaires to collect data about peer norms: "what most other kids like me would say" and personal norms: "what I believe" (p. 198). Fourteen items were used for both questionnaires. 1. "If you are in a hurry then it's okay not to come to a complete stop at the curb before entering the road." 2. It's okay to cross where there is no marked crosswalk." 3. It's okay to cross when a car is coming, as long as it is not nearby." 4.

"It's okay to cross the street when the light is red which means not to cross." 5. "It's okay to cross without looking carefully because cars will stop as soon as the driver sees you." 6. "If you have to cross two lanes of traffic, it's okay to cross to the middle yellow line and wait there until the cars have passed, and then cross the second lane." 7. It's okay to skip or run across the road." 8. "It's better to cross with an adult or crossing guard" (reverse coded). 9. It's okay to cross from between parked cars." 10. "It's okay to cross without looking because you can hear if a car is coming." 11. "If it looks safe then it is okay to cross even when the orange hand saying 'stop' is showing." 12. "Once the 'walking man' turns on it means you are safe to cross, so you don't need to worry about looking for moving cars." 13. "It's okay to cross when a car is getting close because it will stop when the driver sees you." 14. "At an intersection, if there is a stop sign then the cars have to stop, so you don't need to worry about looking for moving cars." The children answered each of the 14 items using a 5-point Likert-type scale indicating their extent of agreement ("1 = I don't agree at all, 2 = little, 3 = somewhat, about half and half, 4 = mostly, 5 = completely") (p. 198). There was also a visual tool used to clarify the rankings (e.g., 1 = an empty glass and 5 = a full glass of liquid). The third questionnaire might have used the same raking system; however, it is unclear in the report. The core question was: "What I did when crossing streets in the past week" (p. 198). There were 16 items: 1. "Not come to a complete stop at the curb before entering the road." 2. Cross where there is no marked crosswalk." 3. "Cross when a car is coming, as long as it was not nearby." 4. "Cross the street when the light is red." 5. "Cross without looking carefully." 6. "Cross to the middle yellow line and wait there until the cars passed, and then cross to the second lane." 7. "Skip or run across the road." 8. "Cross with an adult" (revere coded). 9. "Cross from between parked

cars." 10. "Cross without looking because I could hear if a car was coming." 11. "Follow a friend across without carefully looking for cars." 12. "Try to avoid crossing with kids who do unsafe things when crossing" (reverse coded). 13. Cross in a way that my parents would not approve of." 14. "Cross with friends." 15. Cross in a way that was risky or unsafe." 16. "Cross at a crosswalk" (reverse coded) (Morrongiello *et* al., 2019. p. 198). Each of these items can be traced back to previous work from researchers in the pedestrian safety field and a portion was modified for this current study for the SPSS Scale.

The 2021 Middle School Youth Risk Behavior Survey (YRBS) was included in this review as it offers a format with multiple choice questions on multiple safety behaviors: "When you ride a bicycle, how often do you wear a helmet?"; When you rollerblade or ride a skateboard, how often do you wear a helmet?" and "How often do you wear a seat belt when riding in a car?" The question response options were a. "I do not ride a bicycle" b. Never wear a helmet" c. "Rarely wear a helmet" d. "Sometimes wear a helmet" e. "Most of the time wear a helmet" f. "Always wear a helmet" (pp. 2-3). These questions could be formatted in a Likert-type scale on the SPSS Scale and ask "how safe do I feel if I do not wear a helmet when riding a bike?

The PR-TA Scale (Scott, 2014) used past research to develop pedestrian items for a 10-item scale for children. The following is a breakdown of research with Scott's (2014) items: Todd (1992) and Jacobsen (2003) agree that numbers matter. Todd's (1992) research found evidence to support safety in numbers; therefore, the situations are based on either choosing to walk alone or choosing to stay with friends (e.g., "My friends already left for school, and my parents cannot drive me. I will walk or ride my bike to school by myself;" and "My friends are waiting outside for me to walk to school with them. I will stay with them as I travel to school.")

(Scott, 2014). The situation where the participants must choose a safe way to walk along the road (e.g., “The sidewalk is on the other side of the road. I will just walk in the grass next to the road instead of using the sidewalk”) corresponds with the literature of Barton (2006). Traffic gaps (e.g., “I need to cross the street. I will wait for a gap in the traffic and then run across before the cars get close.”) were pulled from Demetre, *et* al., (1992) who found that young children are cautious when crossing streets (Scott, 2014). However, when adding a time constraint, children will choose to make risky decisions (Charron, Festoc, & Gueguen, 2012). Research on determining risk and perception of risk injury (Charron, Festoc, & Gueguen, 2012) (e.g., “I left my bike helmet at my friend’s house, but I want to ride my bike to school today. I will ride my bike without a helmet today and get the helmet to wear for tomorrow;” “I am getting ready to walk to school. I will also walk home from school. The weather is nice and not too hot, so I will wear my new black shirt and dark jeans to school today;” and “It is raining outside today, and I am walking to school. A car pulls up next to me and a parent of another kid asks me if I want to get out of the rain. I decide to get into the car and take the ride.”) were on the PR-TA Scale. Some researchers found that children can determine risk to avoid it (Hillier & Morrongiello, 1998), therefore this a decision-making construct; not all children can make that determination. Taking short cuts and a sense of urgency questions (e.g., “I am walking home from school and want to get home before my favorite TV show comes on. I decide to take a shortcut behind some buildings so that I can get home early.”) were originated from Charron, et al., (2012) who concluded that the participants took more risks when there was a greater sense of urgency to complete the task. Barton, Ulrich, and Lyday (2011) study was also applied to the route selection question. Charron, *et* al’s., (2012) research was based on the

sense of urgency felt (e.g. “I am standing at an intersection of a street. I am waiting for the traffic sign to tell me that it is safe to cross, but it is taking too long. I do not see any cars coming my way, so I cross the street”). However, it also reflects Chu’s (2003) research on “perceived level of safety”. The PR-TA question, Item 10 (e.g., “I am riding my bike to school today. I have my backpack on my back, but it is bothering me, so I decide to take it off and hold it on the handlebars of my bike.”), was developed from studies of risk assessment and injury (Hillier & Morrongiello, 1998). FDOT’s research also teaches the bike rider to keep heavy backpacks off the handlebars which could alter the weight. Schwebel, Pitts and Stavrinos (2009), found that backpacks, when carried, change the stride of the walker, and creates uncertainty in the amount of time it will take to cross the street. Therefore, biker rides could have the same effect, the backpack on the handlebars could alter the perception of difficulty of riding the bike.

School Bus Safety

The phrase “at school” refers to traveling to and from school, which includes school bus travel. School bus safety will address the physical safety perception implying the “will I get hurt” or “how hurt will I get” philosophy (Peterson, Gillies, Cook, Snick & Little, 1994) and the perception of safety, which includes school bus bullying.

There are over 480,000 school busses in the United States transporting approximately 33% of our school-age children (5 – 17 years old) (FHWA, 2019), which is about 26 million students annually (Davis & Abulhassam, 2021). Research has found that school buses are the safest mode of transportation to school (Davis & Abulhassam, 2021), mainly because of the presence busses have on the roadways such as their “visibility, size, and weight” compared to

other vehicles (Elias, Sullivan, & Mc Cray, 2001, p. 1). However, accidents might change how students view safety. According to CDE (2020), there are about 26,000 accidents per year, with an average of five to 10 fatalities (Toppo, 2015). The Department of Transportation continually assesses safety features on school buses (Elias, Sullivan, & McCray, 2001). While the physical protection of our children on the school bus is the goal of bus safety measures, we must acknowledge that there is a possibility of children needing to use their safety skills to survive. School bus safety proves to be a relevant factor to include in this current study on school safety perception due to the recent local accidents involving children and bus stops.

Bus safety proves to be difficult to regulate, because each state and school district has their own bus safety regulation, such as emergency evacuation training procedures and data collection for analysis. Davis and Abulhassan (2021) suggest having a uniform standard for data collection for times and methodology when performing emergency evacuation drills. Although having mock evacuations on a school bus is not frequently employed, they are needed. During full capacity of a school bus, it could seat 72 (Class C bus) to 90 (Class D bus) students (Matolcsy, 2009) and during a fire, the bus could easily burn in just three minutes. Thus, begging the question, could all the students evacuate a smoke-filled bus and make it out alive? What if the bus was lying on its side and partially submerged in water? Do the students know how to get off the bus? Abulhassan, et al., (2016) says that the answer to these questions is no; based on the “published flow rates for school bus exits” (p. 2). Children in the third grade and lower were not capable of evacuation within the Federal Aviation Administration (FFA) evacuation time standard (90 seconds). Younger children need more time to respond, and

when trying to evacuate through the back door exit, it was too high for them to climb down (Abulhassan, et al., 2016).

According to the Florida Highway Safety and Motor Vehicles (FHSMV), school bus safety includes knowing the safety rules. The FHSMV's website offers tips for being safe at the school bus stop and on the school bus. These safety tips include: 1. Arriving at the bus stop in the morning at least five minutes before the scheduled time for pick-up; 2. Stand in a safe location at the stop, not to sit on the curb of the street; 3. Know the name/number of the bus and the driver's name; 4. Do not speak to strangers at the stop and to report any strange occurrence (i.e., strangers talking to them, asking if they need a ride); 5. Wait for the bus driver to tell them that it is safe to cross the street and to always walk in front of the bus and stay away from the tires; 6. To know the correct procedures to cross the street (look left, right, and then left again) and to make sure that the driver can see them (e.g., make eye contact); 6. Remain seated on the bus and keep their body and items inside the bus and aisles clear; 7. When the bus comes to a railroad track, students should refrain from talking; 8. Refrain from disruptive behavior (e.g. screaming, loud noises, fighting).

Current Measures of School Bus Safety

Research on school bus safety and student behavior is limited. However, the bus drivers' view is useful to this current study. Allen, Hardin, and Henderson (2006) reported that bus drivers ranked the most problematic issue of driving a bus is students' misbehavior (80%) and the second is trying to drive the bus with distractions from the children (72%) followed by "smart-mouthed children" (57%) and lastly with children making too much noise (44%). The Bus drivers also ranked the frequency of the students' behavior on a 7-point Likert-type scale

(1 = never, 4 = sometimes, 7 = often). The mean of each behavior was: “sleeping (4.5), boys showing off (4.3), use of bad language (4.3), getting out of the seat while the bus is moving (4.2), eating and drinking (4.2), arguing, 4.2), vandalism (2.6), disrespectful gestures out the window (2.5), fighting (2.2), using tobacco products (1.6), overt sexual activity (1.4), and opening the emergency door (1.3)” (Allen, Hardin, & Henderson, 2006) (as cited in Henderson, 2009, p. 8).

Bullying, such as teasing, is a common bus behavior. Walters, Kremser, and Runell (2020) conducted a survey on 610 sixth grade students (296 boys, 313 girls; mean age = 11.25 years) to discover which elements are associated with the fear of being bullied on the bus, as well as whether kids who regularly rode the bus to school felt the safest—during the ride there, in school, or on the way home. Students reported that they did not feel as safe on the bus as they do at school. Girls felt safer in school and boys reported feeling safer on the way home from school. However, the authors indicate that the bus was less crowded on the way home from school because the older students would be at after-school activities. For boys, there was a significant relationship between bullying victimization and fear of being bullied. The students’ fear of being bullied on the bus, could be associated to prior “victimization and current feelings of sadness, loneliness, and reduced energy” (p.). “There were no significant differences between boys and girls in their overall level of fear of bullying on the bus” (Walters, Kremser, & Runell, 2020).

SAHA includes feelings of safety around school and on the bus; rated on a four-point Likert-type scale from 1 (definitely not true) to 4 (definitely true). The two items are: 1. “I feel safe on the school bus or while walking to school”; and 2. “I feel safe standing in front of my

school building"; (Henrich *et* al., 2004. p. 334). The first question combines walking to school and traveling on the school bus, which could lead to validity concerns and unanswered questions. What if the student does not walk or take the bus to school?

The SPSS Scale included modes of transportation such as walking and riding the bus are relevant to student perception of safety. Regardless of whether students really rode the bus, all students had the chance to respond to questions about their perceptions of school bus safety in fictitious scenarios. The items for the SPSS Scale were formulated based on prior research of student behavior on the school bus (Allen, Hardin, & Henderson, 2006; Henderson, 2009), bus statistics (FHWA , 2019; Davis & Abulhassam, 2021; Toppo, 2015), evacuation safety (Abulhassan, et al., 2016; Matolcsy, 2009), and suggestions for staying safe by the Florida Highway Safety and Motor Vehicles.

Understanding Child Cognition and Development for School Safety Research

Understanding child development is important because adolescent research states that adolescents' hormones trigger impulsive behavior (Arain, et al., 2013) which could lead to risky choices and dangerous behavior (Arain, et al., 2013). Even if they behave impulsively, elementary school-aged children may reliably express their feelings of safety and know what to do in emergency circumstances. This assertion should be made confidently in the wake of the Robb Elementary School shooting, yet no research has been done to combine the various parts of this statement. However, it's important to comprehend how primary school students perceive safety because elementary school students aren't included in many self-report studies. Knowing what young children feel about school safety and dangerous situations, can provide feedback for training to help them survive an active shooter attack; get out of the

school alive during a fire or a school bus accident; avoid pedestrian accidents; know what to do during a violent situation at school; or how to handle a bully; and know how to stay healthy when others are getting sick. Furthermore, having this understanding would make it easier to apply safety measures in schools without endangering students' psychological well-being.

"Cognitive and motivational processes", along with "psychomotor skills" are needed in complex tasks environments such as pedestrian and motor vehicle interactions (Granie et al., 2013. p. 838). Some researchers state that with underdeveloped cognitive skills (Zeedyk, Wallace, Carcary, Jones & Larter, 2001) and slower auditory perception (Barton et al., 2013) dangerous situations are unavoidable. Findings of a simulated study report that children are not easily able to detect sound approaching from behind or in front of them, and when detecting sound location in real-life traffic situations, it will be even more difficult (Barton et al., 2011). Moreover, their slow reaction time in dangerous situations could result in injury (Hillier & Morrongiello, 1998). However, cognitive psychologists (Werner & Gray, 1998) argue that children as young as ten, possess adult capabilities in auditory processing, and that children as young as nine years old have the capability to assess safety issues and road dangers (Ampofo-Boateng & Thompson, 1991; Underwood, Dillon, Farnsworth, & Twiner, 2007). The age that children can be taught or when they develop complex cognitive skills, such as pedestrian route selection, is unknown (Schwebel & McClure, 2014). Yet the actions taken by the young students during the Robb Elementary School shooting provided evidence that some children can act quickly under duress. Research is unclear on whether younger students understand, can avoid or report safety issues at school, therefore the development of a school safety measure is beneficial to begin such an investigation.

There are contradictory studies on self-report capabilities. Researchers argue that children “may lack the insight or ability to provide an accurate report of their own behavior” (Ladouceur et al., 2002). Reporting a behavior and forcing one to remember how they behave over the course of their lifetime (i.e., ABES) would be quite a mental task for anyone. Furthermore, using the TIMSS technique, it could be difficult to get students to report on how many times they have encountered a particular situation at school over the course of a year. The first question in the technique asks, "I feel safe when I am at school," and eight more questions follow asking the students to report on the number of occurrences of certain situations at school. Morrongiello *et* al., (2019) found that young participants (8 to 10 years) were self-aware of their risky street crossing choices and could “reliably report” their behavior using questionnaires (p. 200). This finding is useful for this current study on perception of school safety and the development of the SPSS Scale because it endorses the use of questionnaires with elementary-age children. Additionally, by using a scenario and asking for their perception of how they feel on that specific scenario may be less taxing on their mind; the perception items are not requiring students to remember a behavior.

At what age are children considered children and not adolescents? Studies on adolescence (the age between childhood and adulthood) are broad and defined differently among studies. There are group categories by decades in which adolescents are measured; consider Arnett’s (2000) theory as the “third decade of emerging adulthood as a developmental period with its own risks and opportunities” (as cited in Defoe & Romer, 2022). Does this mean that a person is considered an adolescent in their thirties? The debate over the length of time people should be considered an adolescent (Willoughby et al., 2021) is endless.

In many societies, adolescence begins with puberty and does not end until twenty-five years old. Whereas the World Health Organization (WHO) defines an adolescent as “any person aged 10 to 19”. While this current study is not covering the adolescent as defined by general research standards. This study includes 9 to 12-year-olds (5th grade) and it is important to mention that the stages of physical development have changed and should be recognized.

According to the Tanner stages of puberty, the sexual maturity ratings (SMRs), there are five stages, where stage two marks the beginning of physical development. However, it is important to note that at the ending of stage one, hormones start developing (8 girls 9 boys). The norm twenty years ago for an “adolescent growth spurt” was nine (girls) and eleven (boys) (Craig & Baucum, 2002. p. 317). Puberty and the production of testosterone starts about two years earlier in children than 20 years ago. Just twelve years ago, Biro et al., (2010) conducted a study of the onset of pubertal maturation of 1239 girls ages six to eight years of age which concluded that girls as young as seven have already had breast development which is younger than previous studies conducted 10 to 30 years earlier. Understanding child development is important because adolescent research states that adolescents’ hormones trigger impulsive behavior (Arain, et al., 2013) which could lead to risky choices and dangerous behavior (Arain, et al., 2013) and for the most part is why adolescence studies are popular. However, with this understanding of child development, one might conclude that earlier onset of puberty could lead to earlier impulse behavior which could affect perception of what safety means to young children (ages 9 to 12).

What does all this mean for this current study? Children are developing the adolescent hormone that triggers impulsive behavior earlier, and past research (Millspaugh, Cornell,

Datta, & Heilbrum, 2015) shows us that children do not report dangers or threats made (i.e., 82% of students do not believe threats are serious even when lives are at risk), and children today have a distorted sense of normal due to the societal violence and school dangers, which is why the target age is younger than popular research (elementary school).

This current study is regarding the development of a measure for the fifth grade population, some of whom may have already entered puberty, according to Biro *et* al., (2010). Fifth grade is the sixth year of elementary school if the student attended kindergarten in a K - 12 school system in the United States and is typically considered the last year of elementary school in most schools. Students are usually ten to eleven years old unless the child has been held back or skipped a grade. Students as young as nine years old could enter fifth grade, and some turn as old as twelve at the end of the grade, depending on their date of birth.

Elementary age children are considered in middle childhood (Craig & Baucum, 2002). Middle childhood is recognized as six to eleven years of age and is grouped into two categories (6 – 8) and (9 – 11) to differentiate the multiple milestones for each (CDC, 2023). This study focuses on the latter (9 – 11 years). During this stage, children's cognitive skills, physical abilities, and coordination improve and develop. They "can focus their attention for longer periods" than younger children and learn a multitude of activities (e.g., team sports, swim, dance, write short stories, and play instruments). "Children can anticipate the moves of others and plan strategies" (p. 317). Cognition and child development is added in this current study to help validate the need for younger student's perception of safety where data collection of perception of safety in elementary school-age children is withheld (e.g., Bradshaw, Sawyer & O'Brennen, 2009).

Scale Development

This scale's development is intended for middle childhood on a sensitive school topic which holds many dimensions. It is important to use a systematic method for constructing a large scale on a highly debated issue. This current study uses Crocker and Algina's (2008) first five steps for survey/test development as a guide for the development of the SPSS Scale, and is interpreted as:

6. Identify the purpose of the scores.

   This first step is to decide what will be measured, to determine the intended population of the scale, and to create a list of delimitations.

7. Define the domain and dimension of the domain.

   This is accomplished through a review of prior research on the domain. Through direct observations and becoming involved with the research topic and through suggestions made from experts in the field.

8. Develop a blueprint.

   The blueprint is a way to organize the dimensions of the domain based on past research, observations and through expert advice.

9. Develop a list of questions.

   Formulate questions in an appropriate format for the intended audience. There are many item construction rules to employ such as: Readability of the questions, concise wording, the use of <20 words for each question to avoid confusing sentence structure, the use of age-appropriate vocabulary for the population of interest, and avoiding the use of negative words (e.g., not, none, never). Item response format such as Likert-type

scales or binary response are also an important step to consider as it will determine the method for analyzing the data.

10. Review and revise the items.

    The list of questions is reviewed by a panel of experts specific to the field of study, or experts regarding the participants, this depends on the topic of study. This review is done systematically and as the edits are made, so too is the blueprint updated. Once the list is revised, the formal review begins with a separate group of experts to critique each item. Analyze the data for a detailed review to complete a final version.

Item Construction for Children

Constructing self-report surveys for children is a delicate procedure. One must pay special attention to the structure of the question (length and readability), vocabulary, and flow or item placement throughout the survey to avoid bias. During the pilot study on the development of a school-level assessment of climate, Brand, Felner, Shim, Seitsinger, and Dumas (2003) found that young participants (middle school students) could not reliably report items with double-negatives, or items that used excessive qualifications (i.e., using words like "sometimes" and "pretty disorganized" within the same statement) and items with "colloquial expressions" (p. 572). Zuckerman, Eysenck, and Eysenck's (1978) Sensation Seeking Scale Form V has been a measure for research on personality (e.g., Ball & Zuckerman, 1990). However, there is bias, assuming that the participants are familiar with water sports such as "surfboard riding". Terms in older inventories could be outdated and invalid. For example, terms in the "original version of the MMPI" such as: "deportment, cutting up, and drop the handkerchief […] told more about the person's age than about any aspect of his or her personality"

(Streiner, Norman, & Cairney, 2015. p. 20). Almost three decades ago, the Behavior Inhibition System/Behavior Activation System (BIS/BAS) questionnaire was developed to assess self-report risk-taking tendencies using a population of college students (358 men and 374 women) (Carver and White, 1994). The terminology may be outdated or inappropriate for young children, as they may not understand the meaning of such terms as: "If I think something unpleasant is going to happen, I usually get pretty "worked up." Or "When I go after something I use a "no holds barred" approach" (Carver & White, 1994). However, just nine years ago, the BIS/BAS questionnaire was used with children as young as eight years old (Braams et al., 2015). Brand, et al., (2003) indicated that young participants could "respond more reliably to a 5-point frequency metric than to a dichotomous yes-no response format" (572). Additionally, Brand, et al., (2003) concluded that a 4-point frequency metric without a midpoint was more reliable than the 5-point when measuring safety and pluralism items.

SPSS Scale Development

Survey methodology is the most frequently used approach to evaluate perception of safety and prevention in schools (Nickerson & Osborn, 2006). It is less intrusive for this sensitive topic and population (school safety with children). This study considers past research on many dimensions of school safety and child capabilities for scale development. Further, reliability and validation issues when developing scales are reviewed. It is of utmost importance to identify best practices for scale development for young participants such as: method of item response, text readability, writing demographic questions, item placement, children's social desirability, and inclusion of scenarios to avoid "heterogeneity in reporting behavior" (Vonkova & Hullegie, 2011). A theoretical framework was developed consisting of

multiple constructs such as: school climate, which includes safety and environment factors (Bradshaw et al., 2014; Cohen et al., 2009); school safety (Bradshaw et al., 2014; Henrich, Schwab-Stone, Fanti, Jones, & Ruchkin, 2004; Ruiz, McMahon & Jason, 2018); the code of student conduct (Kitsantas, Ware, & Martinez-Arias, 2004; National Household Education Survey, 1993; National Crime Victimization Survey (NCVS); School Crime Supplement FORM SCS-1 (SCS), 2017); target hardening (Perumean-Chaney & Sutton, 2013; School Crime Supplement FORM SCS-1 (SCS), 2017); school safe practices and procedures (Allen, Lorek, & Mensia-Joseph, 2008; Nickerson & Osborne, 2006); violence, bullying and peer victimization (Bradshaw et al., 2014; Bradshaw, Sawyer, & O'Brennan, 2009; Fink, Patalay, Sharpe, & Wolpert, 2018; Huang, Cornell, & Konold, 2015; Huesmann et al., 1992; Nansel et al., 2001; Perumean-Chaney & Sutton, 2013; TIMSS, 2015); weapons and contraband (Bradshaw et al., 2014; Jewett, et al., 2021; Perumean-Chaney & Sutton, 2013; Plank, Bradshaw, & Young, 2009); school threats (Cornell et al., 2018; Millspaugh, Cornell, Datta, & Heilbrum, 2015; Nekvasil & Cornell, 2012); physical disorder at school (Bradshaw et al., 2014; Plank, Bradshaw, & Young, 2009); classroom behavior management (Bradshaw et al., 2014; Plank, Bradshaw, & Young, 2009); health and hygiene (Adolescent Behaviors & Experiences Survey (ABES); National School COVID-19 Prevention Study (NSCPS); Wada & Oloruntoba, 2021); pedestrian safety (Granie, Pannetier, & Gueho, 2013; Henrich et al., 2004; Middle School Youth Risk Behavior Survey (YRBS), 2021; Morrongiello et al., 2019; Scott, 2014) and bus safety (Abulhassan, et al., 2016; Allen, Hardin, & Henderson, 2006; Davis & Abulhassam, 2021; FHWA , 2019; Henderson, 2009; Matolcsy, 2009; Toppo, 2015). This combination of safety items was

compiled for the development of the first draft of the 12-section Student Perception of School Safety (SPSS) Scale.

Previous scale items are adapted from other similar instruments. For example, to generate the 1953 Manifest Anxiety Scale, the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway and McKinley 1951) was modified (Taylor 1953). Peering back even farther, it becomes clear that the 1953 MMPI items utilized in the Academic Behavior Inventory (ABI) were developed from Thurstone and Thurstone's Personality Schedule. Another reason for using previously written items is that there are only a few good ways to ask the same question (Streiner, Norman & Cairney 2015). This study also incorporates information regarding health issues, pedestrian safety, and bus safety from the CDC, and the FDOT. For the SPSS Scale development, the questions are created from past research with the item structure modified to include a hypothetical question, “How safe do I feel if (insert scenario)?”

Anchoring Vignette Methods vs Scenarios

To understand the use of hypothetical questions in survey research, it is important to know the best method of use. Partially described real-world scenarios known as hypothetical case studies or vignettes are employed in education and research to extract participants' attitudes, judgments, beliefs, knowledge, views, or conclusions (Brauer, et al. 2009). Researchers have investigated the use of anchoring vignette methods for domain specific self-report measures for cognition, breathing, and mobility with adequate success (Vonkova & Hullegie, 2011). Other researchers found that the anchoring vignette method minimizes cross-cultural bias (Weiss and Roberts, 2018). The full-length anchoring vignette method is not recommended for young children due to its complexity in interpretation (O’Dell et al., 2012).

When scenarios are used with children, the scenario must be very closely linked to actual real-world situations (Neff, 1995). However, the likelihood that its responses will match real behavior decreases with the number of hypothetical vignettes that are shown (O'Dell et al., 2012. p. 6).

Text Readability

Some school safety surveys are used with elementary school children, but in my opinion, they are not acceptable for younger participants because they are designed for middle school students and older. Most instruments use a sixth grade reading level to measure the general population (DeVellis, 2017). Researchers suggest avoiding complex ideas within one question to clarify the meaning, to avoid using multiple negatives or double negatives (e.g., I didn't steal nothing of yours), to avoid double-barreled items (e.g., Is school fun and interesting; How often and how much time do you spend playing computer games?), to avoid using ambiguous pronoun references (e.g., Mike wanted to ride his bike to school, but his mom told him to wear his helmet. He decided not to do *it* because he didn't want to wear *it.*), to watch for modifier and adjectives vs. noun forms (e.g., "football game" uses a noun to modify another noun), and to "avoid exceptionally lengthy items" (DeVellis, 2017. p. 114). The Flesch Kincaid equation and reading difficulty level (Dale & Chall, 1948; Fry, 1977) is a simple mathematical equation developed specially for this purpose. The Flesch-Kincaid readability test grade level formula:

0.39 (total words / total sentences) + 11.8 (total syllables / total words) - 15.59 was used to manage the reading level of the SPSS Scale. The scale should reflect a fourth grade reading

level, keeping the “language […] simple, straightforward, and appropriate for the reading level of the scale's target population” (Clark & Watson, 1995. p. 7).

Self-report Survey Limitations

Once you believe that the items are formed with proper sentence structure, with a concise hypothetical scenario, and the readability has been tested, there are still limitations. Indeed, self-report scales (e.g., Thurstone or Guttman scales, or Likert-type scales) are popular assessments because they are inexpensive if they are digital, data collection is easy if it does not use a vulnerable population, and can be disseminated virtually, if permitted. This method is used to analyze a multitude of variables such as beliefs, attitudes, behaviors, and values across disciplines (e.g., education, sciences, health, and business). Limitations such as bias across gender, culture (Weiss and Roberts, 2018) and age, or participants may respond to a question on the survey differently due to misinterpretation of the question based on their background (e.g., race, age, culture, ethnicity, socioeconomic situations, and family dynamics). In other words, participants respond to items differently in terms of what they have experienced in life or to what they have been exposed. These inconsistencies with item response are also known as differential item functioning (DIF) or “heterogeneity in reporting behavior” (Vonkova & Hullegie, 2011). Additionally, item construction is often time-consuming and involves expert reviewers and multiple committees to agree with item structure and content and it takes multiple tests to develop psychometrically sound questions (Streiner, Norman & Cairney, 2015). With these constraints in mind, a combination of a self-report method such as Likert-type scale and a vignette modification to a concise, real-world event narrative could be the solution to the heterogeneity in reporting behavior issues, which could

lead to the validation of a stand-alone, self-report measure of children's perceived safety at school.

Reliability

Internal Consistency

Reliability is a way to reflect random and systematic errors of a test or scale. Reliability is defined as "the extent to which repetition of the study would result in the same data and conclusions" (Goode & Hatt, 1952. p. 153). In other words, reliability is "performance consistency" (Crocker & Algina, 2008) and is linked to a specific population that is being measured. Reliability is an interaction between the instrument, the sample of the population, and the circumstances rather than an unchangeable, intrinsic feature of a scale (Streiner, Norman, & Cairney, 2015). As a result, the findings are subjective. The formal definition of reliability is drawn from Karl Pearson's Classical Test Theory and today the statistical equation is written as such: Reliability = $\frac{\sigma_s^2}{\sigma_s^2+\sigma_s^2}$ which is interpreted as "reliability equals the subject variability divided by the subject variability plus measurement error" (Streiner, Norman, & Cairney, 2015).

Cronbach's alpha measures the internal consistency reliability of a group of questions meant to measure the same concept. Higher numbers indicate stronger internal consistency with a range of 0 to 1. (Crocker & Algina. 2008). This determines the degree to which specific constructs consistently measure the same occurrence (Vogt, 1993). A measure of .70 is respectable (Nunnally, 1978). Cronbach's alpha, Spearman's rank order, and Pearson's product momentum correlation all quantify the relationship between variables but have different purposes. While Cronbach's alpha mentioned above measures the internal consistency

reliability, Pearson's correlation measures the direction and strength of the linear relationship between interval or ratio variables. It has a range -1 to, and 0 indicates no relationship. Spearman's rank order correlation, like the Pearson correlation, measures strength and direction, but it is the non-parametric version which measures the monotonic associations rather than a linear direction. There is debate about using a Pearson correlation with an ordinal scale, however, "The Pearson correlation matrix is commonly used to compute coefficient alpha" (Zumbo. Gadernabb, & Zeisser, 2007. p. 21). It has been shown that the total value of the coefficient alpha can appear to deflate with less than a five-point scale using Likert-type response scales, which means that the alpha may underestimate the reliability scores (Zumbo. Gadernabb, & Zeisser, 2007). Other issues that this study considers when handling internal consistency are by using multiple items for each of the domains could increase the SPSS Scale's reliability (DeVellis, 2017; Goodhue & Loiacono, 2002). Using multiple scale items is common practice throughout research and across fields in most cases. On the other hand, there are cautions that researchers must heed: to not develop a scale with an excessive number of questions, such as the Yale Child Study Center's Social and Health Assessment (SAHA) questionnaire, consisting of 300 items, as this could lead to "item fatigue or boredom" (Hess et al., 2012) resulting in error variance (Hess et al., 2012).

Grouping verses Randomizing Items

Method bias in scale development is another reliability issue (Straub, Boudreau, & Gefen, 2004). Artificial inflation of non-randomizing items within the survey (Goodhue & Loiacono, 2002; Wilson & Lankton, 2012) will overstate the construct reliability of the measure (Straub, Boudreau, & Gefen, 2004). In other words, the debate over question order within the

survey: grouping questions by constructs verses randomizing the questions (Goodhue & Loiacono, 2002; Wilson & Lankton, 2012). We must be careful not to make the same mistakes as past researchers (e.g., Benthin, Slovic, & Severson, 1992). Their scale asks participants to check a category rating that has duplicates groups (i.e., none, once or twice, 2-5 times, > 5 times); notice the overlap on the number two; participants may mark an event as "twice" while others mark two to five times.

Validity

Validity refers to the outcome of the scale, while validation refers to the process of creating the scale (Streiner, Morman, & Cairney, 2015). Reliability is linked with validity; the higher the reliability score, the higher the possible validity outcome (Streiner, Morman, & Cairney, 2015), with one exception; the relationship between internal consistency reliability (Cronbach's alpha) and content validity.

When creating scales to evaluate psychological dimensions such as perception of safety, researchers must take item content-relevance into account, also known as item content-validity. Content validity is a "qualitative judgment" of the items in a scale, and it represents the occurrence being measured (Vogt, 1993). This is a systematic examination of the content to rule out any irrelevant items (Crocker & Algina, 2008) which is the aim of this current study. Whereas construct validity is the degree to which the scale measures what it claims to measure (e.g., student perception of safety), not to be confused with face validity (Crocker & Algina, 2008). There are other terms of construct validity, such as convergent, criterion and concurrent validity and some researchers simply refer to these terms as "construct validation" (Streiner, Norman, & Cairney, 2015, p. 11). There are many ways to

examine construct validity, the most popular found during this investigation was testing the correlation between a new scale and other similar existing scales (external structure evidence). However, this current study is not examining the scores of student perception, rather the relevancy scores from experts in school safety; this analysis is examining the RAS scores regarding the SPSS Scale. Therefore, this study examines construct validity through internal structure evidence using a principal component analysis. Inspecting the degree to which the items on the SPSS Scale are correlated with each other through the relevancy scores marked by experts.

Acquiescence (directional bias)

Acquiescence means "to quietly comply" and is a response style that is used to describe a "participant's tendency to overuse one side of a scale (Kam & Zhou, 2015, p. 764); also referred to as directional bias. These responses are found to be the same across different scales and over time (Weijters, et al., 2010) based on the preference of the participant, it may be either side of the scale (e.g., agree or disagree) (Kam & Zhou, 2015) which, in the end, will lead to skewness of the mean distribution (Schweizer, 2012). This is of particular interest for this current study because acquiescence response style (ARS) can "produce a positive bias in item correlations and weaken negative correlations between regular- and reversed-keyed items, causing a construct to load on two separate factors in factor analysis (Kam & Meyer, 2012; Marsh, 1996, as cited in (Kam & Zhou, 2015, p, 765). To control acquiescence, researchers use the tau-equivalence acquiescence factor. The tau-equivalence response style factor measures the directional bias and "partially controls for the subjective interpretation of scale anchors" (Kam & Zhou, 2015, p. 779). With the response, "moderately agree",

participants may interpret this score differently; at higher or lower rates of agreement (Kam & Zhou, 2015, p. 779). Therefore, the SPSS Scale responses are specifically designed for young children: a 6-point Likert-type scale (very unsafe 1 / unsafe 2 / a little unsafe 3 / a little safe 4 / safe 5 / very safe 6) without a neutral response with age-appropriate wording for clear comprehension. Further, the Relevancy Assessment Survey (RAS) used for this current study to assess the SPSS Scale uses a 4-point Likert-type scale from Strongly disagree (1) to Strongly agree (4), without a neutral response.

Social Desirability Scale

Social desirability is when participants respond to items in such a way to please others which could lead to a self-report response bias; the way a participant may think they *should* respond, whether it is over reporting high scores or under reporting low scores. These bias changes the calculated means of the item response. The Children's Social Desirability Scale CSD was developed nearly sixty years ago with two different versions: 1) for older children (grades 6 -12) with 48 questions and 2) for younger children (grades 3-5) with 46 questions. (Baxter et al., 2004; Miller et al., 2014). A short version of the Children's Social Desirability Scale (S-CSD) with 14 questions (Miller et al., 2014) is preferred for younger children to avoid item fatigue mentioned earlier. The Children's Social Desirability Scale (CSD) (Crandall, Crandall, & Katkowsky, 1965) is advised to be used in conjunction with the SPSS Scale to prevent responses that might be intended to impress others. However, the population being assessed for this current study (i.e., school safety personnel) does not require the use of the CSD.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

There have not been any previous comprehensive surveys that gauge elementary grade students' view of school safety on pertinent issues in our schools today, even though there are measurements of school safety through the school climate domain and surveys for older students. There were four objectives for this study: 1) to investigate relevant dimensions of the school safety domain and understand safety procedures that are currently in use; 2) to formulate and organize questions that would be approved to gauge elementary school students' perceptions about school safety; 3) to assess validity and reliability of expert's perceived school safety relevancy scores of the SPSS Scale's items and theoretical factors of school safety; and 4) to determine whether school guardians and law enforcement share the same concerns about school safety. This SPSS Scale tool is intended for young children on a sensitive school topic which includes many school safety dimensions. Although the SPSS Scale's targeted population is elementary students, this current study measured law enforcement and school guardian's perception of relevant items for the development of the scale. It is important to use a systematic method for constructing a large scale with a vulnerable population, on a highly debated issue, therefore the use of Crocker and Algina's (2008) first five steps for survey/test development was used as a guide and is interpreted as:

1) Identify the purpose of the scores.

   This first step is to decide what will be measured, to determine the intended population of the scale, and to create a list of delimitations.

2) Define the domain and dimension of the domain.

This is accomplished through a review of prior research on the domain. Through direct observations and becoming involved with the research topic and through suggestions made from experts in the field.

3) Develop a blueprint.

   The blueprint is a way to organize the dimensions of the domain based on past research, observations and through expert advice.

4) Develop a list of questions.

   Formulate questions in an appropriate format for the intended audience. There are many item construction rules to employ such as: Readability of the questions, concise wording, the use of <20 words for each question to avoid confusing sentence structure, the use of age-appropriate vocabulary for the population of interest, and avoiding the use of negative words (e.g., not, none, never). Item response format such as Likert-type scales or binary response are also an important step to consider as it will determine the method for analyzing the data.

5) Review and revise the items.

   The list of questions is reviewed by a panel of experts specific to the field of study, or experts regarding the participants, this depends on the topic of study. This review is done systematically and as the edits are made, so too is the blueprint updated. Once the list is revised, the formal review begins with a separate group of experts to critique each item. Analyze the data for a detailed review for a completed final version.

A Relevancy Assessment Survey (RAS) was employed to work as a data collection tool for gathering expert ratings from school safety personnel. To evaluate validity and reliability of

the expert ratings regarding the SPSS Scale's items and theoretical factors these relevancy scores were examined.

Research Questions

Pre - RQ1: Will teachers and police officers show differences in school safety priorities when asked about the relevancy of the items to school safety on the SPSS Scale?

Pre – RQ2: What suggestions are made to retain or remove items?

RQ1: To what degree do expert ratings of item relevance reflect a common viewpoint regarding school safety?

RQ2: Do the expert ratings of perceived school safety relevance scores demonstrate adequate reliability?

RQ3: Is there a difference among school safety personnel classifications when enquiring about target hardening item relevance to school safety, addressed on the SPSS Scale?

The null hypothesis (H0): There is no difference in perceived relevance among school safety personnel classifications regarding target hardening items.

The alternative hypothesis (H1): There is a difference in perceived relevance among school safety personnel classifications regarding target hardening items.

RQ4: Is there a difference among school safety personnel classifications when enquiring about the suitability of the SPSS Scale regarding school safety?

RQ5: Are there relevant themes that emerge from the omitted topics of the SPSS Scale among school safety personnel classifications?

Approval Process

Permission was granted by the Internal Review Board (IRB) of the University of Central Florida and a county school district accountability and assessment office before data collection. Nine versions of the IRB protocol with vulnerable populations were filed between early January 2023 to late April 2023. Permission to proceed with research involving fifth-grade students (vulnerable populations) was given (Appendix A) after a thorough examination of the SPSS Scale items by the entire IRB Board and several committees, including psychologists, to assess the risk to children. However, after completing a comprehensive application protocol with the school district accountability and assessment office, in June 2023, the researcher was denied access to the schools. A county Sheriff's office was approached to conduct scale assessment with their team of School Resource Deputies (SRD). Therefore, a new IRB protocol was filed in June 2023 (Appendix B) and was approved to conduct research with law enforcement officers to rate items on the SPSS Scale using the Relevancy Assessment Survey (RAS), a survey designed by the researcher specifically for this study. Due to a small population of SRD's (N = 37), to address validity when creating a new measurement scale, a greater number of participants were required. At the request of the PI, the Sherriff's office reached out to the town and city police officers School Resource Officers (SRO) (N=33) within the district. Special permission from the county school district accountability and assessment office were required to recruit the School Guardians, also known as School Safety Officers (SSO). Therefore, a modification of the new IRB protocol was filed and approved in October 2023 to include the term "guardian" in the study (Appendix C). After resubmission of the modified application, in late November 2023, the county school

district accountability and assessment office approved the study with Guardians'/ SSO's participation.

Participants

Preliminary assessment on the 163-item SPSS Scale (version one) was conducted with teachers (*n*=3) and law enforcement officers with expertise in school safety (*n*=5) who assessed the items for relevance, language, and clarity.

For the primary study, participants were law enforcement and school guardians 18 years of age or older. Law enforcement personnel consisted of School Resource Deputies (SRD) through the county's Sheriff's Office; School Resource Officer (SRO) from nine municipals agencies contracted to work in the schools, or hold the position as Guardian, also known as a Safe School Officers (SSO) contracted through the county's Office of Safe Schools within the school district. There are differences between the SRO, SRD, and Guardians' backgrounds and differences in their training to some degree. The SRDs and SROs are trained together at schools during the year on teacher workdays and at the schools during the summer break. These training include: FDLE solo response to active shooter, tactical emergency casualty care (Stop the Bleed), and moving to contact. The SRDs and SROs are required to attend a school resource basic training, a 40-hour course. Whereas the Guardians must pass an annual qualification, then they have quarterly training courses, single response training (a two-day course), and simulation training. The guardians are placed through an intense 144 hours of active assailant and school safety training operated by the county Sheriff's Office.

Further, there are essentially two guardian units: 1. Uniformed Guardians, and 2. Administrative Guardians. Uniformed Guardians are paid, open-carry (the gun is visible) safety

officers, while the Administrative Guardians are concealed-carry (guns are hidden) volunteers and are school administrators (i.e., principals, vice principals, school counselors) or custodial personnel. A small portion of Administrative Guardians are not assigned to a school, per se, they are located within the building of the county school board. This small group act as substitutes for the guardians, much like a substitute teacher for the school system. The guardians (both uniformed and administrative) have a diverse background: while some have been in the field of education for years, others are ex-military, ex-law enforcement, retired fire fighters, retired FBI, while others do not have any prior law enforcement training or experience in an educational setting.

These groups made up the population and were defined as "school safety personnel" for simplification. Participants were recruited from a total of 128 school safety personnel in the county of interest. There were 34 participants recruited from a total of 37 School Resource Deputies (SRD); 16 were recruited from the total of 33 School Resource Officers (SRO); 15 were recruited from the total of 58 Guardians/School Safety Officers (SSO); and there were 4 undefined school safety personnel. The experts work in public or charter schools, private schools were excluded. Data were collected from law enforcement starting in June 2023 and from the Guardians starting in October 2023. Data collection closed in January 2024.

Attrition Rate

The attrition rate for the primary study among and between school safety personnel classifications is displayed on Table 5. There were 128 possible school safety personnel within the county of interest: School Resource Deputies (SRD) (N = 37); School Resource Officers (SRO) (N = 33); Guardians/ Safe School Officers (SSO) (N = 58); and Undefined – School Safety

Personnel (N = 4) (Those who did not indicate their classification). There were 69 participants (n = 69), or 53.9% of the population who began the survey. SRD group (91.9%) held the largest percentage of the population, with 48.5% of the SRO population, and 25.9% of the Guardian/SSO population. The attrition rate was about 21.7% overall with most of the participants in the Guardian/SSO classification (46.7% attrition rate) who did not complete the study. The SRD classification had the lowest attrition rate of 8.8%. SRD's, and SRO's and were retained from Section 5 (School Physical Disorder) till the end of the survey, with the SRD's representing 83.8% of the total SRD population for the county of interest.

Table 5

Attrition Rate Among and Between School Safety Personnel Classifications

School Safety Personnel	**N**	**S1 School Locations**	**S2 Target Hard**	**S3 Safety Drill**	**S4 Code of Student Conduct**	**S5 School Physical Disorder**	**S6 Behavior Man**	**S7 Health Hygiene**	**S8 Student Ped. Safety**	**S9 School Bus Safety**	**Attrition Rate**
SRD	37	*n* = 34 (91.9%)	***n* = 33**	*n* = 33	*n* = 32	*n* = 31	*n* = 31	*n* = 31	*n* = 31	*n* = 31 (83.8%)	8.8%
SRO	33	*n* = 16 (48.5%)	***n* = 15**	*n* = 13	*n* = 13	*n* = 12	*n* = 12	*n* = 12	*n* = 12	*n* = 12 (36.4%)	25.0%
Guardians / SSO	58	*n* = 15 (25.9%)	***n* = 13**	*n* = 13	*n* = 11	*n* = 11	*n* = 10	*n* = 9	*n* = 9	*n* = 8 (13.8%)	46.7%
Undefined	N/A	*n* = 4	***n* = 3**	*n* = 3	*n* = 3	*n* = 3	*n* =3	*n* = 3	*n* = 3	*n* = 34	25.0%
Total Participation	128	*n* = 69	***n* = 64**	*n* = 62	*n* = 59	*n* = 57	*n* = 56	*n* = 55	*n* = 55	*n* = 54	
% Participation Remained		53.9%	**50.0%**	48.4%	46.1%	44.5%	43.8%	42.9%	42.2%	**42.2%**	
Total Attrition Rate											**21.7%**

As the participants got deeper into the study they chose to leave the study. The sections of the SPSS Scale are indicated by the labels at the top of the table (i.e., S1 = Section One, S2 = Section Two, S3 = Section Three, etc.).

Instrumentation(s)

Student Perception of School Safety (SPSS) Scale

The SPSS Scale (version one) contained 163 questions written as if/when scenarios (e.g., "How safe do I feel ***IF*** I see another student showing signs of a sickness, like sneezing and running nose or coughing, and is wearing a face mask?" or "How safe do I feel ***WHEN*** the school principal tells the whole cafeteria of students to be quiet, but no one listens?"). After the preliminary assessment by a panel of experts, items were simplified (word structure) and 44 items were removed or were combined with other items. The SPSS Scale (version two) contained 119 questions and was presented for review by the team of experts at the university's internal review board. After removal of three sections and 40 additional items, the nine-section, 79-item SPSS Scale was constructed. Item content validation was conducted through a comprehensive literature review on school safety. The scale development process involved modifying content from past studies on both school safety and school climate designed for middle school and high school students. The 79-item, 6-point Likert type scale that makes up the version for this current study, was designed to gauge fifth-grade student's perceived safety across a range of school safety domains: 1. Locations at school; 2. Target hardening; 3. Safety drill procedures; 4. Code of student conduct; 5. School physical disorder; 6. Behavior management; 7. Health/ hygiene; 8. Student pedestrian safety; and 9. School bus safety. Item number varies per section - up to seventeen items in one section. However, reducing the number of items in the section could lessen the effect of psychometric quality.

The construction of the SPSS Scale items was supported through casual interviews and observations of police officers/deputies in the Crime Analysis Units of two county Sheriffs'

offices. Suggestions and feedback from parents, experts in the field such as teachers, researchers with expertise in either child development or survey development were considered. A Sheriff's office, and other safety advocates throughout the community were consulted for further item development.

There are only a few effective question-writing techniques (Streiner, Norman & Cairney,2015), therefore previous measures on school safety and school climate were considered and modified for the development of the Student Perception of School Safety (SPSS) Scale. The 2017 School Crime Supplement FORM SCS-1 (SCS) for the National Crime Victimization Survey (NCVS) is a self-report measure that addresses the code of student conduct among other safety dimensions mentioned earlier in this report. The SCS asks students in grades six and higher questions related to students' perceptions of crime and school safety, and regarding students' perception of school rules and enforcement of the rules. The SCS Form uses general wording such as: "Thinking about your school" or "The school rules are fair" (p. 6). However, the SCS Form was beneficial for designing the hypothetical scenarios for this current study's scale. Other safety research often uses the phrase: "I feel safe at this school" measured on a four-point Likert-type scale from "a large problem" to "not a problem at all" (Bradshaw et al, 2004) or "I feel safe when I am at school" measured by circling a choice of "agree a lot" to "disagree a lot" not offering a numerical point system (IEA, 2019). While other scales use the phrase followed by a location, "I feel safe in the restrooms at my school" with a response choice on a four-point Likert-type scale from 1 "definitely not true" to 4 "definitely true" (Henrich *et* al., 2004). **"**You feel safe in your school" is answered dichotomously "yes of no" (Perumean-Chaney & Sutton, 2013). The work of Astor, Meyer, and

Pitner (2001) was beneficial in the development of the SPSS Scale by focusing on unsafe and dangerous spaces at school and the phrase “How safe do you feel?” was modified from Ruiz, McHahon and Lason (2018), that prompted the question for this current study. However, Ruiz, McHahon and Lason (2018) had a general question without a scenario or location attached to the question, and it was written in second person. This current study combined and modified the wordings listed above to read: “*How safe do I feel if (insert hypothetical scenario)?*” The first-person pronoun “I” replaced the use of the second-person pronoun “you” and a hypothetical scenario was inserted into each question (excluding Section One - Locations at School, with only two multiple choice questions). The response option used a bi-polar adjective clearly defined and written for each question as a 6-point Likert-type scale:

very unsafe (1) to very safe (6): very unsafe, 1/ unsafe, 2/ a little unsafe, 3/ a little safe, 4 / safe, 5 / very safe, 6.

Child cognitive development research was investigated to construct the appropriate grade level of text for the young age group. The Flesch-Kincaid readability test grade level formula of 0.39 (total words/total sentences) + 11.8 (total syllables/total words) - 15.59 was used to support and interpret the readability level of the SPSS Scale. To lower the reading level, complex words with more syllables were simplified (i.e., “cafeteria” with 5 syllables was changed to “lunchroom” with 2 syllables, etc.). The version of the SPSS Scale for this current study is at a fourth grade reading level; keeping the “language […] simple, straightforward, and appropriate for the reading level of the scale's target population” (Clark & Watson, 1995. p. 7). Table 5 lists the items and provides evidence for each item included on the SPSS Scale.

Factor and Item Removal

After the preliminary study, further modifications were made during the four-month IRB review process. Suggestions for item and factor deletion were accepted. The IRB expert's review of the items' psychological effect on the students narrowed the domain factors from twelve to nine (Figure 4). Modifications were made to the SPSS Scale section titles, although the final student version of the scale was not permitted to incorporate section titles, it was necessary to keep the section titles for the school safety personnel to perform their judgments of item relevance. Table 5 lists the finalized items with title sections that represent school safety factors and provides evidence for each item included on the SPSS Scale.

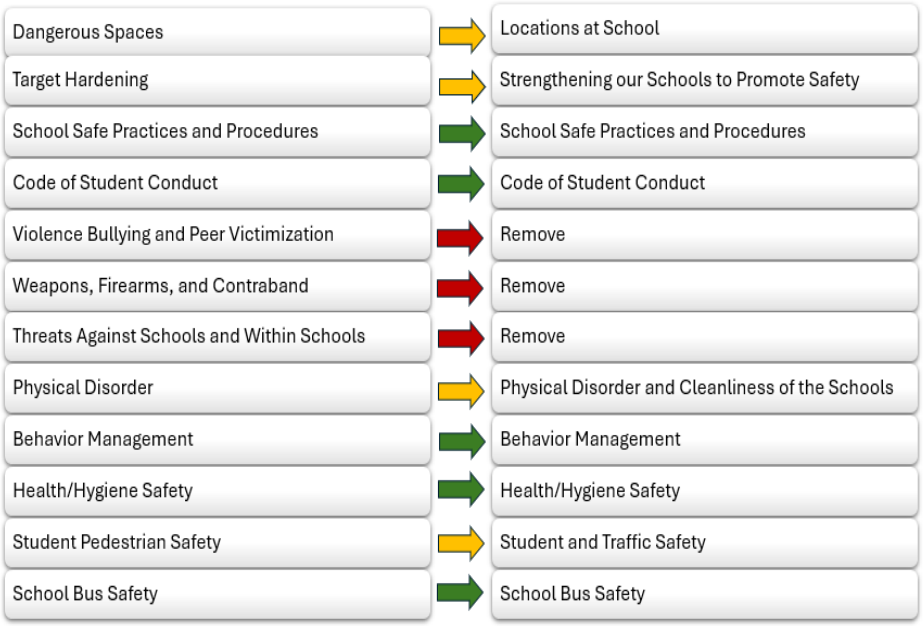

Figure 4: School safety factors examined for modification or removal
Internal Review Board (IRB) suggestions for item and factor deletion were accepted. The expert review of the items' psychological effect on the students narrowed the domain factors from twelve to nine.

Table 6

Items with Citations for the Student Perception of School Safety (SPSS) Scale

#	Item	Description	Citation
Section One - Locations at School			
#	**Item**	**Description**	**Citation**
1	In which location at school do I feel **MOST** safe?	Safe Location	Astor, Meyer, and Behre (1999); Astor, Meyer, and Pitner (2001); Henrich *et* al., (2004); Myers and Hutson (2003); Ruiz, McMahon, and Jason (2018)
2	In which location at school do I feel **LEAST** safe?	Unsafe Location	Astor, Meyer, and Behre (1999); Astor, Meyer, and Pitner (2001); Henrich *et* al., (2004) Ruiz, McMahon and Jason (2018)
Section Two -Target Hardening			
3	**How safe do I feel if** ALL the doors are locked and will NOT open from the outside?	Locked Doors	Crepeau-Hobson, Filaccio, and Gottfried (2005); Perumean-Chaney and Sutton (2013); NCES (2015); 2017 School Crime Supplement FORM SCS-1 (SCS)
4	**How safe do I feel if** the classroom doors lock by themselves when they close?	Automatic Locked Doors	Perumean-Chaney and Sutton (2013); NCES (2015); 2017 School Crime Supplement FORM SCS-1 (SCS)
5	**How safe do I feel if** the classroom doors can lock but the teacher must lock them?	Manually Locked Doors	Perumean-Chaney and Sutton (2013); NCES (2015); 2017 School Crime Supplement FORM SCS-1 (SCS)
6	**How safe do I feel if I** see security cameras in the halls at school?	Security Camera Presence	(Crepeau-Hobson, Filaccio, and Gottfried (2005) Perumean-Chaney & Sutton (2013); 2017 School Crime Supplement FORM SCS-1 (SCS)
7	**How safe do I feel if** I see a police officer or a guard watching everyone at school?	Safey Personnels' Presence	Brown (2006); Crepeau-Hobson, Filaccio, and Gottfried (2005); McDevitt and Panniello (2005); May, Fessel, and Means (2004); Perumean-Chaney and Sutton (2013); 2017 School Crime Supplement FORM SCS-1 (SCS)
8	**How safe do I feel if** I see teachers and other adults watching everyone at school?	Teacher Presence	2017 School Crime Supplement FORM SCS-1 (SCS)
9	**How safe do I feel if** I see student patrols watching the halls at school?	Students Patrols	Perumean-Chaney and Sutton (2013)
10	**How safe do I feel if** all students must wear a picture ID badge?	Student Picture ID Badge	2017 School Crime Supplement FORM SCS-1 (SCS)
11	**How safe do I feel if** I see a fence or a wall around the whole school?	Perimeter	Crepeau-Hobson, Filaccio, and Gottfried (2005)
12	**How safe do I feel if** the classroom windows can open from the inside?	Accessible Windows	Crepeau-Hobson, Filaccio, and Gottfried (2005)
Section Three - Safety Drill Procedures			
13	**How safe do I feel if** I know what to do during a safety drill?	Knowledge of Safety Procedures	Allen, Lorek, and Mensia-Joseph (2008) Nickerson et al., (2014)
14	**How safe do I feel if** my teacher is calm during a safety drill?	Teacher Demeanor	Allen, Lorek, and Mensia-Joseph (2008) Lorek, and Mensia-Joseph (2008)

#	Item	Description	Citation
15	**How safe do I feel if** other students are talking during a safety drill?	Students Talking	Allen, Lorek, and Mensia-Joseph (2008); Lorek and Mensia-Joseph (2008)
16	**How safe do I feel if** other students follow the rules during a safety drill?	Following Rules	Allen, Lorek, and Mensia-Joseph (2008); Lorek and Mensia-Joseph (2008)
17	**How safe do I feel if** I know how to lock the classroom door if needed, during a safety drill?	Student Knowledge-How to Lock Doors	Allen, Lorek, and Mensia-Joseph (2008); Lorek, and Mensia-Joseph (2008); NCES (2015)
18	**How safe do I feel if** I am hiding behind a desk or under a table during a safety drill?	Students Hiding	Allen, Lorek, and Mensia-Joseph (2008); Lorek, & Mensia-Joseph, 2008
19	**How safe do I feel if** I am in the bathroom by myself when the safety drill alarm sounds?	Student Alone in Bathroom	Astor, Meyer, and Behre (1999); Astor, Meyer, and Pitner (2001); Henrich *et* al., (2004); Ruiz, McMahon and Jason (2018)
20	**How safe do I feel if** I am walking in the halls with my class when the safety drill alarm sounds?	Walking in the Halls w/ Class	Astor, Meyer, and Behre (1999); Astor, Meyer, and Pitner (2001); Henrich *et* al., (2004); Ruiz, McMahon and Jason (2018)
21	**How safe do I feel if** I am walking alone in the halls when the safety drill alarm sounds?	Students Alone in Halls	Astor, Meyer, and Behre (1999); Astor, Meyer, and Pitner (2001); Henrich *et* al., (2004); Ruiz, McMahon and Jason (2018)
22	**How safe do I feel if** students are playing around during a safety drill?	Students Playing During a Safety Drill	Allen, Lorek, and Mensia-Joseph (2008); Lorek, and Mensia-Joseph (2008)
Section Four - Code of Student Conduct			
23	**How safe do I feel if** the teacher talks about the school or class rules with the class?	Discussion of Rules	Bradshaw et al., (2014); Kitsantas, *et* al., (2004); Plank, Bradshaw, and Young (2009); 2017 School Crime Supplement FORM SCS-1 (SCS)
24	**How safe do I feel if** I can see the school or class rules posted on the walls at school?	Visual Display of Rules	Bradshaw et al., (2014); Code of Student Conduct Handbook (2021)
25	**How safe do I feel if** I know what will happen if I break a school or class rule?	Consequences of Breaking Rules	Bradshaw et al., (2014); Conduct Handbook (2021); Plank, Bradshaw, and Young (2009); 2017 School Crime Supplement FORM SCS-1 (SCS)
26	**How safe do I feel if** I know that breaking a rule has the same punishment no matter who you are?	Fairness of Rules	Bradshaw et al., (2014); Kitsantas, *et* al., (2004); Plank, Bradshaw, and Young (2009); 2017 School Crime Supplement FORM SCS-1 (SCS)
Section Five - School Physical Disorder			
27	**How safe do I feel if** I see bad or mean words written on the bathroom walls at school?	Graffiti Inside	Bradshaw et al., (2014); McCoy, Roy, and Sirkman (2013); Plank, Bradshaw, and Young (2009)
28	**How safe do I feel if** I see bad or mean words written on the outside walls of the school?	Graffiti Outside	Bradshaw et al., (2014) McCoy, Roy, and Sirkman (2013); Plank, Bradshaw, and Young (2009)
29	**How safe do I feel if** I see trash laying on the hall floors?	Trash in Halls	Bradshaw et al., (2014); Plank, Bradshaw, and Young (2009)
30	**How safe do I feel if** the outside of the school building looks clean?	Cleanliness of Building	Bradshaw et al., (2014); Plank, Bradshaw, and Young (2009)

#	Item	Description	Citation
31	**How safe do I feel if** the outside of the school building looks dirty with mold or dirt?	Dirt on Building	Bradshaw et al., (2014); Plank, Bradshaw, and Young (2009)
32	**How safe do I feel if** there are broken windows, desks, or doors at school?	Broken School Property	Bradshaw et al., (2014); Plank, Bradshaw, and Young (2009)
33	**How safe do I feel if** I see part of the fence or wall that goes around the school broken or damaged?	Damaged Perimeter of School	Bradshaw et al., (2014); Plank, Bradshaw, and Young (2009)
Section Six - Behavior Management			
34	**How safe do I feel if** a student takes something that belongs to me?	Theft of Student Property	Conduct Handbook (2021)
35	**How safe do I feel if** the school's property has been stolen?	Theft of School Property	Conduct Handbook (2021)
36	**How safe do I feel if** a student is hitting their desk with their hands when they should be doing their class work?	Distraction During Class	Capp, Astor, and Gilreath (2020); Conduct Handbook (2021); 2017 School Crime Supplement FORM SCS-1 (SCS)
37	**How safe do I feel if** a student is yelling in class?	Disruption During Class	Conduct Handbook (2021); 2017 School Crime Supplement FORM SCS-1 (SCS)
38	**How safe do I feel if** a student is bothering me; I cannot do my classwork?	Interruption	Conduct Handbook (2021); 2017 School Crime Supplement FORM SCS-1 (SCS)
39	**How safe do I feel if** the teacher could calm loud or disruptive students?	Classroom Management	Bradshaw et al., (2014) Kitsantas, et al., 2004; Plank, Bradshaw, and Young (2009); 2017 School Crime Supplement FORM SCS-1 (SCS)
40	**How safe do I feel if** a student is disrespectful to the teacher?	Disrespectful Students	Bradshaw et al., (2014); Capp, Astor, and Gilreath (2020); Conduct Handbook (2021); 2017 School Crime Supplement FORM SCS-1 (SCS)
Section Seven - Health/Hygiene			
41	**How safe do I feel if** I see a student sneezing or coughing, and we are not wearing face masks?	No Face Mask w/ Evidence of Sickness	(CDC, 2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health and Human Services (HHS); Guner, Hasanoğlu, and Aktaş (2020)
42	**How safe do I feel if** the teacher tells me to wear a face mask because a student is feeling sick, and I might get sick too?	Face Mask Protection Against Virus	CDC (2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health & Human Services (HHS); Guner, Hasanoğlu, and Aktaş (2020);
43	**How safe do I feel if** I wear a face mask that has been at the bottom of my bookbag for weeks?	Dirty Face Masks	CDC (2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health and Human Services (HHS); Guner, Hasanoğlu, and Aktaş (2020);
44	**How safe do I feel if** I take a drink of water from my friend's water cup? (My friend was sick last week but looks okay now.)	Sharing Water	(CDC, 2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health and Human Services (HHS)

#	Item	Description	Citation
45	**How safe do I feel if** other students stand close to me when we are lining up to go out?	Social Distance (Standing)	(CDC, 2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health & Human Services (HHS) Kennedy, 2020
46	**How safe do I feel if** my friend (who does not look sick) whispers in my ear or talks close to my face?	Social Distance (Whispering)	(CDC, 2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health & Human Services (HHS) Kennedy, 2020
47	**How safe do I feel if** my friend (who does not look sick) shares part of their lunch or snack with me?	Sharing Food	(CDC, 2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health & Human Services (HHS)
48	**How safe do I feel if** I hear that a student in my class left school early because they tested positive for COVID-19?	Positive Case for COVID-19	(CDC, 2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health & Human Services (HHS)
49	**How safe do I feel if** I went to the bathroom but forgot to wash my hands and now, we are going to eat lunch?	Hand Washing	(CDC, 2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health & Human Services (HHS)
50	**How safe do I feel if** I must share a desk with other students throughout the day?	Sharing Desks	(CDC, 2022); Federal Emergency Management Agency (FEMA) and the U.S. Department of Health & Human Services (HHS); Guner, Hasanoğlu, & Aktaş (2020)
Section Eight - Student Pedestrian Safety			
51	**How safe do I feel if** I am walking in the parking lot or near parked cars at school?	Walking Near Parked Cars	Frattaroli, et al., 2006); Meir, Oron-Gilad, and Parmet (2015); Official Florida Driver's License Handbook (rev. 5/22/2020)
52	**How safe do I feel if** I am in a hurry to get to or from school, so I cut across the road, not using a crosswalk?	Sense of Urgency	Charron, Festoc, and Gueguén, (2012); Granie, Pannetier, and Gueho (2013); Rosenbloom, Eliyahu, & Nemrodov, 2008
53	**How safe do I feel if** I walk on the street without looking for cars because my friends are already crossing?	Peers and Street Crossing	Morrongiello *et* al., (2019); Official Florida Driver's License Handbook (rev. 5/22/2020); Rosenbloom, Eliyahu, & Nemrodov, 2008
54	**How safe do I feel if** I walk near the sidewalk but not on it? (I am in the grass or dirt closer to the road.)	Devil Strip Use	Granie, Pannetier, and Gueho (2013); Meir, Oron-Gilad, and Parmet (2015); Official Florida Driver's License Handbook (rev. 5/22/2020)
55	**How safe do I feel if** I hurry across the street because the crosswalk timer is almost at zero?	Sense of Urgency w/ Timer	Charron, Festoc, and Gueguén, (2012); Morrongiello *et* al., (2019)
56	**How safe do I feel if** I am walking on the sidewalk listening to music, texting, or reading a book?	Distracting Walking	Craig & Baucum, (2002); Morrongiello *et* al., (2019); WHO (2013);
57	**How safe do I feel if** I am riding a bike or scooter on the sidewalk without a helmet?	Bike Helmets	Charron, Festoc, & Gueguen (2012); Official Florida Driver's License Handbook (rev. 5/22/2020); 2021 Middle School Youth Risk Behavior Survey (YRBS)

#	Item	Description	Citation
58	**How safe do I feel if** I am crossing the street without a crosswalk timer or crossing guard?	Absence of Street Crossing Aids	Charron, Festoc, and Gueguén, (2012); Meir, Oron-Gilad, and Parmet (2015); Morrongiello *et* al., (2019)
59	**How safe do I feel if** I am riding a scooter to school and the sidewalk is broken? (It has a large crack in the concrete).	Broken Sidewalks	FDOT (2023)
60	**How safe do I feel if** I ride my bike or scooter on the crosswalk to cross the street?	Riding in the Crosswalk	Frattaroli, et al., 2006); Official Florida Driver's License Handbook (rev. 5/22/2020)
61	**How safe do I feel if** I know the rules to be a safe walker?	Knowledge of Pedestrian Rules	Official Florida Driver's License Handbook (rev. 5/22/2020); Schweble and McClure (2014)
62	**How safe do I feel if** my friends and I are playing a game of tag as we walk on the sidewalk?	Unguarded Walking	Craig and Baucum, 2002; Official Florida Driver's License Handbook (rev. 5/22/2020)
Section Nine - School Bus Safety			
63	**How safe do I feel if** I know the bus safety rules?	Knowledge of School Bus Rules	the Florida Highway Safety and Motor Vehicles (FHSMV)
64	**How safe do I feel if** the bus has seat belts?	School Bus Seat Belts	the Florida Highway Safety and Motor Vehicles (FHSMV)
68	**How safe do I feel if** my friends and I are standing up and trading seats while the bus is moving?	Moving Around on Bus	Allen, Hardin, and Henderson (2006); the Florida Highway Safety and Motor Vehicles (FHSMV)
66	**How safe do I feel if** students are being loud while the bus is crossing train tracks?	Loud Students/Train Track Crossing	Allen, Hardin, and Henderson (2006); Florida Highway Safety and Motor Vehicles (FHSMV)
67	**How safe do I feel if** I was the only student on the bus?	Alone on the Bus	Florida Highway Safety and Motor Vehicles (FHSMV)
68	**How safe do I feel if** the other students on the bus are older than I am?	Student's Age (Grade Level)	Florida Highway Safety and Motor Vehicles (FHSMV)
69	**How safe do I feel if** I must sit on the bus with a student I do not know?	Random Assigned Seating	Florida Highway Safety and Motor Vehicles (FHSMV)
70	**How safe do I feel if** students are throwing things (like paper balls or rubber bands) on the bus?	Students Throwing Items on Bus	Allen, Hardin, and Henderson (2006); Florida Highway Safety and Motor Vehicles (FHSMV)
71	**How safe do I feel if** all the students needed to exit the bus because of an emergency?	Emergency Bus Exist	Abulhassan, et al., (2016); Matolcsy (2009); Florida Highway Safety and Motor Vehicles (FHSMV)
72	**How safe do I feel if** I must climb through the bus window to exit the bus during an emergency?	Emergency Bus Exist (Window)	Abulhassan, et al., 2016; Matolcsy (2009); Florida Highway Safety and Motor Vehicles (FHSMV)
73	**How safe do I feel if** I am playing tag or chasing my friends when waiting at the school bus stop?	Unguarded Behavior at the Bus Stop	Florida Highway Safety and Motor Vehicles (FHSMV)
74	**How safe do I feel if** I am crossing the street without a crosswalk to catch the bus on time?	Sense of Urgency to Catch Bus	Florida Highway Safety and Motor Vehicles (FHSMV)

#	Item	Description	Citation
75	**How safe do I feel if** I am sitting near the road waiting for the school bus?	Students on Curb at Bus Stop	the Florida Highway Safety and Motor Vehicles (FHSMV)
76	**How safe do I feel if** I don't know my bus driver's name or the bus number?	Bus Information	the Florida Highway Safety and Motor Vehicles (FHSMV)
77	**How safe do I feel if** I missed the bus, so I took a ride with a stranger who offers to take me to school?	Ride w/ Stranger	Scott (2014)
78	**How safe do I feel if** I am standing close to the bus when the bus pulls up?	Distance from Bus	the Florida Highway Safety and Motor Vehicles (FHSMV)
79	**How safe do I feel if** I am walking behind the bus after I get off the bus?	Students Exiting the Bus	the Florida Highway Safety and Motor Vehicles (FHSMV)

Relevancy Assessment Survey (RAS)

A Relevancy Assessment Survey (RAS) was employed to work as the tool for relevancy score data collection from the school safety personnel (the experts). To evaluate validity and reliability of the expert ratings regarding the SPSS Scale's items and theoretical factors these relevancy score data were examined.

For every item on the 79-item SPSS Scale, there are two items on the RAS: 1) "This item is relevant to school safety for our schools today (2023-2024)"; and 2) "This item is relevant to the (insert factor, i.e., health/hygiene) of school safety". On a 4-point Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (4), the RAS's two-item for every one SPSS Scale item responses were measured. Further questions on the RAS included a brief job description, (i.e., SRD, SRO, Guardian/SSO), length of employment, gender, whether the participants have children who attend public schools and at which grade level. Table 6 provides an example of the RAS format and questions for the ordinal variable.

Table 7
Relevancy Assessment Survey (RAS) Item Example for the Assessment of the SPSS Scale

Section 2 _Target Hardening			
#	SPSS Scale (Student Question)	RAS Questions*	Response Choice
3	How safe do I feel if ALL the doors are locked and will NOT open from the outside?	1. This item is relevant to school safety for our schools today (2023-2024) 2. This item is relevant to the Target Hardening factor of school safety	Strongly disagree (1) Disagree (2) Agree (3) Strongly agree (4)

*The RAS asks two questions for every one question on the SPSS Scale.

Design and Procedures

Preliminary Analysis

Preliminary assessment on the 163-item SPSS Scale (version one) was conducted with teachers (*n*=3) and law enforcement officers with expertise in school safety (*n*=5) who assessed the items for relevance, language, and clarity. After IRB consultation and approval, the survey was created as a PDF document and was emailed to a local Sheriff's office contact who disseminated the survey to potential participants. The researcher did not have direct contact with the participants; the survey was anonymous. Participants chose to print the survey, and after completion, the surveys were gathered by the contact at the Sherrif's office and provided them to the researcher for analysis, no identifiers were collected. Two questions were explored:

Pre - RQ1: Will teachers and police officers show differences in school safety priorities when asked about the relevancy of the items to school safety on the SPSS Scale?

Pre – RQ2: What suggestions are made to retain or remove items?

Qualitative analysis was used to capture language appropriateness for elementary school age students and item clarity. The scale items were created at a fourth-grade reading level, analyzed by the Flesch-Kincaid Grade Level Formula method. Participants were asked on a dichotomous scale (yes = 1, no = 0) to rate each item on relevance to school safety. A Q-

Method Analysis was run on the 163-item SPSS Scale in SAS to support the decision to remove or retain the items. The preliminary analysis led to about a 27% reduction of items (44 items). The SPSS Scale (version two) contained 12 sections with 119 items and was presented for review by the team of experts at the university's IRB. The latest version of the SPSS Scale consists of 79 items with nine sections which were used for further relevance analysis found in the primary analysis.

A Q-Method Analysis was run on the 163-item SPSS Scale in SAS which led to about a 27% reduction of items (44 items). The SPSS Scale (version two) contained 12 sections with 119 items and was presented for review by the team of experts at the university's IRB. The latest version of the SPSS Scale consists of 79 items with nine sections which were used for further relevance analysis.

Primary Analysis

A Relevancy Assessment Survey (RAS) was employed to work as the tool for relevancy score data collection from the school safety personnel (the experts). To examine validity and reliability of the expert ratings regarding the SPSS Scale, these relevancy score data were examined through a series of tests. The Relevancy Assessment Survey (RAS) asked to respond to two statements to each item on the SPSS Scale: 1) "This item is relevant to school safety for our schools today (2023-2024)"; and 2) "This item is relevant to the (insert factor) of school safety." Responses were om an ordinal 4-point Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (4). Other questions on the RAS can be found in the prior RAS section.

This research was determined to be “Human Research” that is exempt from regulation (Appendices B & C). It met the criteria that research only includes interactions involving survey procedures and the human subjects are not identifiable directly or indirectly. A recruitment email (explanation of research) was disseminated to a contact within law enforcement for data collection of SRD’s and SRO’s; sponsorship research (Dillman, Smyth, & Christian, 2014). After IRB modification and permission from the school district accountability and assessment office, the contact for the Guardians was sent the recruitment email to recruit potential participants within the county of interest. The recruitment email explained the purpose of the study: to measure the relevancy and validity of the Student Perception of School Safety (SPSS) Scale using the Relevancy Assessment Survey (RAS). It also included the expectations of the participants. The explanation covered the length of the RAS and expected time of completion (30 minutes). The participants were asked to take the survey in a location where they feel most comfortable (i.e., home, office, patrol car, etc.). A link to the RAS through an online platform called Qualtrics was attached to the email. Before beginning, the participants were presented with the informed consent page with a prompt to consent or decline. The definition of school safety was provided to the participants as: Protection from any threat or perception of threat of harm (self-inflicted or otherwise), from physical safety offenses (PSO) (i.e., harmful behavior which includes verbal abuse that could escalate to physical harm), and non-compliance of order and control offenses (OCO) (i.e., behavior management and physical disorder such as property damage), school bus procedure compliance, pedestrian hazard avoidance, and protection against dangerous viruses at school.

Relevance was not defined; there was a reliance of the understanding of the common term. Although there is more than one definition of relevance, the two popular definitions can be measured in terms of “how much” or a “degree of” and therefore are adequate for the categorical variable of measurement for this study. Data analysis began with an evaluation of the attrition rate to determine the number of participants for each section of the SPSS Scale’s RAS evaluation. Each section of the RAS was treated as a separate test; descriptive statistics and frequencies were evaluated at the start of each section. Within each section there were two separate questions on relevance: A) “This item is relevant to school safety for our schools today (2023-2024)”; and B) “This item is relevant to the (insert factor, i.e., health/hygiene) factor of school safety”. These questions are referred to as “A” and “B” during the analysis. The items were measured on a 4-point Likert-type scale ranging from strongly disagree (1) to strongly agree (4). Using the RAS measurement, relevance was measured by conducting a series of tests. The mean and standard deviation for each SPSS Scale item for both the “A” and “B” RAS questions to determine relevance of A) relevant to schools today, and B) whether the item was relevant to the school safety factor in which it was listed. The standard deviation indicated the extent of differences in response to each item.

“The Pearson correlation matrix is commonly used to compute coefficient alpha” (Zumbo. Gadernabb, & Zeisser, 2007. p. 21). The expert rating relevance scores were measured on a four-point Likert-type scale, which means that the alpha may underestimate the reliability scores (Zumbo. Gadernabb, & Zeisser, 2007). The RAS response is four-point; therefore, it is under a six-point scale where the alphas tend to “level off” (Zumbo. Gadernabb, & Zeisser, 2007. p. 23). Cronbach’s alpha and Pearson's correlation both quantify the

relationship between variables but have different purposes. While Cronbach's alpha measures the internal consistency reliability of a group of questions meant to measure the same concept. Higher numbers indicate stronger internal consistency with a range of 0 to 1. Pearson's correlation measures the direction and strength of the linear relationship between variables. It has a range -1 to 1, and 0 indicates no relationship. Both Cronbach's alpha and Pearson's correlation were examined within each section.

Levene's test was used to test the assumptions of ANOVA. Violations were found, therefore, a Kruskal-Wallis H test (a rank-based nonparametric test) was used to understand whether the expert rating of relevance for school safety, where relevancy score was measured on an ordinal scale (four-point Likert-type scale from, "strongly disagree" to "strongly agree"), differ among school safety personnel classification (SRD, SRO, and Guardian/SSO) for one section of the RAS. The Kruskal-Wallis H test was conducted on Section Two (A) Target Hardening because the section contained 50% of the total population with a reasonable number of items (n = 10).

Principal Component Analysis was run for each section, and for both the "A" and "B" questions separately to interpret the expert ratings of relevancy of the items of the SPSS Scale. The content evidence and face validity of the expert ratings was conducted at the end of the study by asking the experts (law enforcement and Guardians) about the suitability of the SPSS Scale to measure school safety. A Kruskal-Wallis H test was conducted to examine differences in the school safety personnel's (experts) responses of the suitability of the SPSS Scale. Omitted variable bias was investigated through qualitative analysis to explore emerging

themes of other constructs that should have been included; this was compared with the previously deleted sections suggested from the university's internal review board evaluation.

CHAPTER FOUR: RESULTS

Chapter Four covers the results for this study. This chapter includes the preliminary analysis results using teacher and law enforcement ratings. The results of the primary analysis are reported by section aligned with the Student Perception of School Safety (SPSS) Scale's nine sections. A Relevancy Assessment Survey (RAS) was employed to work as the tool for relevancy score data collection from school safety experts (law enforcement and school guardians). To examine validity and reliability of the expert ratings regarding the SPSS Scale, these relevancy scores were examined through a series of tests.

Preliminary Analysis Results

Preliminary assessment of the 163-item SPSS Scale was conducted with teachers (n=3) and law enforcement officers with expertise in school safety (n=5). The participants were residing in the same county in a southeastern state of the United States who assessed the items for relevance, language, and clarity. A qualitative study was conducted and supported using a Q-method analysis run in SAS (Statistical Analysis System) to answer two questions:

Pre - RQ1: Will teachers and police officers show differences in school safety priorities when asked about the relevancy of the items to school safety on the SPSS Scale?

Pre – RQ2: What suggestions are made to retain or remove items?

There were 163 questions within 12 sections of the SPSS Scale (original version). These 12 sections are listed in Table 8 below.

Table 8
The Original Version of the SPSS Scale's Sections with Item Numbers

Section #	Section Title	Items
1	Dangerous Spaces	1 - 8
2	Target Hardening	9 - 21
3	School Safe Practices and Procedures	22 - 45
4	Code of Student Conduct	46 - 50
5	Violence, Bullying, and Peer Victimization	51 - 72
6	Weapons, Firearms, and Contraband	73 - 81
7	Threats	82 - 92
8	Physical Disorder	93 - 101
9	Behavior Management	102 - 108
10	Health/Hygiene Safety	109 - 127
11	Accidents and Pedestrian Safety	128 - 142
12	School Bus Safety	143 - 163

The principal component analysis was used to extract the components from the variable data. Three components were extracted. Together they can explain roughly 73% of the differences in the variances of the experts' scores. Almost ¾ of the eigen values of the participants can explain all the differences made when assessing experts' views on relevancy of the school safety items. The eight participants were gathered into three groups (Table 9).

Table 9
Eigenvalues of the Correlation Matrix: Groups Among Participants

#	Eigenvalue	Difference	Proportion	Cumulative
1	**2.94884975**	1.13812141	0.3888	0.3888
2	**1.81072834**	0.70041999	0.2263	0.5949
3	**1.11030835**	0.30792071	0.1388	**0.7337**
4	0.80238763	0.28093047	0.1003	0.8340
5	0.54145716	0.17237746	0.0677	0.9017
6	0.36907970	0.07141249	0.0461	0.9479
7	0.29786721	0.17814536	0.0372	0.9851
8	0.11952185	1.13812141	0.0149	1.000

A review of the initial components loadings suggests that the proper solution was attained through principal component analysis using Kaiser's Rule. The scree plot (Figure 5)

shows that the first three groups account for most of the total variability in data given by the eigenvalues >1.

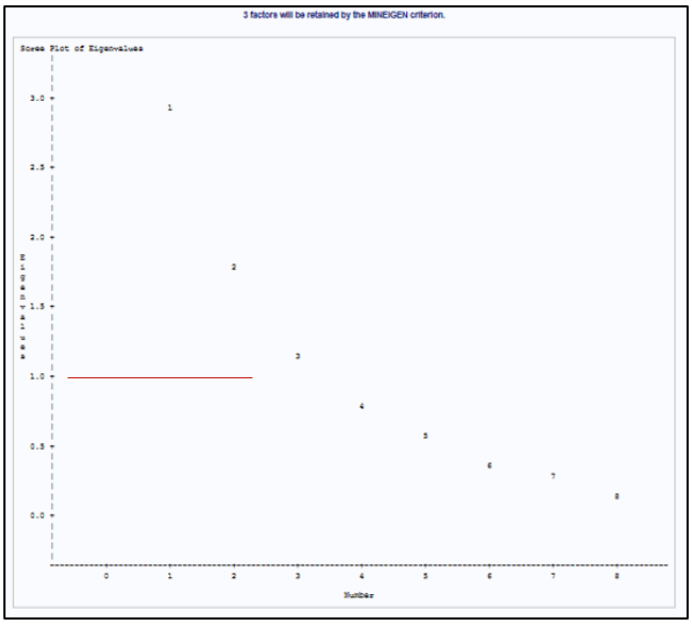

Figure 5: Scree plot showing the three components retained by Kaiser's Rule

Promax rotation to obtain an oblique solution was chosen because it assumes that nonzero correlations among components are theoretically tenable. Reviewing the structure coefficient matrix (Table 10) suggests that the three components represent three different groups of experts who see item relevancy through different lenses. Factor 1 shows an association with teachers 1, 2, and 3; Factor 2 shows an association with officers 1 and 2; and Factor 3 shows an association with officers 3, 4, and 5. The coefficients suggest that the way in which the experts responded to the relevancy of the items for the SPSS Scale, Teacher1, Teacher2, and Teacher3 are more consistent with each other; the eigenvalues are higher. Teachers 1 – 3 rated the item relevance to school safety through a similar lens of school safety. The police officers see school safety relevancy differently than the teachers. Officers have

different priorities than the teachers and the officers are in two different groups, there are differences among the officers.

Table 10
Factor Structure of Teachers and Officers

Factor Structure (Correlations)			
	Factor1	**Factor2**	**Factor3**
Teacher1	**0.87449**	0.22484	0.19180
Teacher2	**0.83893**	0.25488	0.32537
Teacher3	**0.82402**	0.01081	0.41891
Officer1	0.17331	**0.95845**	-0.00931
Officer2	0.20876	**0.95798**	0.12558
Officer5	0.31102	-0.15975	**0.77830**
Officer4	0.12887	0.07368	**0.69430**
Officer3	0.48239	0.31870	**0.73612**

Surprisingly, Factor 3 is correlated with Factor 1 (*r* =.36). This means that Officer5, Officer4, and Officer3 rate the item relevancy on the SPSS Scale like Teacher1, Teacher2, and Teacher3 (Table 11).

Table 11
Inter – Factor Correlation of Teachers and Officers

Inter-Factor Correlations			
	Factor1	**Factor2**	**Factor3**
Factor1	1.00000	0.19852	0.36887
Factor2	0.19852	1.00000	0.05830
Factor3	0.36887	0.05630	1.00000

To answer the questions. “What suggestions are made to retain or remove items?” A mixed method analysis was used. Table 12 provides excellent illustrations of the rationale behind the item removal or item combinations of the 44 items removed from the SPSS Scale. Item 10, “When I know that, at school, some of the doors leading to outside are not always locked and CAN be opened from the outside?” was removed from the SPSS Scale: The three teachers felt that the item was not relevant to school safety, while the office all marked that it

was relevant. There are comments stating the wording was too long and that the question was like question nine. Five officers and one teacher agreed that Item 31 was relevant, however, Item 31, “If I am in the cafeteria or classroom, near a door leading to the hallway when the RED drill alarm sounds” was removed due to the complexity of wording and that it was like the question that followed, item 32. Item 90, “If I see another student write on a piece of paper or device, ‘I’m so mad that I could shoot up the school’” was combined with question 88 because while all experts agreed that it was relevant to school safety, they felt that it did not need to stand alone. Item 102, “When there is a student being loud or goofing around in class” was removed. The teachers agreed that the item was not relevant to school safety, a comment was made stating that the students always goof around. Item 108, “When the school principal tells the whole cafeteria of students to be quiet, but no one listens” was removed. It was acknowledged by the teachers that the question had little to do with school safety, and it was mentioned that it was unlikely that every student would pay attention. Lastly for the example of the 44 items that were removed, item 110, “If I see another student showing signs of a sickness, like sneezing and runny nose or coughing and is wearing a face mask” was removed and modified to fit with question 109 for the health and hygiene section. The code: 11011010 shows inconsistency of experts’ rating of the item relevant to school safety. The new SPSS Scale disseminated to experts in the primary study consisted of 79 items.

Table 12
Example of Items Removed from the SPSS Scale

Item	Item Description	Relevancy CODE*	Expert Comments or Reason	Reference
10	When I know that, at school, some of the doors leading to outside are not always locked and CAN be opened from the outside?	TTTOOOOO 00011111	Too long, same as Q9, Students are not responsible for that.	Crepeau-Hobson, Filaccio, & Gottfried, (2005); Kitsantas, et al., (2004); Perumean-Chaney & Sutton, (2013)
31	If I am in the cafeteria or classroom, near a door leading to the hallway when the RED drill alarm sounds.	TTTOOOOO 10111111	Too complex, combine with Q32	Allen, Lorek, & Mensia-Joseph, (2008)
90	If I see another student write on a piece of paper or device, "I'm so mad that I could shoot up the school"	TTTOOOOO 11111111	Combine with Q88	Langmaid, Maxouris, & Gray, (2022)
102	When there is a student being loud or goofing around in class	TTTOOOOO 00011000	Teachers – there are always students goofing around	Kitsantas, et al., (2004); 2017 School Crime Supplement FORM SCS-1 (SCS) for the National Crime Victimization Survey (NCVS)
108	When the school principal tells the whole cafeteria of students to be quiet, but no one listens	TTTOOOOO 00011010	Not probable that no one listens	Kitsantas, et al., (2004)
110	If I see another student showing signs of a sickness, like sneezing and runny nose or coughing and is wearing a face mask.	TTTOOOOO 11011010	Do the kids have masks on? Maybe make a scenario? Like Q109	Guner, Hasanoğlu, & Aktaş, (2020)

*Relevancy CODE: T =Teacher; O = Officer; 1 = Relevant to school safety; 0 = Not relevant to school safety

Primary Analysis Results

A Relevancy Assessment Survey (RAS) was employed to work as the tool for relevancy score data collection from school safety experts (law enforcement and school guardians). These relevancy scores were examined using two questions for each of the 79 items on the SPSS Scale:

(A) This item is relevant to school safety for our schools today (2023-2024).

(B) This item is relevant to the (*insert factor name*) factor of school safety.

Descriptive Statistics and Explanation of School Safety Classifications

There were essentially three classifications of school safety personnel who were participants for this analysis: School Resource Deputies (SRDs) who work for the county Sheriff's office; School Resource Officers (SROs) who are employed by nine municipalities; and Guardians, or Safe School Officers (SSOs) employed by the school district. There are differences between the SRO, SRD, and Guardians' backgrounds and differences in their training to some degree. The SRDs and SROs are trained together at schools during the year on teacher workdays and at the schools during the summer break. These training include: FDLE solo response to active shooter, tactical emergency casualty care (Stop the Bleed), and moving to contact. The SRDs and SROs are required to attend a school resource basic training, a 40-hour course. Whereas the Guardians must pass an annual qualification, then they have quarterly training courses, single response training (a two-day course), and simulation training. The guardians are placed through an intense 144 hours of active assailant and school safety training operated by the county Sheriff's Office.

Further, there are essentially two guardian units: 1. Uniformed Guardians, and 2. Administrative Guardians. Uniformed Guardians are paid, open-carry (the gun is visible) safety officers, while the Administrative Guardians are concealed-carry (guns are hidden) volunteers and are school administrators (i.e., principals, vice principals, school counselors) or custodial personnel. A small portion of Administrative Guardians are not assigned to a school, per se, they are located within the building of the county school board. This small group act as

substitutes for the guardians, much like a substitute teacher for the school system. The guardians (both uniformed and administrative) have a diverse background: while some have been in the field of education for years, others are ex-military, ex-law enforcement, retired fire fighters, retired FBI, while others do not have any prior law enforcement training or experience in an educational setting.

Due to the sensitive nature of the topic, and the population pool (law enforcement and Guardians), there were restrictions placed on gathering descriptive data. Common demographic information details were excluded: age and ethnicity. However, this study used school safety personnel classification (i.e., SRO, SRD, SSO/Guardian); years of experience in school safety; and whether the participants have children, to describe participant sample. Attrition rate varied as the sections progressed. At the start of the survey (Section One) there were 34 SRDs, who make up 49.3% of this study, with 16 SROs (23.2%), 15 Guardians (21.7%) with 4 undefined with 72.5% male (*n* = 50) and 24.6% female (*n* = 17) while 2.9% (*n*= 2) chose not to disclose their gender. Most of the participants have children 82.6% (*n* = 57) while a small portion do not 17.4% (*n* = 12). The length of employment showed a range from one year to 20 years (*M* = 11.7 years, *SD* = 7.22). Of those who completed the survey in its entirety (attrition rate 21.7%), there were 31 SRDs, who make up 57.4% of the last section of the study, with 12 SROs (22.2%), 8 Guardians (14.8%) with 3 (5.56%) undefined with 70.37% male (*n* = 38), 25.9% were female (*n* = 14) and 3.7% (*n*= 2) chose not to disclose their gender. In the last section 16.7% (*n* = 9) indicated that they do not have children, while 83.3% (*n* = 45) do have children. The length of employment remained nearly the same as the first section regardless of attrition; from one year to 20 years (*M* = 11.7 years, *SD* = 6.984). This study is divided into

sections aligning with the SPSS Scale sections and in accordance with the research questions below. The sections include “A” or “B” (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the (*insert factor name*) factor of school safety.

Participants by Section

Section One Locations at School

Section one includes 69 participants, 53.9% of the total school safety personnel population: SRD’s (n = 34) accounts for 91.9% of the total SRD population; SRO’s (n= 16) accounts for 48.5% of the total SRO population; Guardian/SSO’s (n = 15) accounts for 25.9% of the total Guardian/SSO population; and there were 4 participants who did not clearly identify with a group but were school safety personnel (from this point forward are considered “undefined“).

Section Two: Target Hardening

Section two includes 64 participants, 50.0% of the total school safety population within the county of interest. SRD’s (n = 33) accounts for 89.2% of the total SRD population; SRO’s (n= 15) accounts for 45.5% of the total SRO population; Guardian/SSO’s (n = 13) accounts for 22.4% of the total Guardian/SSO population; and there were 3 “undefined. “

Section Three: Safety Drill and Procedures

Section three includes 62 participants, 48.4% of the total school safety population within the county of interest. SRD’s (n = 33) accounts for 89.2% of the total SRD population; SRO’s (n= 13) accounts for 39.4% of the total SRO population; Guardian/SSO’s (n = 13) accounts for 22.4% of the total Guardian/SSO population; and there were 3 “undefined. “

Section Four Code of Student Conduct

Section four includes 59 participants, 46.1% of the total school safety population within the county of interest. SRD's (*n* = 32) accounts for 86.5% of the total SRD population; SRO's (*n*= 13) accounts for 39.4% of the total SRO population; Guardian/SSO's (*n* = 11) accounts for 19% of the total Guardian/SSO population; and there were 3 "undefined. "

Section Five: School Physical Disorder

Section five includes 57 participants, 44.5% of the total school safety population within the county of interest. SRD's (n = 31) accounts for 83.8% of the total SRD population; SRO's (n= 12) accounts for 36.4% of the total SRO population; Guardian/SSO's (n = 11) accounts for 19% of the total Guardian/SSO population; and there were 3 "undefined. "

Section Six Behavior Management

Section six includes 56 participants, 43.8% of the total school safety personnel population for the county of interest. SRD's (n = 31) accounts for 83.8% of the total SRD population; SRO's (n= 12) accounts for 36.4% of the total SRO population; Guardian/SSO's (n = 10) accounts for 17.2% of the total Guardian/SSO population; and there were 3 "undefined. "

Section Seven Health/Hygiene

Section seven includes 55 participants, 42.9% of the total school safety population within the county of interest. SRD's (*n* = 31) accounts for 83.8% of the total SRD population; SRO's (*n*= 12) accounts for 36.4% of the total SRO population; Guardian/SSO's (*n* = 9) accounts for 15.5% of the total Guardian/SSO population; and there were 3 "undefined. "

Section Eight Student Pedestrian Safety

Section eight includes 55 participants, 42.9% of the total school safety population within the county of interest. SRD's (*n* = 31) accounts for 83.8% of the total SRD population; SRO's (*n* = 12) accounts for 36.4% of the total SRO population; Guardian/SSO's (*n* = 9) accounts for 15.5% of the total Guardian/SSO population; and there were 3 "undefined. "

Section Nine School Bus Safety

The final section on the SPSS Scale, section nine, includes 54 participants, 42.2% of the total school safety personnel population. SRD's (*n* = 31, 57.4%) accounts for 83.8% of the total SRD population; SRO's (*n*= 12, 22.2%) accounts for 36.4% of the total SRO population; Guardian/SSO's (*n* = 8, 14.8%) accounts for 13.8% of the total Guardian/SSO population; and there were 3 (5.56%) "undefined". 70.37% were male (*n* = 38), 25.9% were female (*n* = 14), and 3.7% (*n*= 2) chose not to disclose their gender. 16.7% (*n* = 9) indicated that they do not have children, while 83.3% (*n* = 45) do have children. The length of employment showed a range from one year to 20 years (*M* = 11.7 years, *SD* = 6.984).

Research Questions

RQ1: To what degree do expert ratings of item relevance reflect a common viewpoint regarding school safety?

RQ2: Do the expert ratings of school safety relevance scores regarding the SPSS Scale demonstrate adequate reliability?

RQ3: Is there a difference among school safety personnel classifications when enquiring about target hardening item relevance to school safety, addressed on the SPSS Scale?

The null hypothesis (H0): There is no difference in perceived relevance among school safety personnel classifications regarding target hardening items.

The alternative hypothesis (H1): There is a difference in perceived relevance among school safety personnel classifications regarding target hardening items.

RQ4: Is there a difference among school safety personnel classifications when enquiring about the suitability of the SPSS Scale regarding school safety?

RQ5: Are there relevant themes that emerge from the omitted topics of the SPSS Scale among school safety personnel classifications?

Agreement Among Expert Ratings of Item Relevance

RQ1: To what degree do expert ratings of item relevance reflect a common viewpoint regarding school safety?

A Relevancy Assessment Survey (RAS) was employed to work as the tool for relevancy and suitability score data collection from school safety experts (law enforcement and school guardians). To examine patterns of agreement of the expert ratings regarding the SPSS Scale, these relevancy score data were examined using two questions for each of the 79 items on the SPSS Scale:

(A) This item is relevant to school safety for our schools today (2023-2024).

(B) This item is relevant to the (*insert factor name*) factor of school safety.

A principal component analysis (PCA) was run to examine agreement among the experts with respect to the relevancy of the items. This is replicated within each section of this study. This dimensionality reduction technique is used to sort the items while simultaneously minimizing the loss of information to narrow down overlapping observed variables to a handful of components. This analysis is a technique like correlation and regression to gain an

understanding of shared variables since it is used to find patterns of relationships among the variables (Crocker & Algina, 2008). It can be used to find various components that represent various aspects of a larger conceptual framework. Constructs or unobservable latent variables, which are frequently measured by a collection of observed variables (i.e., items on a scale) are how we might characterize the items. However, for this current study, underlying factor structure or to name latent variables (a common practice of EFA) was not the objective. Instead, principal component analysis (PCA) was conducted to find a common mindset or pattern among the experts when they evaluated the relevance of the student's questions on the SPSS Scale. For this study one must keep in mind the questions: How are the items grouped according to expert views of relevance to school safety and to the theoretically assigned areas of school safety? In other words, to gain a better understanding of which items on the SPSS Scale are perceived as relevant to school safety. This analysis will help narrow the 79 items on the scale to a more manageable level.

The PCA is used to support internal structure evidence. The principal component estimation procedure was used to extract the components. Kaiser's rule was used to find a pattern of relationships among the experts' ratings to determine whether experts shared a common viewpoint regarding the relevancy of the items (Crocker & Algina, 2008). Ideally, PCA would confirm one principal component alone that would explain the perceived relevance of the items. As a "rule of thumb", the percentage of variance explained should be >60%. Table 13 illustrates principal components retained, eigenvalues, and percentage of variance for each section of the SPSS Scale. However, Section One had only two items, therefore a PCA was not possible.

Target Hardening Section Two (A) to answer the statement, “This item is relevant to school safety for our schools today (2023-2024)” had 73.43% of the variations of the expert ratings of relevancy scores within the ten items. They were explained by two identified principal components showing a pattern among the expert ratings of relevancy of the items to school safety. Section Two (B), to answer the statement, “This item is relevant to the Target Hardening factor of school safety”, 72.88% of the variations were also identified with two components showing a pattern of experts’ perception of the items of relevancy to the Target Hardening dimension (Table 13).

Safety Drills and Procedures, Sections Three (A), produced 75.4% of the variation of the expert ratings of relevancy within ten items showing a pattern of expert opinion of the items to school safety. Section Three (B) 76.91% of the variations were explained. Both sections had two principal components showing a common view of how the experts rate relevancy to school safety and to the Safety Drills and Procedures dimension of school safety (Table 13).

The Code of Student Conduct, Section Four (A), had a single principal component with an eigenvalue of 3.06239, which provided a good fit explaining 75.65% of the variation of the expert ratings of relevancy within the four school safety items. Section Four (B) produced 73.57% of the variations, also with one component showing a common view of the experts’ ratings of relevancy to the Code of Student Conduct dimension (Table 13).

School Physical Disorder, Section Five (A), 82.35% of the variations of the expert ratings of relevancy within the seven items were explained by the identified two principal components showing a pattern of expert ratings of relevance to school safety. While Section Five (B), also produced a two-component structure, however the percentage of the variations were greater,

88.41% of the variations were explained within the seven expert ratings of the items, showing some agreement among experts' view of the items of relevancy to the dimension of School Physical Disorder (Table 13).

Behavior Management Section Six (A), 78.91% of the variations of the expert ratings of relevancy within the seven items were explained by one identified component showing a pattern of agreement of expert ratings of the items to school safety issues. Section Six (B) also produced one component pattern with 79.99% of the variations explained within the seven expert ratings of the items. This shows agreement in the experts' view of the items to relevancy and to the theoretically assigned area of Behavior Management (Table 13).

Health/Hygiene Section Seven (A), 84.01% of the variations of the expert ratings of relevancy within the ten items were explained by one identified principal component showing agreement among expert ratings of relevancy of the items to school safety issues. Section Seven (B) also produced one component with 82.85% of the variations showing agreement among experts' view of the items of relevancy to the theoretically assigned area of the Health/Hygiene dimension (Table 13).

Student Pedestrian Safety Section Eight (A), to answer the statement, "This item is relevant to school safety for our schools today (2023-2024)" had one eigenvalue greater than one (>1); 73.26% of the variations of the expert ratings of relevancy within the twelve items were explained by one identified component. This shows a pattern of agreement among the expert ratings to the items of school safety issues. Section Eight (B), to answer the statement, "This item is relevant to the Student Pedestrian Safety factor of school safety" produced one component with 70.49% of the variations that were explained within the twelve expert ratings.

This shows agreement among experts' view of the items to the Student Pedestrian Safety dimension (Table 13).

School Bus Safety Section Nine (A), two eigenvalues are greater than one (>1); 79.20% of the variations of the expert ratings of relevancy within the seventeen items were explained by the identified principal components. This shows a pattern of expert ratings of the items to school safety. On the other hand, Section Nine (B) produced three factors with 80.92% of the variations explained within the seventeen expert ratings showing how the experts view relevancy of the items to the School Bus Safety dimension (Table 13).

Table 13
Internal Structure Evidence - Expert Ratings of Item and Factor Relevance of School Safety

Section	***n***	**# of Items**	**# of Factors Retained**	**Eigenvalue(s)**	**% of Variance >60%**
Section 2 (A) Target Hardening	64	10	Two	6.27; 1.07	73.43%
Section 2 (B) Target Hardening	64	10	Two	6.26; 1.02	72.88%
Section 3 (A) Safety Drill Procedures	62	10	Two	5.64; 1.89	75.4%
Section 3 (B) Safety Drill Procedures	62	10	Two	5.63; 2.05	76.91%
Section 4 (A) Code of Student Conduct	59	4	One	3.06	75.65%
Section 4 (B) Code of Student Conduct	59	4	One	2.94	73.57%
Section 5 (A) School Physical Disorder	57	7	Two	4.54; 1.21	82.35%
Section 5 (B) School Physical Disorder	57	7	Two	5.14; 1.04	88.41%
Section 6 (A) Behavior Management	56	7	One	5.52	78.91%
Section 6 (B) Behavior Management	56	7	One	5.59	79.99%
Section 7 (A) Health/Hygiene	55	10	One	8.40	84.01%
Section 7 (B) Health/Hygiene	55	10	One	8.28	82.85%
Section 8 (A) Student Pedestrian Safety	55	12	One	8.79	73.26%
Section 8 (B) Student Pedestrian Safety	55	12	One	8.45	70.49%

Section	*n*	# of Items	# of Factors Retained	Eigenvalue(s)	% of Variance >60%
Section 9 (A) School Bus Safety	54	17	Two	12.28; 1.17	79.20%
Section 9 (B) School Bus Safety	54	17	Three	10.73; 1.69; 1.32	80.92%

The scree test is accurate despite its subjective interpretation; however, it tends to over extract variables (Henson & Roberts, 2006). The scree plots for Section Two (A) and (B) could be interpreted as a one-component result, however for this study, Kaiser's Rule was used to read the expert ratings of relevancy of the SPSS Scale items, therefore, based on the rule, they show two principal components (Figure 6). Plots of the eigenvalues for each section and for both (A) and (B) are provided side-by-side for comparison (Figures 6 to 13). A review of the factor loadings suggests that a good solution was attained through principal component for all the sections and for both (a) and (B) alike. For Section Three (B) Factor 3 was well below the eigenvalue of one, thus a two-component pattern was used (Figure 7). Code of Student Conduct, Section Four (A) and (B) clearly grouped into one principal component (Figure 8). School Physical Disorder, Section Five (A) and (B) were similar, grouping into two components, with Factor 3 well below the eigenvalue of one (0.2981) (Figure 9). Behavior Management, for both Sections Six (A) and (B), all seven of the variables are grouped into one principal component and will be retained by the mineigen criterion (Figure 10) with Factor 2 in Section Six (B) showing an eigenvalue of (0.5221). When comparing Section Seven (A) to (B), Health/Hygiene, the eigenvalues increase slightly in Section Seven (B) for Factor Two (A = 0.4312; B = 0.5518). Although, all ten of the variables for Section Seven (A) and (B) Health/Hygiene grouped into one principal component and were retained by the mineigen

criterion (Figure 11). For Student Pedestrian Safety Section Eight (A) and (B), all twelve of the variables are grouped into one component and will be retained by the mineigen criterion (Figure 12). However, when comparing the sections, Factor 2 for Section Eight (B) borders the eigenvalue criterion (0.9324), which could be retained if deemed necessary; however, for this analysis, it was not. We are evaluating the expert ratings of relevancy of the items of the scale, not analyzing the scale items themselves. For School Bus Safety Section Nine (A) seventeen variables grouped into two factors, where Factor 3 had an eigenvalue just under one (0.8214). When comparing section (A) to (B), there was a difference in the number of components; three factors were retained using Kaiser's rule in Section Nine (B) as illustrated in the scree plot (Figure 13).

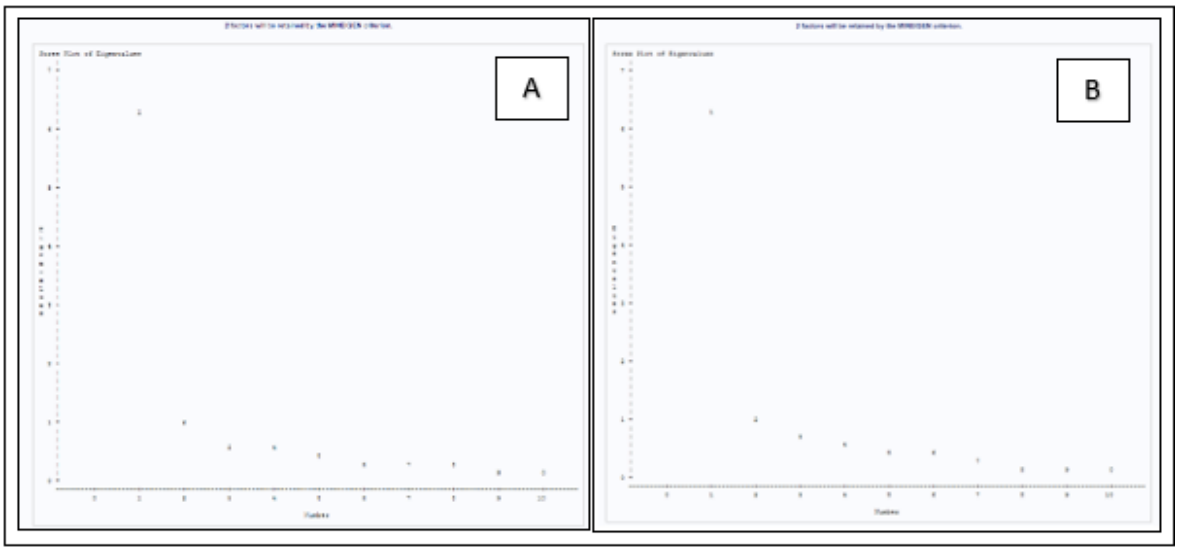

Figure 6: Sections Two (A) and (B): Target Hardening – scree plots
Two questions were evaluated: (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the Target Hardening factor of school safety.
The questions were measured on a four-point Likert-type scale from "1 = strongly disagree" to "4 = strongly agree."

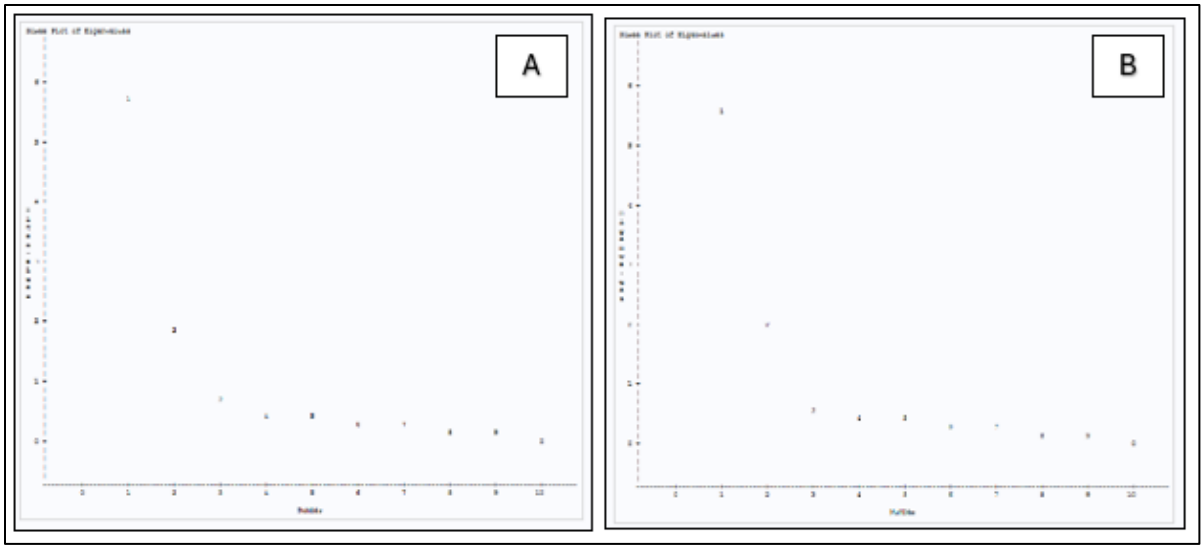

Figure 7: Sections Three (A) and (B) Safety Drills and Procedures – scree plots
Two questions were evaluated: (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the Safety Drills and Procedures factor of school safety. The questions were measured on a four-point Likert-type scale from “1 = strongly disagree” to “4 = strongly agree.”

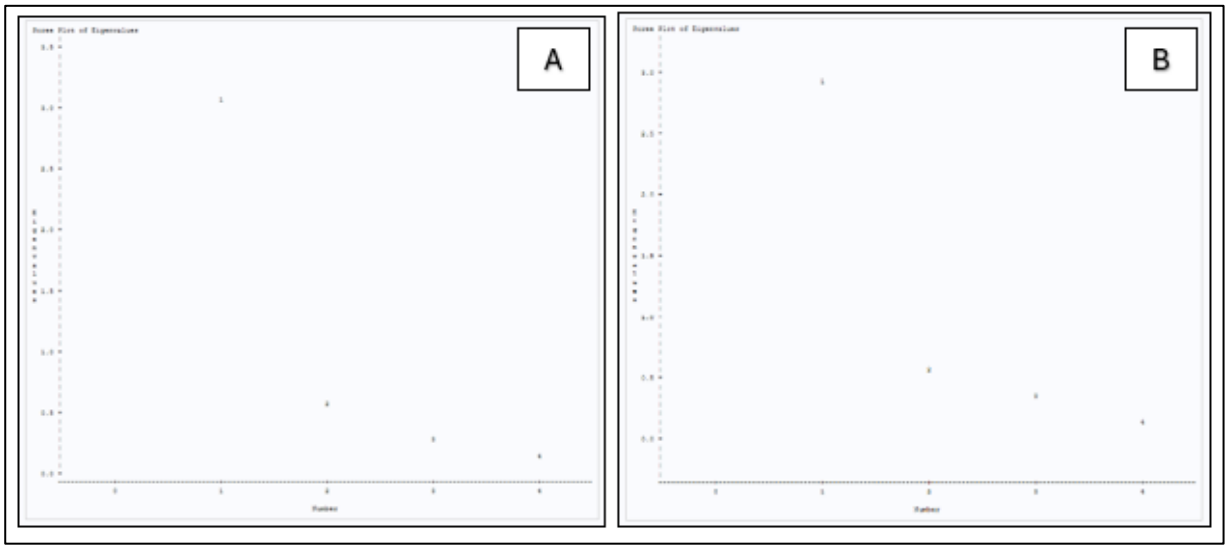

Figure 8: Sections Four (A) and (B) Code of Student Conduct – scree plots
Two questions were evaluated: (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the Code of Student Conduct factor of school safety. The questions were measured on a four-point Likert-type scale from “1 = strongly disagree” to “4 = strongly agree.”

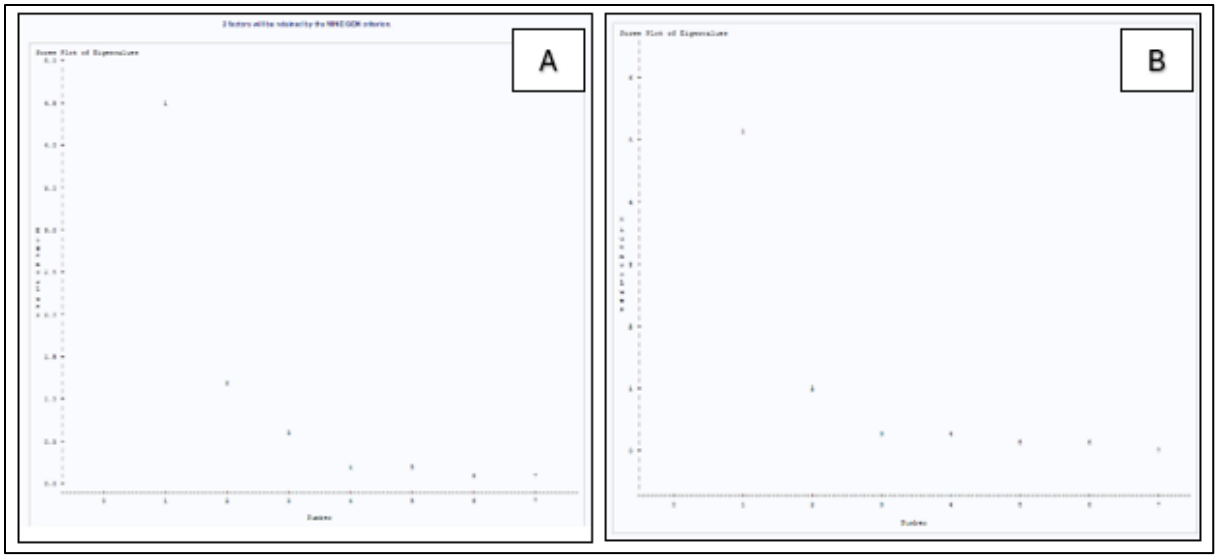

Figure 9: Sections Five (A) and (B) School Physical Disorder – scree plots
Two questions were evaluated: (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the School Physical Disorder factor of school safety. The questions were measured on a four-point Likert-type scale from "1 = strongly disagree" to "4 = strongly agree."

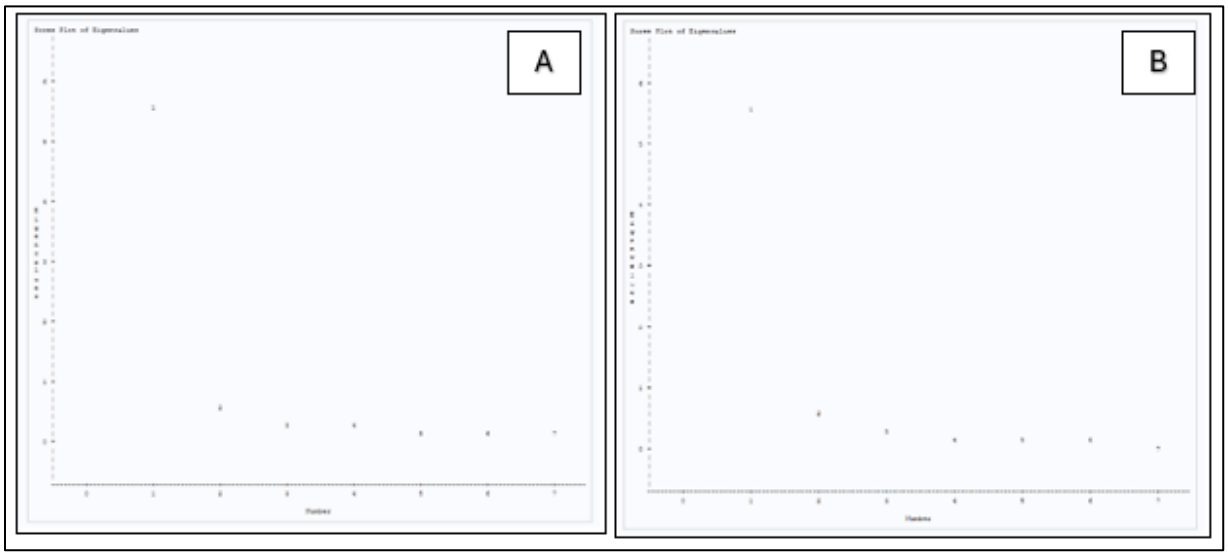

Figure 10: Sections Six (A) and (B) Behavior Management – scree plots
Two questions were evaluated: (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the Behavior Management factor of school safety. The questions were measured on a four-point Likert-type scale from "1 = strongly disagree" to "4 = strongly agree."

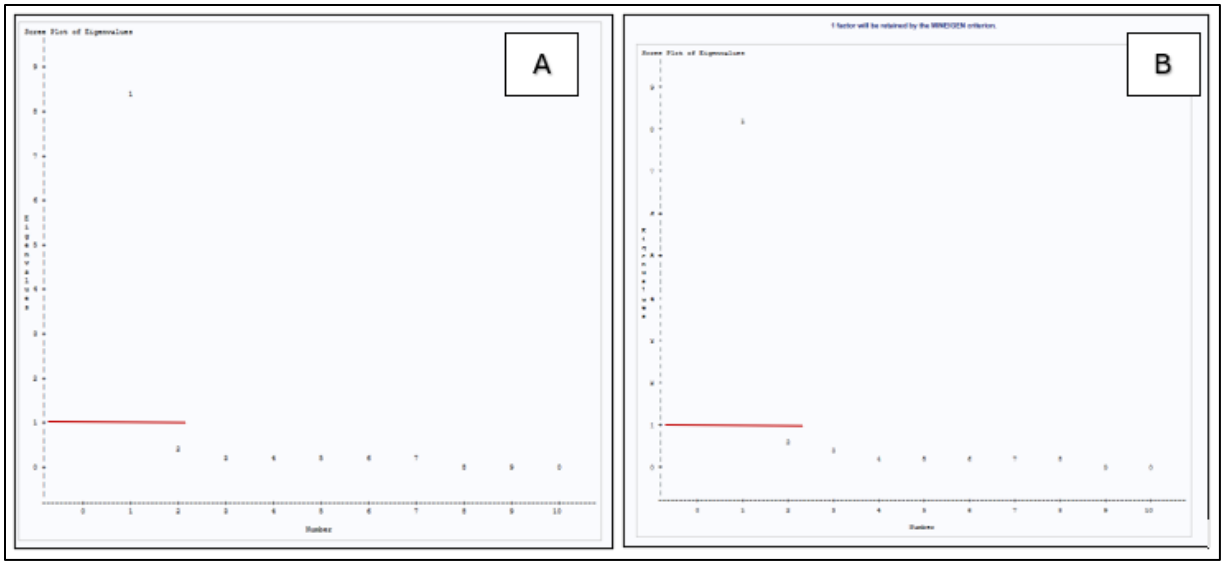

Figure 11: Sections Seven (A) and (B) Health/Hygiene – scree plots
Two questions were evaluated: (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the Health/Hygiene factor of school safety. The questions were measured on a four-point Likert-type scale from “1 = strongly disagree” to “4 = strongly agree.”

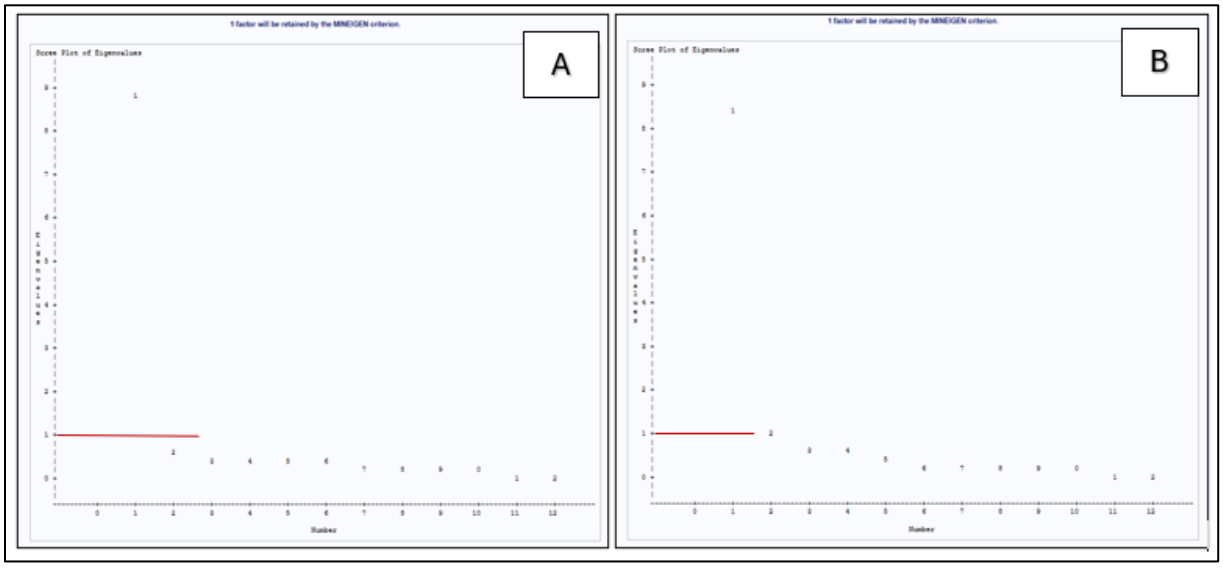

Figure 12: Sections Eight (A) and (B) Student Pedestrian Safety – scree plots
Two questions were evaluated: (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the Student Pedestrian Safety factor of school safety. The questions were measured on a four-point Likert-type scale from “1 = strongly disagree” to “4 = strongly agree.”

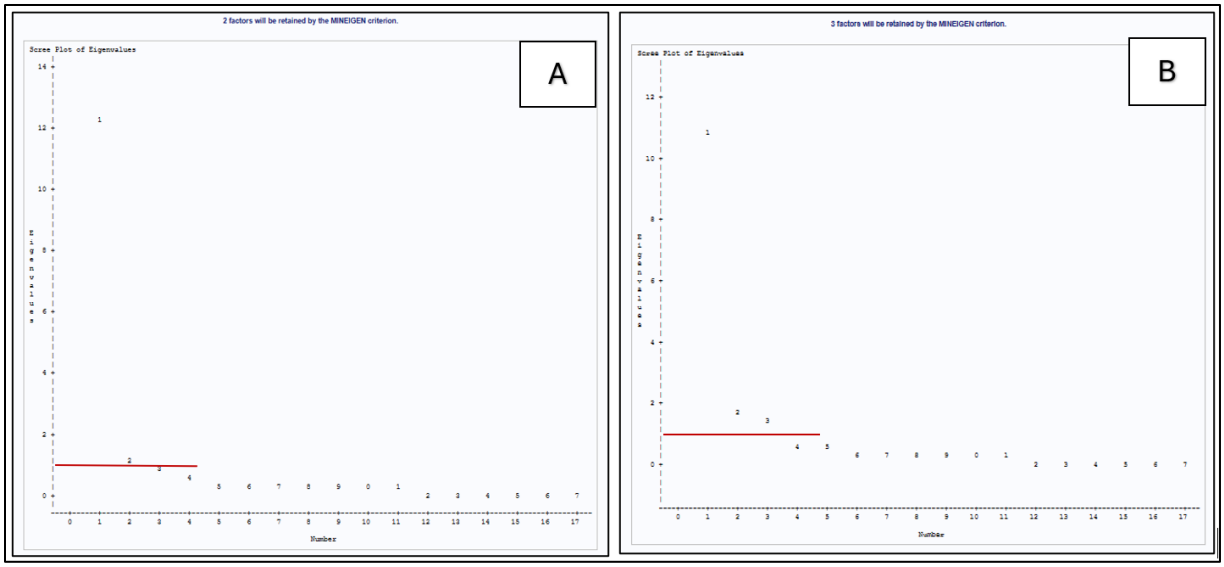

Figure 13: Sections Nine (A) and (B) School Bus Safety – scree plots

Two questions were evaluated: (A) This item is relevant to school safety for our schools today (2023-2024) and (B) This item is relevant to the School Bus Safety factor of school safety. The questions were measured on a four-point Likert-type scale from "1 = strongly disagree" to "4 = strongly agree."

Four of the nine SPSS Scale sections of the school safety domain had a single component in each section (Table 14). A rotation is not possible with one component, therefore the rotations mentioned below address the sections with two or more principal components within the theoretical dimension of school safety.

Table 14

Five School Safety Sections: One Principal Component for Each Section

Section	# of Items	Eigenvalue	% of Variance
Section Four (A) Code of Student Conduct	4	3.0624	75.65%
Section Four (B) Code of Student Conduct	4	2.9428	73.57%
Section Six (A) Behavior Management	7	5.5239	78.91%
Section Six (B) Behavior Management	7	5.5991	79.99%
Section Seven (A) Health/Hygiene	10	8.4013	84.01%
Section Seven (B) Health/Hygiene	10	8.2854	82.85%
Section Eight (A) Student Pedestrian Safety	12	8.7907	73.26%
Section Eight (B) Student Pedestrian Safety	12	8.4587	70.49%

A Relevancy Assessment Survey (RAS) was employed to work as the tool for relevancy score data collection from school safety experts (law enforcement and school guardians). To examine patterns of the expert ratings regarding the SPSS Scale, these relevancy score data were examined using two questions for each of the 79 items on the SPSS Scale:

(A) This item is relevant to school safety for our schools today (2023-2024).

(B) This item is relevant to the (*insert factor name*) factor of school safety.

Once the eigenvalues were interpreted, the principal components were rotated in a Statistical Analysis System (SAS) with an orthogonal rotation using the Varimax procedure for each of the sections that loaded with more than one component: Sections Two, Three, Five, and Nine. The patterns of the expert ratings to answer the questions regarding (A) the expert scores of item relevancy to school safety; and (B) the expert scores of the item relevancy to the theoretical factor of school safety, are made more evident when viewing the rotations (Table 15). Target Hardening, Section Two (A) shows most of the ten variables grouped on the first component, except for two variables regarding student presence as hall monitors (**S2V7a_StdntPres**) and manually locked doors (**S2V3a_ManLk**), those grouped on the second component (Table 15). Section Two (B) had a very similar pattern of how the experts view the items when judging relevancy to the theoretically assigned area of school safety. However, the first component had seven of the ten variables and was in a slightly different order than Section (A). One variable regarding student ID (**S2V8b_StdntID**), which asked about how safe students feel if they wore school IDs, did not fall into either grouping (Table 15). This suggests that the question is not judged by the experts in the same way, they are viewing this item

differently than the other items. Further investigation is necessary before elimination; we must examine the means and standard deviations in the next section.

Table 15
Target Hardening - Rotated Factor Pattern/Orthogonal Rotation

Section Two (A) Target Hardening		
Variable	**Factor 1**	**Factor 2**
S2V5a_SftyPres	**0.88325**	0.13450
S2V4a_Cam	**0.87742**	0.24803
S2V1a_Lkdr	**0.87005**	0.20776
S2V2a_AutoLk	**0.86284**	0.16429
S2V9a_Prmtr	**0.85852**	0.30555
S2V8a_StdntID	**0.68998**	0.39132
S2V10a_Wndws	**0.65523**	0.51644
S2V6a_TchrPres	**0.62519**	0.38675
S2V7a_StdntPres	0.06961	**0.91104**
S2V3a_ManLk	0.36475	**0.69121**
Section Two (B) Target Hardening		
Variable	**Factor 1**	**Factor 2**
S2V1b_Lkdr	**0.89523**	0.19836
S2V5b_SftyPres	**0.88311**	0.19634
S2V2b_AutoLk	**0.88185**	0.18447
S2V4b_Cam	**0.85679**	0.31405
S2V9b_Prmtr	**0.81179**	0.35084
S2V6b_TchrPres	**0.64011**	0.45292
S2V10b_Wndws	**0.63665**	0.50511
S2V8b_StdntID	0.57715	0.50871
S2V7b_StdntPres	0.08468	**0.90924**
S2V3b_ManLk	0.30589	**0.63932**

For the Safety Drills and Procedures section, when comparing the rotation between Sections (A) and (B), there is not a clear pattern of agreement among the expert ratings for either section. However, both Factor 1 and Factor 2 in both sections, grouped the items in a similar theoretical manner. The expert relevancy ratings regarding the items seem evenly distributed between Factor 1 and Factor 2 in both sections. However, the variable about students hiding (How safe do I feel if I am hiding behind a desk or under a table during a safety drill?) did not fall into either grouping in either section, suggesting that the expert ratings for the variable (**S3V6a_StdntHd**) is not seen through the same lens as the other variables, and

may be considered for removal from the SPSS Scale after further exploration of the mean and standard deviation of item relevancy (Table 16).

Table 16
Safety Drills and Procedures - Rotated Factor Pattern/Orthogonal Rotation

Section Three (A) Safety Drills and Procedures		
Variable	**Factor 1**	**Factor 2**
S3V10a_Play	**0.91526**	0.04354
S3V7a_AlnBth	**0.87914**	0.25136
S3V8a_WlkHll	**0.85345**	0.25751
S3V9a_AlnHll	**0.85230**	0.23457
S3V3a_StTlk	**0.84199**	0.25378
S3V6a_StdntHd	0.56181	0.50632
S3V2a_TchrDmnr	0.17703	**0.91804**
S3V5a_KnwldgLk	0.11911	**0.84816**
S3V1a_Knwldg	0.24404	**0.79216**
S3V4a_Rules	0.23608	**0.75842**
Section Three (B) Safety Drills and Procedures		
Variable	**Factor 1**	**Factor 2**
S3V10b_Play	**0.92278**	0.01743
S3V8b_WlkHll	**0.88268**	0.24491
S3V7b_AlnBth	**0.88013**	0.28104
S3V3b_StTlk	**0.85746**	0.19381
S3V9b_AlnHll	**0.85405**	0.23250
S3V6b_StdntHd	0.55560	0.46086
S3V2b_TchrDmnr	0.13709	**0.91671**
S3V5b_KnwldgLk	0.14445	**0.86451**
S3V4b_Rules	0.22946	**0.83186**
S3V1b_Knwldg	0.23249	**0.80095**

In the School Physical Disorder Section (A), Factor 1 collected four of the seven variables and Factor 2 collected the other three. Whereas, in Section (B) there were different variables in Factor 1 and there is not a clear theoretical grouping (Table 17). Logic might suggest that the items regarding the inside and the outside of the building would make up the two groups of relevant or irrelevant items. Variable (**S5V5a_Dirt**) “How safe do I feel if the outside of the school building looks dirty with mold or dirt?” and variable (**S5V4a_Clean**) “How safe do I feel if the outside of the school building looks clean?” loaded on the extreme of the two components (opposite ends). After the inspection of the Pearson correlation matrix, it was

discovered that the two variables are strongly correlated (*r* = 0.6608) with each other. In Section (B), the variable (**S5V5b_Dirt**) did not fall into either grouping, suggesting that expert view the item differently than the others in the section; we will remember to inspect and compare this result to the mean and standard deviation of the item.

Table 17
School Physical Disorder - Rotated Factor Pattern/Orthogonal Rotation

Section Five (A) School Physical Disorder		
Variable	**Factor 1**	**Factor 2**
S5V5a_Dirt	**0.86329**	0.26138
S5V3a_Trsh	**0.86226**	0.09496
S5V1a_GrfftIn	**0.86063**	0.24058
S5V6a_Brkn	**0.81943**	0.28885
S5V2a_GrfftO	0.00084	**0.94429**
S5V7a_DmPrmtr	0.50278	**0.78279**
S5V4a_Clean	0.54537	**0.76846**
Section Five (B) School Physical Disorder		
Variable	**Factor 1**	**Factor 2**
S5V6b_Brkn	**0.93468**	0.23553
S5V7b_DmPrmtr	**0.90851**	0.09218
S5V1b_GrfftIn	**0.87933**	0.37442
S5V2b_GrfftO	**0.87422**	0.36215
S5V5b_Dirt	0.67023	0.65282
S5V4b_Clean	0.07385	**0.95790**
S5V3b_Trsh	0.53410	**0.73029**

For School Bus Safety Section (A), variable (**S9V14a_Info**) regarding bus information (How safe do I feel if I don't know my bus driver's name or the bus number?) did not fall into either grouping Factor 1 (0.60843) or Factor 2 (0.60486). Factor 1 had a pattern consisting of eleven of the seventeen expert rating items in both sections but in different orders which appear to be related to injury or urgency. In Section (A) Factor 2 grouped with five expert ratings on relevancy of the items regarding rules, seatbelts, and being the youngest on the bus (**S9V1a_Rule; S9V7a_Seat; S9V6a_Grade;** and **S9V2a_Seatblt**). The expert ratings of the items for Section (B) were grouped into three components showing a different pattern of relevancy than Section (A). Factor 2 grouped four variables which appear to be related to emotional

safety, and Factor 3 grouped the expert relevancy ratings with two variables, which appear to be related to school bus rules or enforcement. This provides a better understanding of the expert ratings of relevancy about the school safety items than Section (A) (Table18).

Table 18
Section Nine (A) School Bus Safety- Rotated Factor Pattern/Orthogonal Rotation

Section Nine (A) School Bus Safety			
Variable	**Factor 1**	**Factor 2**	
S9V15a_Strangr	**0.92853**	0.16482	
S9V13a_Curb	**0.86503**	0.36711	
S9V12a_Urgncy	**0.83060**	0.41270	
S9V3a_Move	**0.82735**	0.38569	
S9V16a_DisBus	**0.82675**	0.43810	
S9V4a_Train	**0.78975**	0.44305	
S9V8a_Thrw	**0.75191**	0.50791	
S9V10a_Wndw	**0.75024**	0.45505	
S9V9a_EmExit	**0.70030**	0.46814	
S9V17a_Exit	**0.69355**	0.54597	
S9V11a_UngrdB	**0.68252**	0.56068	
S9V14a_Info	0.60843	0.60486	
S9V5a_Alone	0.25758	**0.84796**	
S9V1a_Rule	0.43198	**0.78872**	
S9V7a_Seat	0.28063	**0.78127**	
S9V6a_Grade	0.51466	**0.73454**	
S9V2a_Seatblt	0.33653	**0.70972**	
Section Nine (B) School Bus Safety			
Variable	**Factor 1**	**Factor 2**	**Factor 3**
S9V13b_Curb	**0.90590**	0.11280	0.13605
S9V15b_Strangr	**0.89344**	0.09714	0.18838
S9V12b_Urgncy	**0.87863**	0.21770	0.09393
S9V10b_Wndw	**0.82093**	0.21316	0.32691
S9V11b_UngrdB	**0.80545**	0.38666	0.08188
S9V8b_Thrw	**0.79234**	0.34116	0.31962
S9V16b_DisBus	**0.78520**	0.34369	0.34010
S9V3b_Move	**0.74372**	0.33723	0.33894
S9V17b_Exit	**0.69618**	0.41995	0.23675
S9V4b_Train	**0.69477**	0.35205	0.42863
S9V9b_EmExit	**0.64962**	0.18167	0.56977
S9V7b_Seat	0.18700	**0.89505**	0.00534
S9V6b_Grade	0.23239	**0.85791**	0.23237
S9V5b_Alone	0.21851	**0.75107**	0.30672
S9V14b_Info	0.46526	**0.61457**	0.22339
S9V2b_Seatblt	0.23343	0.16118	**0.90429**
S9V1b_Rule	0.24720	0.25070	**0.88525**

Like multiple R_2 in multiple regression, communalities, also understood as "common variances" represent the extent to which the components account for the variance in the

variables (Crocker & Algina, 2008). Communality values were close to 1 which indicated that the models explain most of the variation in these variables. Below Table 19 illustrates these communalities for each Section (A) and (B) for the expert ratings of relevancy of the items in the SPSS Scale. To review, the Relevancy Assessment Survey (RAS) was employed to work as the tool for relevancy score data collection from school safety experts (law enforcement and school guardians). To examine expert ratings regarding the SPSS Scale, these relevancy score data were examined using two questions for each of the 79 items on the SPSS Scale:

(A) This item is relevant to school safety for our schools today (2023-2024).

(B) This item is relevant to the (insert factor name) factor of school safety.

The variations in the variable (**S2V7a_StdntPres**) is explained by 83.48% of the identified component in Section Two (A). Over 60% of the variation in most of the factors can be explained apart from (**S2V6a_TchrPres**) with a 0.5404 communality (Table 19). For Target Hardening Section Two (B), 83.96% of the variations in the variables (**S2V1a_Lkdr**) and 83.39% (**S2V7a_StdntPres**) each are explained by the identified component. Over 60% of the variation in most the factors can be explained apart from variables (**S2V3_ManLk**) and (**S2V8_StdntID**).

Table 19

Section Two (A) Target Hardening – Communality Values

Final Communality Estimates: Total = 7.3432									
S2V1a_Lkdr	**S2V2a_AutoLk**	**S2V3a_ManLk**	**S2V4a_Cam**	**S2V5a_SftyPres**	**S2V6a_TchrPres**	**S2V7a_StdntPres**	**S2V8a_StdntID**	**S2V9a_Prmtr**	**S2V10a_Wndws**
0.8001	0.7717	0.6108	0.8314	0.7982	0.5404	0.8348	0.6292	0.8304	0.6960

Table 20

Section Two (B) Target Hardening – Communality Values

Final Communality Estimates: Total = 7.287956									
S2V1b_Lkdr	**S2V2b_AutoLk**	**S2V3b_ManLk**	**S2V4b_Cam**	**S2V5b_SftyPres**	**S2V6b_TchrPres**	**S2V7b_StdntPres**	**S2V8b_StdntID**	**S2V9b_Prmtr**	**S2V10b_Wndws**
0.8396	0.8117	0.5023	0.8327	0.8184	0.6149	0.8339	0.5919	0.7821	0.6605

For Section Three (A), 87.41% of the variations in the variable (**S3V2a_TchrDmnr**) is explained by the identified component. Over 60% of the variation can be explained apart from (**S3V6a_StdntHd**) (Table 21). For Section Three (B), 85.59% of the variations in the variable (**S3V2b_TchrDmnr**) is explained by the identified components. Over 60% of the variation can be explained apart from (**S3V6b_StdntHd)** (Table 22).

Table 21
Section Three (A) Safety Drill and Procedures – Communality Values

Final Communality Estimates: Total = 7.5399									
S3V1a_Knwldg	**S3V2a_TchrDmnr**	**S3V3a_StTlk**	**S3V4a_Rules**	**S3V5a_KnwldgLk**	**S3V6a_StdntHd**	**S3V7a_AlnBth**	**S3V8a_WlkHll**	**S3V9a_AlnHll**	**S3V10a_Play**
0.6871	0.8741	0.7733	0.6309	0.7506	0.5719	0.8361	0.7947	0.7814	0.8396

Table 22
Section Three (B) Safety Drill and Procedures – Communality Values

Final Communality Estimates: Total = 7.691073									
S3V1b_Knwldg	**S3V2b_TchrDmnr**	**S3V3b_StTlk**	**S3V4b_Rules**	**S3V5b_KnwldgLk**	**S3V6b_StdntHd**	**S3V7b_AlnBth**	**S3V8b_WlkHll**	**S3V9b_AlnHll**	**S3V10b_Play**
0.6955	0.8592	0.7728	0.7446	0.7698	0.5211	0.8536	0.8391	0.7835	0.8518

For Section Four (A), 83.44% of the variations in the variable (**S4V3a_Consq**) is explained by the identified components. Over 65% of the variation in all the items can be explained (Table 23). For Section Four (B), 81.79% of the variations in the variable (**S4V3b_Consq**) is explained by the identified components. Over 65% of the variation in all the components can be explained (Table 24).

Table 23
Section Four (A) Code of Student Conduct – Communality Values

Final Communality Estimates: Total = 3.062393			
S4V1a_DisRule	**S4V2a_VisRule**	**S4V3a_Consq**	**S4V4a_Fair**
0.7749	0.6563	0.8344	0.7969

Table 24
Section Four (B) Code of Student Conduct – Communality Values

Final Communality Estimates: Total = 2.942754			
S4V1b_DisRule	**S4V2b_VisRule**	**S4V3b_Consq**	**S4V4b_Fair**
0.6859	0.6738	0.8179	0.7651

For Section Five (A), 89.17% of the variations in the variable (**S5V4a_Clean**) is explained by the identified components. Over 75% of the variation in all the variables can be explained (Table 25). For Section Five (B), 92.29% of the variations in the variable (**S5V6b_Brkn**) is explained by the identified components. Over 80% of the variation in all the variables can be explained (Table 26).

Table 25
Section Five (A) School Physical Disorder – Communality Values

Final Communality Estimates: Total = 5.764763						
S5V1a_GrfftIn	**S5V2a_GrfftO**	**S5V3a_Trsh**	**S5V4a_Clean**	**S5V5a_Dirt**	**S5V6a_Brkn**	**S5V7a_DmPrmtr**
0.81360	0.7549	0.8655	0.8917	0.8880	0.7986	0.7525

Table 26
Section Five (B) School Physical Disorder – Communality Values

Final Communality Estimates: Total = 6.188809						
S5V1b_GrfftIn	**S5V2b_GrfftO**	**S5V3b_Trsh**	**S5V4b_Clean**	**S5V5b_Dirt**	**S5V6b_Brkn**	**S5V7b_DmPrmtr**
0.9134	0.8954	0.8186	0.9230	0.8754	0.9291	0.8339

For Section Six (A), 91.91% of the variations in the variable (**S6V4a_Disrup**) is explained by the identified components. About 60% or more of the variation in all the components can be explained (Table 27). For Section Six (B), 90.54% of the variations in the variable (**S6V7b_DisSt**) is explained by the identified components. About 60% or more of the variation in all the variables can be explained (Table 28).

Table 27
Section Six (A) Behavior Management – Communality Values

Final Communality Estimates: Total = 5.523900									
S6V1a_T heftSt	**S6V2a_T heftScl**	**S6V3a_ Distrc**	**S6V4a_ Disrup**	**S6V5a_ Intrp**	**S6V6a_C lsMan**	**S6V7a_ DisSt**	**S6V1a_T heftSt**	**S6V2a_T heftScl**	**S6V3a_ Distrc**
0.7438	0.8037	0.7796	0.9191	0.7695	0.5985	0.9096	0.7438	0.8037	0.7796

Table 28
Section Six (B) Behavior Management – Communality Values

Final Communality Estimates: Total = 5.599131

S6V1b_T heftSt	S6V2b_T heftScl	S6V3b_ Distrc	S6V4b_ Disrup	S6V5b_ Intrp	S6V6b_C lsMan	S6V7b_ DisSt	S6V1b_T heftSt	S6V2b_T heftScl	S6V3b_ Distrc
0.8194	0.7864	0.8320	0.8724	0.7955	0.5880	0.9054	0.8194	0.7864	0.8320

For Section Seven (A), 92.41% of the variations in the variable (**S7V6a_Wspr**) is explained by the identified components. Over 70% of the variation in all the variables can be explained (Table 29). For Section Seven (B), 88.53% of the variations in the variable (**S7V7b_Food**) is explained. Over 75% of the variation in all the variables can be explained (Table 30).

Table 29
Section Seven (A) Health/Hygiene – Communality Values

Final Communality Estimates: Total = 8.285378

S7V1a_N oMsk	S7V2ab_ MskVirs	S7V3a_Dr tyMsk	S7V4a_ Shar	S7V5a_ Stnd	S7V6a_ Wspr	S7V7a_ Food	S7V8a_C OVID	S7V9a_ Hand	S7V10a _Desk
0.8850	0.8571	0.8390	0.7967	0.7305	0.9241	0.8924	0.7167	0.9099	0.8492

Table 30
Section Seven (B) Health/Hygiene – Communality Values

Final Communality Estimates: Total = 8.285378

S7V1b_N oMsk	S7V2b_M skVirs	S7V3b_Dr tyMsk	S7V4b_ Shar	S7V5b_ Stnd	S7V6b_ Wspr	S7V7b_ Food	S7V8b_C OVID	S7V9b_ Hand	S7V10b _Desk
0.8034	0.8479	0.84280	0.8060	0.7767	0.8711	0.8853	0.8124	0.7836	0.8560

For Section Eight (A), 83.14% of the variations in the variable (**S8V5a_Timer**) is explained by the identified components. At least 60% of the variation in all the variables can be explained apart from (**S8V1a_Plot** = 0.4915) (Table 31). For Section Eight (B), 84.28% of the variations in the variable (**S8V8b_StCrss**) is explained by the identified components. Almost 50% of the variation in all the variables can be explained apart from variable (**S8V11b_Rule**) that has a communality of 40.83% (Table 32).

Table 31
Section Eight (A) Student Pedestrian Safety – Communality Values

Final Communality Estimates: Total = 8.790698											
S8V1a _Plot	S8V2a_ Urgncy	S8V3a _Peers	S8V4a _Devil	S8V5a _Timer	S8V6a_ DisWlk	S8V7a_ Helmt	S8V8a_ StCrss	S8V9a_B rknwlks	S8V10a _Ridng	S8V11 a_Rule	S8V12a _UnWlk
0.4915	0.8231	0.7712	0.8223	0.8314	0.6495	0.7690	0.7895	0.7990	0.8013	0.6213	0.6216

Table 32
Section Eight (B) Student Pedestrian Safety – Communality Values

Final Communality Estimates: Total = 8.790698											
S8V1b _Plot	S8V2b_ Urgncy	S8V3b _Peers	S8V4b _Devil	S8V5b _Timer	S8V6b_ DisWlk	S8V7b _Helmt	S8V8b _StCrss	S8V9b_B rknwlks	S8V10b _Ridng	S8V11 b_Rule	S8V12b _UnWlk
0.5602	0.7303	0.7837	0.7884	0.7555	0.7577	0.8016	0.8428	0.8093	0.7317	0.4083	0.4891

For Section Nine (A), 88.93% of the variations in the variable (**S9V15a_Strangr**) is explained by the identified components. Over 70% of the variation in all the variables can be explained (Table 33). For Section Nine (B), 90.76% of the variations in the variable (**S9V1b_Rule**) is explained by the identified components. Over 60% of the variation in all the variables can be explained (Table 34).

Table 33
Section Nine (A) School Bus Safety – Communality Values

Final Communality Estimates: Total = 13.464057								
S9V1a_ Rule	**S9V2a_ Seatblt**	**S9V3a_ Move**	**S9V4a_ Train**	**S9V5a_ Alone**	**S9V6a_ Grade**	**S9V7a_ Seat**	**S9V8a_ Thrw**	**S9V9a_ EmExt**
0.8087	0.6170	0.8332	0.8200	0.7854	0.8044	0.6891	0.8233	0.7096
Final Communality Estimates cont.								
S9V10a_ Wndw	**S9V11a_ UngrdB**	**S9V12a_ Urgncy**	**S9V13a_ Curb**	**S9V14a_ Info**	**S9V15a_ Strangr**	**S9V16a_ DisBus**	**S9V17a_ Exit**	
0.7699	0.78023	0.8602	0.8830	0.7361	0.8893	0.8755	0.7791	

Table 34
Section Nine (A) School Bus Safety – Communality Values

Final Communality Estimates: Total = 13.464057								
S9V1a_ Rule	**S9V2a_ Seatblt**	**S9V3a_ Move**	**S9V4a_ Train**	**S9V5a_ Alone**	**S9V6a_ Grade**	**S9V7a_ Seat**	**S9V8a_ Thrw**	**S9V9a_ EmExt**
0.9076	0.8982	0.7817	0.7904	0.7059	0.8440	0.8361	0.8464	0.7796
Final Communality Estimates cont.								
S9V10a_ Wndw	**S9V11a_ UngrdB**	**S9V12a_ Urgncy**	**S9V13a_ Curb**	**S9V14a_ Info**	**S9V15a_ Strangr**	**S9V16a_ DisBus**	**S9V17a_ Exit**	
0.8262	0.8050	0.8282	0.8519	0.6440	0.8432	0.8503	0.7171	

Expert's Rating Scores: Reliability

RQ3: Do the expert ratings of school safety relevance scores regarding the SPSS Scale demonstrate adequate reliability?

A Relevancy Assessment Survey (RAS) was employed to work as the tool for relevancy score data collection from school safety experts (law enforcement and school guardians). To examine expert ratings regarding the SPSS Scale, these relevancy score data were examined using two questions for each of the 79 items on the SPSS Scale:

(A) This item is relevant to school safety for our schools today (2023-2024).

(B) This item is relevant to the (insert factor name) factor of school safety.

"The Pearson correlation matrix is commonly used to compute coefficient alpha" (Zumbo. Gadernabb, & Zeisser, 2007. p. 21). The expert rating relevance scores were measured on a four-point Likert-type scale (from strongly disagree, 1 to strongly agree, 4), however, it has been shown that the total value of the coefficient alpha can appear to deflate with less than a five-point scale using Likert-type response, which means that the alpha may underestimate the reliability scores (Zumbo. Gadernabb, & Zeisser, 2007). Cronbach's alpha and Pearson's correlation both quantify the relationship between variables but have different purposes. While Cronbach's alpha measures the internal consistency reliability of a group of questions meant to measure the same concept (i.e., relevance) (Crocker & Algina, 2008). Higher numbers indicate stronger internal consistency with a range of 0 to 1. Pearson's product- moment correlation measures the direction and strength of the linear relationship between variables; it has a range -1 to 1, and 0 indicates no relationship (Coaley, 2010). Examining the inter-item correlation in a "r-matrix" helps interpret relationships between the items (Coaley, 2010. p. 261). Both Cronbach's alpha and Pearson's

correlation were examined within each section and for both (A) and (B) expert rating questions.

For every item in each of the dimensions of school safety, the item range and mean values of the expert evaluations are shown. Typically, to ensure that all items are using the full Likert-type scale, the items are checked for range. If the mean value shows that an item is not being used fully, it can be eliminated from the scale (Coaley, 2010). For this current study, experts are evaluating the SPSS Scale items based on whether they perceive the items are pertinent to school safety or the theoretical component of school safety. As a result, if an item is not using the entire scale, it indicates that experts strongly agree or strongly disagree that the item is relevant. The response scale has four (4) points; the midway between the scale is two point five (2.5). Therefore, if the mean values are equal to or below the midway point, the item, according to these parameters, is not relevant to school safety or to the theoretical area of school safety and should be removed. With the mean values (*M*), are standard deviations (*SD*) and reflect the differences in experts' responses to the items – zero values indicate identical responses (Coaley, 2010). In other words, the disagreement (to some degree) of the experts' view of relevant items is shown by the standard deviation.

Section One: Locations at School

Section one includes 69 participants, 53.9% of the total school safety personnel population: SRD's (n = 34) accounts for 91.9% of the total SRD population; SRO's (n= 16) accounts for 48.5% of the total SRO population; Guardian/SSO's (n = 15) accounts for 25.9% of the total Guardian/SSO population; and there were 4 participants who did not clearly identify with a group but were school safety personnel (from this point forward are considered

"undefined"). Although there were two sections on the SPSS Scale covering safe or unsafe locations at school, I chose to only review Section One (A) because there were only two questions under the theoretical factor in the section.

Locations at School Section One (A)

"This item is relevant to school safety for our schools today (2023-2024)"

School safety personnel were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for each item in this section on the SPSS Scale. The standard deviations are smaller than the respective mean values, both standard deviations are similar. The question of safe locations produced a slightly higher mean value (*M*= 3.2, *SD* = .719) than the unsafe locations (*M* = 3.10, *SD* = .788) and both are above the threshold of 2.5 (Table 35).

Table 35
Section One (A) Locations at School - Statistics

Item	Student Question	Description	Variable Name	Mean*	Std. Deviation	*n*
1a	In which location at school do I feel **MOST** safe?	Safe Location	S1V1a_SafeLo	3.202	.7190	69
2a	In which location at school do I feel **LEAST** safe?	Unsafe Location	S1V2a_UNSafeLo	3.101	**.7886**	69

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Section Two: Target Hardening

Section Two includes 64 participants, 50.0% of the total school safety population within the county of interest. SRD's (n = 33) accounts for 89.2% of the total SRD population; SRO's (n=

15) accounts for 45.5% of the total SRO population; Guardian/SSO's (n = 13) accounts for 22.4% of the total Guardian/SSO population; and there were 3 "undefined. "

Table 36
Target Hardening Expert Sample Size

Expert Group	n	% of population
SRD	33	89.2%
SRO	15	45.5%
Guardian/SSO	13	22.4%
Undefined	3	NA
Total	64	50%

Target Hardening Section Two (A)

"This item is relevant to school safety for our schools today (2023-2024)."

School safety personnel were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree. The standard deviations are smaller than the respective mean values. One standard deviation stands out as larger than the others with a lower mean value: item seven (**S2V7a_StdntPres**) regarding student patrols (M = 2.609, SD = .9018). This could indicate some inconsistencies among the experts when rating the relevance of the item, however it meets the criteria to retain the item (M > 2.5). The question on safety personnels' presence ranked highest (M= 3.593, SD = .609) with consistency.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha (α > .70) (Nunnally & Bernstien, 1996) and Pearson correlations (r > .30). The experts' responses obtained were observed to be very reliable, with a reliability coefficient of (α =.9208). The Pearson's correlation coefficients between the expert ratings of the items were greater than .30 except for the variable (**S2V7a_StdntPres**) which had trivial relationships between four of the variables (**S2V1a_Lkdr**, r = .29, p = .019);

(**S2V2a_AutoLk**, *r* = .25, *p* = .043); (**S2V4a_Cam**, *r* = .28, *p* = .024); and (**S2V5a_SftyPres**, *r* = .19, *p* = .118). Individual items on the scale for Section Two (A) are displayed on Table 37.

Table 37
Section Two (A) Target Hardening - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1a	How safe do I feel if ALL the doors are locked and will NOT open from the outside?	Locked Doors	S2V1a_Lkdr	3.531	.6164	0.9078	64
2a	How safe do I feel if the classroom doors lock by themselves when they close?	Automatic Locked Doors	S2V2a_AutoLk	3.515	.6170	0.9095	64
3a	How safe do I feel if the classroom doors can lock but the teacher must lock them?	Manually Locked Doors	S2V3a_ManLk	3.125	.7867	0.9204	64
4a	How safe do I feel if I see security cameras in the halls at school?	Security Camera Presence	S2V4a_Cam	3.406	.6354	0.9061	64
5a	How safe do I feel if I see a police officer or a guard watching everyone at school?	Safey Personnels' Presence	S2V5a_SftyPres	3.593	.6099	0.9097	64
6a	How safe do I feel if I see teachers and other adults watching everyone at school?	Teacher Presence	S2V6a_TchrPres	3.267	.6724	0.9143	64
7a	How safe do I feel if I see student patrols watching the halls at school?	Students Patrols	S2V7a_StdntPres	2.609	.9018	0.9345	64
8a	How safe do I feel if all students must wear a picture ID badge?	Student Picture ID Badge	S2V8a_StdntID	3.234	.6360	0.9112	64
9a	How safe do I feel if I see a fence or a wall around the whole school?	Perimeter	S2V9a_Prmtr	3.375	.6547	0.9048	64

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
10a	How safe do I feel if the classroom windows can open from the inside?	Accessible Windows	S2V10a_Wndws	3.234	.6360	0.9090	64

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Target Hardening Section Two (B)

"This item is relevant to the Target Hardening factor of school safety."

School safety personnel were asked to rate the statement: "This item is relevant to the Target Hardening factor of school safety" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree. They rated each item on the SPSS Scale using the RAS. The standard deviations are smaller than the respective mean values. One standard deviation stands out as larger than the others, with a lower mean score, same as in Section Two (A): item seven (**S2V7b_StdntPres**) regarding student patrols (*M* = 2.641, *SD* = .9321), however it meets the criteria to retain the item (*M* > 2.5). No items meet the criteria to be removed from the scale.

The research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings of the items were greater than .30 except for the variable (**S2V7b_StdntPres**) which is the same variable in Section Two (A). However, the variable had only one trivial relationship with another variable (**S2V5b_SftyPres**, r = .28, *p* = .024). The variable (**S2V5b_SftyPres**) is regarding the safety personnel's presence, which is the highest mean score for this section of questions.

The individual items on the scale for Section Two (B) are displayed on Table 38 showing very strong reliability with Cronbach's alpha. The school safety personnels' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.9208).

Table 38
Section Two (B) Target Hardening - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable (α > .70)	*n*
1a	How safe do I feel if ALL the doors are locked and will NOT open from the outside?	Locked Doors	S2V1b_Lkdr	3.500	.6172	0.9082	64
2a	How safe do I feel if the classroom doors lock by themselves when they close?	Automatic Locked Doors	S2V2b_AutoLk	3.531	.6164	0.9092	64
3a	How safe do I feel if the classroom doors can lock but the teacher must lock them?	Manually Locked Doors	S2V3b_ManLk	3.078	.7828	0.9241	64
4a	How safe do I feel if I see security cameras in the halls at school?	Security Camera Presence	S2V4b_Cam	3.421	.6376	0.9060	64
5a	How safe do I feel if I see a police officer or a guard watching everyone at school?	Safey Personnels' Presence	S2V5b_SftyPres	3.547	.6407	0.9085	64
6a	How safe do I feel if I see teachers and other adults watching everyone at school?	Teacher Presence	S2V6b_TchrPres	3.266	.6956	0.9115	64
7a	How safe do I feel if I see student patrols watching the halls at school?	Students Patrols	S2V7b_StdntPres	2.641	.9321	0.9320	64
8a	How safe do I feel if all students must wear a picture ID badge?	Student Picture ID Badge	S2V8b_StdntID	3.156	.6719	0.9132	64
9a	How safe do I feel if I see a fence or a wall	Perimeter	S2V9b_Prmtr	3.375	.6785	0.9067	64

Item	Student Question	Description	Variable Name	Mean* ($M > 2.5$)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
	around the whole school?						
10a	How safe do I feel if the classroom windows can open from the inside?	Accessible Windows	S2V10b_Wndws	3.203	.6468	0.9105	64

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: This item is relevant to the Target Hardening factor of school safety." The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Section Three: Safety Drill and Procedures

Section three includes 62 participants, 48.4% of the total school safety population within the county of interest. SRD's (n = 33) accounts for 89.2% of the total SRD population; SRO's (n= 13) accounts for 39.4% of the total SRO population; Guardian/SSO's (n = 13) accounts for 22.4% of the total Guardian/SSO population; and there were 3 "undefined. "

Table 39
Safety Drills and Procedures Expert Sample Size

Expert Group	n	% of population
SRD	33	89.2%
SRO	13	39.4%
Guardian/SSO	13	22.4%
Undefined	3	NA
Total	62	48.4%

Safety Drill and Procedures Section Three (A)

"This item is relevant to school safety for our schools today (2023-2024)."

School safety personnel were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree. The standard deviations are smaller than the respective means. The question on students knowing the safety drill procedures ranked the highest (*M*=

3.565, *SD* = .5901). Two standard deviations stand out as larger than the others, item three, Students Talking (**S3V3a_StTlk**) (*M* = 2.903, *SD* = .9356) and item ten Students Playing During a Safety Drill (**S3V10a_Play**) (*M* = 2.790, *SD* = 1.010). This could indicate some inconsistencies of the expert's rating scores, although they both meet the criteria to retain the item (*M* > 2.5).

The research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings of the items were greater than .30 except for the variable (**S3V4a_Rules**) which had a trivial relationship between variable (**S3V8a_WlkHll**, $r = .29$, $p = .021$). In other words, "following rules" and "walking in the halls with the class" had a trivial relationship according to the parameters for this study. Another variable (**S3V10a_Play**) had trivial relationships between three other variables (**S3V1a_Knwldg**, $r = .28$, $p = .025$); (**S3V2a_TchrDmnr**, $r = .15$, $p = .038$); and (**S3V5a_KnwldgLk**, $r = .15$, $p = .254$). This is interpreted as the items regarding "students playing during a safety drill" does not have a strong relationship with the items about "knowledge about safety drill procedures", "whether the teacher is calm during a safety drill", and "knowledge of students knowing how to lock the doors during a safety drill." The experts' responses obtained were observed to be very reliable, with a reliability coefficient of ($\alpha = .9122$). The individual items on the scale for Section Three (A) are displayed on Table 40 showing very strong reliability.

Table 40

Section Three (A) Safety Drill and Procedures - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1a	How safe do I feel if I know what to do during a safety drill?	Knowledge of Safety Procedures	S3V1a_Knwldg	3.565	.5901	0.9089	62
2a	How safe do I feel if my teacher is calm during a safety drill?	Teacher Demeanor	S3V2a_TchrDmnr	3.484	.6712	0.9075	62
3a	How safe do I feel if other students are talking during a safety drill?	Students Talking	S3V3a_StTlk	2.903	.9356	0.8970	62
4a	How safe do I feel if other students follow the rules during a safety drill?	Following Rules	S3V4a_Rules	3.339	.7453	0.909	62
5a	How safe do I feel if I know how to lock the classroom door if needed, during a safety drill?	Student Knowledge- How to Lock Doors	S3V5a_KnwldgLk	3.403	.6885	0.9117	62
6a	How safe do I feel if I am hiding behind a desk or under a table during a safety drill?	Students Hiding	S3V6a_StdntHd	3.032	.8091	0.9028	62
7a	How safe do I feel if I am in the bathroom by myself when the safety drill alarm sounds?	Student Alone in Bathroom	S3V7a_AlnBth	2.952	.8949	0.8984	62
8a	How safe do I feel if I am walking in the halls with my class when the safety drill alarm sounds?	Walking in the Halls w/ Class	S3V8a_WlkHll	3.016	.7994	0.8972	62
9a	How safe do I feel if I am walking alone in the halls when the safety drill alarm sounds?	Students Alone in Halls	S3V9a_AlnHll	3.032	.8865	0.8978	62
10a	How safe do I feel if students are playing around during a safety drill?	Students Playing During a Safety Drill	S3V10a_Play	2.790	**1.010**	0.9040	62

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).

Experts' Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Safety Drills and Procedures Section Three (B)

"This item is relevant to the Safety Drills and Procedures factor of school safety."

School safety personnel were asked to rate the statement: "This item is relevant to the Safety Drills and Procedures factor of school safety" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree. Their response to each item on the SPSS Scale was measured through the RAS. The standard deviations are smaller than the respective means. Two standard deviations stand out as larger than the others, just as Section Three (A) results, item three, Student Talking (**S3V3b_StTlk**) (*M* = 2.968, *SD* = .991) and item ten Students Playing During a Safety Drill (**S3V10b_Play**) (M = 2.887, SD = 1.009). This indicates differences in how the experts view the relevance of the item within the safety drills and procedures section. As in Section Three (A), they meet the criteria to retain the item (*M* > 2.5). The question on students knowing the safety drill procedures (**S3V1b_Knwldg**) ranked the highest (*M*= 3.581, *SD* = .5881).

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha (α > .70) (Nunnally & Bernstien, 1996) and Pearson correlations (*r* > .30). The Pearson's correlation coefficients between the expert ratings of the items were greater than .30 except for the variable (**S3V10b_Play**) which had a trivial relationship between four other variables (**S3V1b_Knwldg**, *r* = .29, *p* =.049); (**S3V2b_TchrDmnr**, *r* = .12, *p* = .352); (**S3V4b_Rules**, *r* = .29, *p* = .020); and (**S3V5b_KnwldgLk**, *r* = .18, *p* = .169). This was like Section Three (A), with one additional variable: "following rules." The experts' responses obtained through the RAS were observed to be very reliable, with a

reliability coefficient of (α =.9112). The individual items on the scale for Section Three (B) are displayed on Table 41 showing very strong reliability.

Table 41
Section Three (B) Safety Drill and Procedures - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable (α > .70)	*n*
1b	How safe do I feel if I know what to do during a safety drill?	Knowledge of Safety Procedures	S3V1b_Knwldg	3.581	.5881	0.9079	62
2b	How safe do I feel if my teacher is calm during a safety drill?	Teacher Demeanor	S3V2b_TchrDmnr	3.564	.6668	0.9081	62
3b	How safe do I feel if other students are talking during a safety drill?	Students Talking	S3V3b_StTlk	2.968	.9912	0.8979	62
4b	How safe do I feel if other students follow the rules during a safety drill?	Following Rules	S3V4b_Rules	3.419	.7143	0.9065	62
5b	How safe do I feel if I know how to lock the classroom door if needed, during a safety drill?	Student Knowledge-How to Lock Doors	S3V5b_KnwldgLk	3.435	.7382	0.9094	62
6b	How safe do I feel if I am hiding behind a desk or under a table during a safety drill?	Students Hiding	S3V6b_StdntHd	3.129	.7785	0.9040	62
7b	How safe do I feel if I am in the bathroom by myself when the safety drill alarm sounds?	Student Alone in Bathroom	S3V7b_AlnBth	3.032	.8678	0.8924	62
8b	How safe do I feel if I am walking in the halls with my class when the	Walking in the Halls w/ Class	S3V8b_WlkHll	3.097	.7832	0.8945	62

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
	safety drill alarm sounds?						
9b	How safe do I feel if I am walking alone in the halls when the safety drill alarm sounds?	Students Alone in Halls	S3V9b_AlnHll	3.097	.8629	0.8962	62
10b	How safe do I feel if students are playing around during a safety drill?	Students Playing During a Safety Drill	S3V10b_Play	2.887	**1.0099**	0.9034	62

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: "This item is relevant to the Safety Drill and Procedures factor of school safety." The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Section Four: Code of Student Conduct

Section four includes 59 participants, 46.1% of the total school safety population within the county of interest. SRD's (*n* = 32) accounts for 86.5% of the total SRD population; SRO's (*n*= 13) accounts for 39.4% of the total SRO population; Guardian/SSO's (*n* = 11) accounts for 19% of the total Guardian/SSO population; and there were 3 "undefined. "

Table 42
Code of Student Conduct Expert Sample Size

Expert Group	n	% of population
SRD	32	86.5%
SRO	13	39.4%
Guardian/SSO	11	19%
Undefined	3	NA
Total	59	46.1%

Code of Student Conduct Section Four (A)

"This item is relevant to school safety for our schools today (2023-2024)."

School safety personnel were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree. They rated each item on the SPSS Scale using the RAS. The standard deviations are smaller than the respective mean values. One standard deviation stands out a bit larger than the others: item four, **(S4V4a_Fair)** fairness of rules (*M* = 3.00, *SD* = 0.8305). This could indicate some differences of the school safety personnel when rating the relevance of the item. The question on discussion of rules **(S4V1a_DisRule)** produced the highest mean (*M*= 3.169, *SD* = 0.6735) compared to the other three questions, which indicates that the experts view this item more relevant to school safety than the other items. All the items in this section had a greater mean value than three "agree" (M > 3). Therefore, no items were removed.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings of the items were greater than .30 (r = .54 to .88) and statistically significant ($p < .05$). The school safety personnels' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.8958). The individual items on the scale for Section Four (A) are displayed on Table 43 showing very strong reliability.

Table 43
Section Four (A) Code of Student Conduct – Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1a	How safe do I feel if the teacher talks about the school or class rules with the class?	Discussion of Rules	S4V1a_DisRule	3.169	.6735	0.8643	59
2a	How safe do I feel if I can see the school or class rules posted on the walls at school?	Visual Display of Rules	S4V2a_VisRule	3.051	.7293	0.8993	59
3a	How safe do I feel if I know what will happen if I break a school or class rule?	Consequences of Breaking Rules	S4V3a_Consq	3.017	.7766	0.8380	59
4a	How safe do I feel if I know that breaking a rule has the same punishment no matter who you are?	Fairness of Rules	S4V4a_Fair	3.000	.8305	0.8562	59

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Code of Student Conduct Section Four (B)

"This item is relevant to the Code of Student Conduct factor of school safety."

School safety personnel were asked to rate the statement: "This item is relevant to the Code of Student Conduct factor of school safety" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for the SPSS Scale using the RAS. Different from Section Four (A), there are no standard deviations that are higher than the others and they are smaller than the respective means (Table 44). The research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally &

Bernstien, 1996) and Pearson correlations ($r > .30$) using expert ratings of the items. The Pearson's correlation coefficients between the expert ratings of the items were greater than .30 (r = .53 to .85) and statistically significant ($p < .05$). The school safety personnels' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.8793). The individual items on the scale for Section Four (B) are displayed on Table 44, showing very strong reliability.

Table 44
Section Four (B) Code of Student Conduct – Statistics

Item	Student Question	Description	Variable Name	Mean* ($M > 2.5$)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1a	How safe do I feel if the teacher talks about the school or class rules with the class?	Discussion of Rules	S4V1b_DisRule	3.288	.6446	0.8643	59
2a	How safe do I feel if I can see the school or class rules posted on the walls at school?	Visual Display of Rules	S4V2b_VisRule	3.169	.6735	0.8993	59
3a	How safe do I feel if I know what will happen if I break a school or class rule?	Consequences of Breaking Rules	S4V3b_Consq	3.186	.7065	0.8380	59
4a	How safe do I feel if I know that breaking a rule has the same punishment no matter who you are?	Fairness of Rules	S4V4b_Fair	3.203	.7601	0.8562	59

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: "This item is relevant to the Code of Student Conduct factor of school safety." The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Section Five: School Physical Disorder

Section five includes 57 participants, 44.5% of the total school safety population within the county of interest. SRD's (n = 31) accounts for 83.8% of the total SRD population; SRO's (n= 12) accounts for 36.4% of the total SRO population; Guardian/SSO's (n = 11) accounts for 19% of the total Guardian/SSO population; and there were 3 "undefined. "

Table 45
School Physical Disorder Expert Sample Size

Expert Group	n	% of population
SRD	31	83.8%
SRO	12	36.4%
Guardian/SSO	11	19%
Undefined	3	NA
Total	57	44.5%

School Physical Disorder Section Five (A)

"This item is relevant to school safety for our schools today (2023-2024)."

School safety personnel were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree. They rated each item on the SPSS Scale using the RAS. The standard deviations are smaller than the respective means and appear to be relatively the same, although high. The mean values are less than three ($M < 3$) but greater than the cutoff ($M > 2.5$) except for **(S5V3a_Trsh)** and **(S5V5a_Dirt)** indicating that these two questions are not relevant to school safety, in the view of the school safety experts. Variable **(S5V7a_DmPrmtr)**, damaged perimeter of the school ($M = 3.00$, $SD = .8864$) is the only item that has a score of "agree" and the threshold is not necessary to invoke.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings of the items were greater than .30 and statistically significant ($p < .05$) except for variable (**S5V4a_Clean**) which had trivial relationships between four other variables (**S5V1a_GrfftIn**, r = .27, p =.044); (**S5V2a_GrfftO**, r = .24, p = .068); (**S5V6a_Brkn**, r = .26, p = .050); and (**S5V7a_DmPrmtr**, r = .15, p = .253). The experts' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α = .9072). The individual items on the scale for Section Five (A) are displayed on Table 46 showing very strong reliability.

Table 46
Section Five (A) School Physical Disorder – Statistics

Item	Student Question	Description	Variable Name	Mean* ($M > 2.5$)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1a	How safe do I feel if I see bad or mean words written on the bathroom walls at school?	Graffiti Inside	S5V1a_GrfftIn	2.807	.8750	0.8862	57
2a	How safe do I feel if I see bad or mean words written on the outside walls of the school?	Graffiti Outside	S5V2a_GrfftO	2.754	.8920	0.8898	57
3a	**How safe do I feel if I see trash laying on the hall floors?**	**Trash in Halls**	**S5V3a_Trsh**	**2.439**	**.8664**	**0.8843**	**57**
4a	How safe do I feel if the outside of the school building looks clean?	Cleanliness of Building	S5V4a_Clean	2.754	.7856	0.9209	57
5a	**How safe do I feel if the outside of the school building looks dirty with mold or dirt?**	**Dirt on Building**	**S5V5a_Dirt**	**2.544**	**.8466**	**0.8806**	**57**

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
6a	How safe do I feel if there are broken windows, desks, or doors at school?	Broken School Property	S5V6a_Brkn	2.872	.9401	0.7653	57
7a	How safe do I feel if I see part of the fence or wall that goes around the school broken or damaged?	Damaged Perimeter of School	S5V7a_DmPrmtr	3.000	.8864	0.8994	57

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

School Physical Disorder Section Five (B)

"This item is relevant to the School Physical Disorder factor of school safety."

School safety personnel were asked to rate the statement: "This item is relevant to the School Physical Disorder factor of school safety" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree. The experts rated each item on the SPSS Scale using the RAS. The standard deviations are smaller than the respective means and appear to be relatively the same, although high. The mean values are less than three ($M < 3$) but greater than the cutoff (M > 2.5) except for (**S5V7b_DmPrmtr)**, damaged perimeter of the school (M = 3.11, SD = .9179), like Section Five (A), the item has a mean value of "agree" and the threshold is not necessary to invoke.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings of the items were greater than .30 and statistically significant ($p < .05$) except variable (**S5V4b_Clean**)

which had a trivial relationship between variable (**S5V7b_DmPrmtr**, *r* = .21, *p* = .105). The school safety personnels' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.9377). The individual items on the scale for Section Five (B) are displayed on Table 47 showing very strong reliability.

Table 47: Section Five (B) School Physical Disorder – Statistics

Item	Student Question	Description	Variable Name	Mean*	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1b	How safe do I feel if I see bad or mean words written on the bathroom walls at school?	Graffiti Inside	S5V1b_GrfftIn	2.929	.9035	0.9173	57
2b	How safe do I feel if I see bad or mean words written on the outside walls of the school?	Graffiti Outside	S5V2b_GrfftO	2.912	.8718	0.9190	57
3b	How safe do I feel if I see trash laying on the hall floors?	Trash in Halls	S5V3b_Trsh	2.702	.8858	0.9288	57
4b	How safe do I feel if the outside of the school building looks clean?	Cleanliness of Building	S5V4b_Clean	2.929	.7526	0.9522	57
5b	How safe do I feel if the outside of the school building looks dirty with mold or dirt?	Dirt on Building	S5V5b_Dirt	2.754	.8511	0.9205	57
6b	How safe do I feel if there are broken windows, desks, or doors at school?	Broken School Property	S5V6b_Brkn	2.964	.9630	0.9208	57
7b	How safe do I feel if I see part of the fence or wall that goes around the school broken or damaged?	Damaged Perimeter of School	S5V7b_DmPrmtr	3.105	.9197	0.9331	57

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: "This item is relevant to the School Physical Disorder factor of school safety." The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Section Six: Behavior Management

Section six includes 56 participants, 43.8% of the total school safety personnel population for the county of interest. SRD's (n = 31) accounts for 83.8% of the total SRD population; SRO's (n= 12) accounts for 36.4% of the total SRO population; Guardian/SSO's (n = 10) accounts for 17.2% of the total Guardian/SSO population; and there were 3 "undefined. "

Table 48
Behavior Management Expert Sample Size

Expert Group	n	% of population
SRD	31	83.8%
SRO	12	36.4%
Guardian/SSO	10	17.2%
Undefined	3	NA
Total	56	43.8%

Behavior Management Section Six (A)

"This item is relevant to school safety for our schools today (2023-2024)."

School safety personnel were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for each item on the SPSS Scale using the RAS. The standard deviations are smaller than the respective means and appear to be relatively the same. This could indicate agreement of the school safety personnel when reporting the relevance of the item within the behavior management section. The mean scores are less than three ($M < 3$) but greater than the cutoff ($M > 2.5$); the threshold is not necessary to invoke.

The research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings on

relevancy of the items were greater than .30 (r = .53 to .89) and statistically significant (p < .05). The experts' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.9548). The individual items on the scale for Section Six (A) are displayed on Table 49 demonstrating very strong reliability.

Table 49
Section Six (A) Behavior Management - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable (α > .70)	*n*
1a	How safe do I feel if a student takes something that belongs to me?	Theft of Student Property	S6V1a_TheftSt	2.857	.7961	0.9505	56
2a	How safe do I feel if the school's property has been stolen?	Theft of School Property	S6V2a_TheftScl	2.768	.8526	0.9470	56
3a	How safe do I feel if a student is hitting their desk with their hands when they should be doing their class work?	Distraction During Class	S6V3a_Distrc	2.679	.8114	0.9483	56
4a	How safe do I feel if a student is yelling in class?	Disruption During Class	S6V4a_Disrup	2.750	.8995	0.9396	56
5a	How safe do I feel if a student is bothering me; I cannot do my classwork?	Interruption	S6V5a_Intrp	2.625	.8647	0.9487	56
6a	How safe do I feel if the teacher could calm loud or disruptive students?	Classroom Management	S6V6a_ClsMan	3.000	.8528	0.9584	56
7a	How safe do I feel if a student is disrespectful to the teacher?	Disrespectful Students	S6V7a_DisSt	2.750	.9582	0.9400	56

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Behavior Management Section Six (B)

"This item is relevant to the Behavior Management factor of school safety."

School safety personnel were asked to rate the statement: "This item is relevant to the Behavior Management factor of school safety" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for the SPSS Scale using the RAS. The standard deviations are smaller than the respective means. The question on disruption during class (**S6V4b_Disrup**) (How safe do I feel if a student is yelling in class?), produced the greatest standard deviation (*M*= 3.054, *SD* = .9029) suggesting that there is variation among reported relevance scores. A portion of the mean values are less than three (*M* < 3) but greater than the cutoff (M > 2.5); the threshold is not necessary to invoke.

The research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings on relevancy of the items were greater than .30 (r = .57 to .88) and statistically significant ($p < .05$). The experts' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.9578). The individual items on the scale for Section Six (B) are displayed on Table 50 showing very strong reliability.

Table 50
Section Six (B) Behavior Management - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1b	How safe do I feel if a student takes something that belongs to me?	Theft of Student Property	S6V1b_TheftSt	3.000	0.7628	0.9500	56
2b	How safe do I feel if the school's property has been stolen?	Theft of School Property	S6V2b_TheftScl	2.893	0.7788	0.9518	56
3b	How safe do I feel if a student is hitting their desk with their hands when they should be doing their class work?	Distraction During Class	S6V3b_Distrc	2.893	0.8460	0.9491	56
4b	How safe do I feel if a student is yelling in class?	Disruption During Class	S6V4b_Disrup	3.054	0.9029	0.9469	56
5b	How safe do I feel if a student is bothering me; I cannot do my classwork?	Interruption	S6V5b_Intrp	2.982	0.7505	0.9514	56
6b	How safe do I feel if the teacher could calm loud or disruptive students?	Classroom Management	S6V6b_ClsMan	3.304	0.6854	0.9621	56
7b	How safe do I feel if a student is disrespectful to the teacher?	Disrespectful Students	S6V7b_DisSt	3.071	0.8915	0.9447	56

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: "This item is relevant to the Behavior Management factor of school safety." The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Section Seven: Health/Hygiene

Section seven includes 55 participants, 42.9% of the total school safety population within the county of interest. SRD's (*n* = 31) accounts for 83.8% of the total SRD population; SRO's (*n*= 12) accounts for 36.4% of the total SRO population; Guardian/SSO's (*n* = 9) accounts for 15.5% of the total Guardian/SSO population; and there were 3 "undefined. "

Table 51
Health/Hygiene Expert Sample Size

Expert Group	n	% of population
SRD	31	83.8%
SRO	12	36.4%
Guardian/SSO	9	15.5%
Undefined	3	NA
Total	55	42.9%

Health/Hygiene Section Seven (A)

"This item is relevant to school safety for our schools today (2023-2024)."

School safety personnel (experts) were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for each item on the SPSS Scale using the RAS. The standard deviations are smaller than the respective means and appear to be relatively the same, all be it, high. The high *SD* indicates inconsistency of the experts when reporting the relevance of the item within the health/hygiene section. The mean scores of every item in the Health/Hygiene Section Seven(A) are less than three ($M < 3$) and less than the cutoff ($M < 2.5$). This suggests that all the items for this section are viewed by the experts as not relevant to school safety.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings on relevancy of the items were greater than .30 ($r = .68$ to $.91$) and statistically significant ($p < .05$). The experts' responses obtained through the RAS were observed to be very reliable, with

a reliability coefficient of (α =.9784). The individual items on the scale for Section Seven (A) are displayed on Table 52 demonstrating very strong reliability.

Table 52
Section Seven (A) Health/Hygiene - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable (α > .70)	*n*
1a	How safe do I feel if I see a student sneezing or coughing, and we are not wearing face masks?	No Face Mask w/ Evidence of Sickness	S7V1a_NoMsk	**2.290**	.8750	0.9782	55
2a	How safe do I feel if the teacher tells me to wear a face mask because a student is feeling sick, and I might get sick too?	Face Mask Protection Against Virus	S7V2a_MskVirs	**2.255**	.9854	0.9757	55
3a	How safe do I feel if I wear a face mask that has been at the bottom of my bookbag for weeks?	Dirty Face Masks	S7V3a_DrtyMsk	**2.091**	.9482	0.9791	55
4a	How safe do I feel if I take a drink of water from my friend's water cup? (My friend was sick last week but looks okay now.)	Sharing Water	S7V4a_Shar	**2.182**	.9248	0.9770	55
5a	How safe do I feel if other students stand close to me when we are lining up to go out?	Social Distance (Standing)	S7V5a_Stnd	**2.236**	.9019	0.9784	55
6a	How safe do I feel if my friend (who does not look sick) whispers in my ear or talks close to my face?	Social Distance (Whispering)	S7V6a_Wspr	**2.218**	.9367	0.9367	55
7a	How safe do I feel if my friend (who does not look sick) shares part of their	Sharing Food	S7V7a_Food	**2.273**	.9320	0.9320	55

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
	lunch or snack with me?						
8a	How safe do I feel if I hear that a student in my class left school early because they tested positive for COVID-19?	Positive Case for COVID-19	S7V8a_COVID	**2.309**	.9403	0.9787	55
9a	How safe do I feel if I went to the bathroom but forgot to wash my hands and now, we are going to eat lunch?	Hand Washing	S7V9a_Hand	**2.164**	.8769	0.9747	55
10a	How safe do I feel if I must share a desk with other students throughout the day?	Sharing Desks	S7V10a_Desk	**2.309**	.9000	0.9759	55

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Health/Hygiene Section Seven (B)

"This item is relevant to the Health/Hygiene factor of school safety."

School safety personnel were asked to rate the statement: "This item is relevant to the Health/Hygiene factor of school safety" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for the SPSS Scale using the RAS. The standard deviations are smaller than the respective means, although all the *SD*'s are large. The question on Face Mask Protection Against Virus (How safe do I feel if the teacher tells me to wear a face mask because a student is feeling sick, and I might get sick too?) for variable (**S7V2b_MskVirs**) (*M*= 2.618, *SD*

= 1.0627) and the question on Dirty Face Masks (How safe do I feel if I wear a face mask that has been at the bottom of my bookbag for weeks?) variable (**S7V3b_DrtyMsk**) (*M*= 2.527, *SD* = 1.0815), produced the greatest standard deviations suggesting that there are variations among reported relevance scores. Of the ten items, the mean values of seven items in the Health/Hygiene Section Seven(B) are less than three (*M* < 3) but greater than the cutoff (M > 2.5). Whereas the remaining three are less than three (*M* < 3) and less than the cutoff (M < 2.5) suggesting that three items for this section are viewed by the experts as not relevant to the theoretically assigned area (Health/Hygiene) of school safety.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha (α > .70) (Nunnally & Bernstien, 1996) and Pearson correlations (*r* > .30). The Pearson's correlation coefficients between the expert ratings on relevancy of the items were greater than .30 (r = .70 to .93) and statistically significant (*p* < .05). The school safety personnels' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α = .9767). The individual items on the scale for Section Seven (B) are displayed on Table 53 showing very strong reliability.

Table 53
Section Seven (B) Health/Hygiene - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1b	How safe do I feel if I see a student sneezing or coughing, and we are not wearing face masks?	No Face Mask w/ Evidence of Sickness	S7V1b_NoMsk	2.745	0.9273	0.9747	55
2b	How safe do I feel if the teacher tells me to wear a face mask because a student is feeling sick, and I might get sick too?	Face Mask Protection Against Virus	S7V2b_MskVirs	2.618	1.0627	0.9739	55
3b	**How safe do I feel if I wear a face mask that has been at the bottom of my bookbag for weeks?**	**Dirty Face Masks**	**S7V3b_DrtyMsk**	**2.527**	**1.0815**	**0.9739**	**55**
4b	How safe do I feel if I take a drink of water from my friend's water cup? (My friend was sick last week but looks okay now.)	Sharing Water	S7V4b_Shar	2.655	0.9664	0.9747	55
5b	**How safe do I feel if other students stand close to me when we are lining up to go out?**	**Social Distance (Standing)**	**S7V5b_Stnd**	**2.527**	**0.9973**	**0.9754**	**55**
6b	**How safe do I feel if my friend (who does not look sick) whispers in my ear or talks close to my face?**	**Social Distance (Whispering)**	**S7V6b_Wspr**	**2.527**	**0.9786**	**0.9733**	**55**
7b	How safe do I feel if my friend (who does not look sick) shares part of their lunch or snack with me?	Sharing Food	S7V7b_Food	2.618	0.9717	0.9730	55

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
8b	How safe do I feel if I hear that a student in my class left school early because they tested positive for COVID-19?	Positive Case for COVID-19	S7V8b_COVID	2.764	0.9421	0.9745	55
9b	How safe do I feel if I went to the bathroom but forgot to wash my hands and now, we are going to eat lunch?	Hand Washing	S7V9b_Hand	2.673	0.9241	0.9752	55
10b	How safe do I feel if I must share a desk with other students throughout the day?	Sharing Desks	S7V10b_Desk	2.691	0.9403	0.9736	55

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: "This item is relevant to the Health/Hygiene factor of school safety." The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Section Eight: Student Pedestrian Safety

Section eight includes 55 participants, 42.9% of the total school safety population within the county of interest. SRD's (*n* = 31) accounts for 83.8% of the total SRD population; SRO's (*n* = 12) accounts for 36.4% of the total SRO population; Guardian/SSO's (*n* = 9) accounts for 15.5% of the total Guardian/SSO population; and there were 3 "undefined. "

Table 54
Student Pedestrian Safety Expert Sample Size

Expert Group	n	% of population
SRD	31	83.8%
SRO	12	36.4%
Guardian/SSO	9	15.5%
Undefined	3	NA
Total	55	42.9%

Student Pedestrian Safety Section Eight (A)

"This item is relevant to school safety for our schools today (2023-2024)."

School safety experts were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for each item on the SPSS Scale using the RAS. The standard deviations are smaller than the respective means and appear to be relatively the same. The mean scores of all twelve items in the Student Pedestrian Section Eight (A) are less than three ($M < 3$) and all but one item is greater than the cutoff ($M > 2.5$). Variable (**S8V7a_Helmt**) "How safe do I feel if I am riding a bike or scooter on the sidewalk without a helmet?" was rated by the experts as not relevant to school safety ($M = 2.5$, $SD = .8132$). Although the other eleven were very near the threshold number, the threshold is not necessary to invoke for those remaining eleven.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings on relevancy of the items were greater than .30 (r = .47 to .89) and statistically significant ($p < .05$). The experts' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of ($\alpha = .9633$). The individual items on the scale for Section Eight (A) are displayed on Table 55 showing very strong reliability.

Table 55

Section Eight (A) Student Pedestrian Safety – Expert Relevance Score Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1a	How safe do I feel if I am walking in the parking lot or near parked cars at school?	Walking Near Parked Cars	S8V1a_Plot	2.836	.8556	0.9645	55
2a	How safe do I feel if I am in a hurry to get to or from school, so I cut across the road, not using a crosswalk?	Sense of Urgency	S8V2a_Urgncy	2.833	.8412	0.9578	55
3a	How safe do I feel if I walk on the street without looking for cars because my friends are already crossing?	Peers and Street Crossing	S8V3a_Peers	2.764	.9806	0.9595	55
4a	How safe do I feel if I walk near the sidewalk but not on it? (I am in the grass or dirt closer to the road.)	Devil Strip Use	S8V4a_Devil	2.873	.8401	0.9585	55
5a	How safe do I feel if I hurry across the street because the crosswalk timer is almost at zero?	Sense of Urgency w/ Timer	S8V5a_Timer	2.636	.8469	0.9584	55
6a	How safe do I feel if I am walking on the sidewalk listening to music, texting, or reading a book?	Distracting Walking	S8V6a_DisWlk	2.745	.8437	0.9616	55
7a	**How safe do I feel if I am riding a bike or scooter on the sidewalk without a helmet?**	**Bike Helmets**	**S8V7a_Helmt**	**2.527**	**.8132**	**0.9594**	**55**
8a	How safe do I feel if I am crossing the street without a crosswalk timer or crossing guard?	Absence of Street Crossing Aids	S8V8a_StCrss	2.763	.8599	0.9593	55
9a	How safe do I feel if I am riding a scooter to school and the sidewalk is broken? (It has a large crack in the concrete).	Broken Sidewalks	S8V9a_Brknwlks	2.600	.8300	0.9588	55

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
10a	How safe do I feel if I ride my bike or scooter on the crosswalk to cross the street?	Riding in the Crosswalk	S8V10a_Ridng	2.636	.8247	0.9588	55
11a	How safe do I feel if I know the rules to be a safe walker?	Knowledge of Pedestrian Rules	S8V11a_Rule	2.927	.7901	0.9622	55
12a	How safe do I feel if my friends and I are playing a game of tag as we walk on the sidewalk?	Unguarded Walking	S8V12a_UnWlk	2.564	.8556	0.9619	55

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4). School Safety Experts 'Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Student Pedestrian Safety Section Eight (B)

"This item is relevant to the Student Pedestrian Safety factor of school safety."

School safety personnel were asked to rate the statement: "This item is relevant to the Student Pedestrian Safety factor of school safety" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for the SPSS Scale using the RAS. The standard deviations are smaller than the respective means. Compared to the Section Eight (A), judging relevancy of the items to school safety, this section, judging the items to the theoretical area (Student Pedestrian Safety) of school safety seemed to fair better, with greater expert ratings reflected in the mean scores. Five of the expert ratings mean scores were greater than three (*M* > 3) with the remaining seven less than three (M < 3) but greater than the cutoff (M > 2.5). This suggests that all the items for this section are viewed by the experts as relevant to the Student Pedestrian Safety area of school safety. The question on Peers and Street Crossing (How safe do I feel if I walk on the street without looking for cars because my friends are already

crossing?) for variable (**S8V3b_Peers**) (*M*= 3.036, *SD* = .9019) produced the greatest standard deviations suggesting that there are variations among reported relevance scores.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The Pearson's correlation coefficients between the expert ratings on relevancy of the items were greater than .30 (r = .33 to .85) and statistically significant ($p < .05$). The school safety personnels' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.9606). The individual items on the scale for Section Eight (B) are displayed on Table 56 showing very strong reliability.

Table 56
Section Eight (B) Student Pedestrian Safety - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1b	How safe do I feel if I am walking in the parking lot or near parked cars at school?	Walking Near Parked Cars	S8V1b_Plot	3.0909	0.6742	0.9597	55
2b	How safe do I feel if I am in a hurry to get to or from school, so I cut across the road, not using a crosswalk?	Sense of Urgency	S8V2b_Urgncy	3.0546	0.7557	0.9565	55
3b	How safe do I feel if I walk on the street without looking for cars because my friends are already crossing?	Peers and Street Crossing	S8V3b_Peers	3.0364	0.9019	0.9555	55
4b	How safe do I feel if I walk near the sidewalk but not on it? (I am in the grass or dirt closer to the road.)	Devil Strip Use	S8V4b_Devil	2.9455	0.7798	0.9555	55
5b	How safe do I feel if I hurry across the street because the crosswalk	Sense of Urgency w/ Timer	S8V5b_Timer	2.9818	0.8049	0.9560	55

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
	timer is almost at zero?						
6b	How safe do I feel if I am walking on the sidewalk listening to music, texting, or reading a book?	Distracting Walking	S8V6b_DisWlk	2.9818	0.8276	0.9563	55
7b	How safe do I feel if I am riding a bike or scooter on the sidewalk without a helmet?	Bike Helmets	S8V7b_Helmt	2.9259	0.7734	0.9553	55
8b	How safe do I feel if I am crossing the street without a crosswalk timer or crossing guard?	Absence of Street Crossing Aids	S8V8b_StCrss	3.0364	0.8157	0.9543	55
9b	How safe do I feel if I am riding a scooter to school and the sidewalk is broken? (It has a large crack in the concrete).	Broken Sidewalks	S8V9b_Brknwlks	2.9273	0.8132	0.9549	55
10b	How safe do I feel if I ride my bike or scooter on the crosswalk to cross the street?	Riding in the Crosswalk	S8V10b_Ridng	2.9818	0.7815	0.9564	55
11b	How safe do I feel if I know the rules to be a safe walker?	Knowledge of Pedestrian Rules	S8V11b_Rule	3.2546	0.5517	0.9623	55
12b	How safe do I feel if my friends and I are playing a game of tag as we walk on the sidewalk?	Unguarded Walking	S8V12b_UnWlk	2.9091	0.8227	0.9628	55

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: "This item is relevant to the Student Pedestrian Safety factor of school safety." The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Section Nine: School Bus Safety

The final section on the SPSS Scale, section nine, includes 54 participants, 42.2% of the total school safety personnel population. SRD's (*n* = 31, 57.4%) accounts for 83.8% of the total SRD population; SRO's (*n*= 12, 22.2%) accounts for 36.4% of the total SRO population; Guardian/SSO's (*n* = 8, 14.8%) accounts for 13.8% of the total Guardian/SSO population; and there were 3 (5.56%) "undefined". There were more male (70.37%, *n* = 38), experts for this study with law enforcement, then females (25.9%, *n* = 14), and two (3.7%) chose not to disclose their gender. Most of the experts have children (83.3%, *n* = 45) while only nine (16.7%) indicated that they do not have children. The length of employment showed a range from one year to 20 years (*M* = 11.7 years, *SD* = 6.984).

Table 57
School Bus Safety Expert Sample Size

Expert Group	n	% of population	% of Study
SRD	31	83.8%	57.4%
SRO	12	36.4%	22.2%
Guardian/SSO	8	13.8%	14.8%
Undefined	3	NA	5.6%
Total	54	42.2%	100%

School Bus Safety Section Nine (A)

"This item is relevant to school safety for our schools today (2023-2024)."

School safety experts were asked to rate the statement: "This item is relevant to school safety for our schools today (2023-2024)" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for each item on the SPSS Scale using the RAS. The standard deviations are smaller than the respective means (Table 58). Although most of the *SD*'s are large, the question on taking a ride with a stranger (How safe do I feel if I missed the bus, so I

took a ride with a stranger who offers to take me to school?) for variable (**S9V15a_Strangr**) (*M*= 2.618, *SD* = 1.058) produced the greatest standard deviation, suggesting that there are variations among experts' view of this item, as reflected in the relevance scores. Two of the expert ratings mean scores were greater than three (*M* > 3) with fourteen less than three (M < 3) but greater than the cutoff (M > 2.5), and with one less than three (M < 3) and less than the cutoff (M < 2.5). This suggests that all the items except for one (**S9V7a_Seat**, *M* = 2.5, *SD* =.7950) "Randon Assigned Seating" for this section are viewed by the experts as relevant to school safety.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha (α > .70) (Nunnally & Bernstien, 1996) and Pearson correlations (*r* > .30). The Pearson's correlation coefficients between the expert ratings on relevancy of the items were greater than .30 (*r* = .38 to .87) and statistically significant (*p* < .05). The school safety personnels' responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.9754). The individual items on the scale for Section Nine (A) are displayed on Table 58 showing very strong reliability.

Table 58
Section Nine (A) School Bus Safety - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1a	How safe do I feel if I know the bus safety rules?	Knowledge of School Bus Rules	S9V1a_Rule	3.000	.7004	0.9743	54
2a	How safe do I feel if the bus has seat belts?	School Bus Seat Belts	S9V2a_Seatblt	3.056	.7627	0.9757	54
3a	How safe do I feel if my friends and I are standing up and trading seats while the bus is moving?	Moving Around on Bus	S9V3a_Move	2.759	.8673	0.9733	54
4a	How safe do I feel if students are being loud while the bus is crossing train tracks?	Loud Students/Train Track Crossing	S9V4a_Train	2.722	.8778	0.9732	54
5a	How safe do I feel if I was the only student on the bus?	Alone on the Bus	S9V5a_Alone	2.778	.7689	0.9754	54
6a	How safe do I feel if the other students on the bus are older than I am?	Student's Age (Grade Level)	S9V6a_Grade	2.667	.8242	0.9737	54
7a	**How safe do I feel if I must sit on the bus with a student I do not know?**	**Random Assigned Seating**	**S9V7a_Seat**	**2.500**	**.7950**	**0.9757**	**54**
8a	How safe do I feel if students are throwing things (like paper balls or rubber bands) on the bus?	Students Throwing Items on Bus	S9V8a_Thrw	2.722	.8990	0.9730	54
9a	How safe do I feel if all the students needed to exit the bus because of an emergency?	Emergency Bus Exist	S9V9a_EmExit	2.981	.7889	0.9740	54
10a	How safe do I feel if I must climb through the bus window to exit the bus during an emergency?	Emergency Bus Exist (Window)	S9V10a_Wndw	2.852	.8558	0.9736	54

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
11a	How safe do I feel if I am playing tag or chasing my friends when waiting at the school bus stop?	Unguarded Behavior at the Bus Stop	S9V11a_UngrdB	2.741	.8941	0.9734	54
12a	How safe do I feel if I am crossing the street without a crosswalk to catch the bus on time?	Sense of Urgency to Catch Bus	S9V12a_Urgncy	2.722	.8990	0.9730	54
13a	How safe do I feel if I am sitting near the road waiting for the school bus?	Students on Curb at Bus Stop	S9V13a_Curb	2.870	.9121	0.9730	54
14a	How safe do I feel if I don't know my bus driver's name or the bus number?	Bus Information	S9V14a_Info	2.760	.8453	0.9738	54
15a	How safe do I feel if I missed the bus, so I took a ride with a stranger who offers to take me to school?	Ride w/ Stranger	S9V15a_Strangr	2.889	1.058	0.9746	54
16a	How safe do I feel if I am standing close to the bus when the bus pulls up?	Distance from Bus	S9V16a_DisBus	2.741	.8728	0.9728	54
17a	How safe do I feel if I am walking behind the bus after I get off the bus?	Students Exiting the Bus	S9V17a_Exit	2.759	.8673	0.9734	54

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: This item is relevant to school safety for our schools today (2023-2024). The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

School Bus Safety Section Nine (B)

"This item is relevant to the School Bus Safety factor of school safety."

School safety personnel were asked to rate the statement: "This item is relevant to the School Bus Safety factor of school safety" using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree for the SPSS Scale using the RAS. The standard deviations are

smaller than the respective mean values. The question on taking a ride with a stranger (How safe do I feel if I missed the bus, so I took a ride with a stranger who offers to take me to school?) for variable (**S9V15b_Strangr**) (*M*= 2.9815, *SD* = 1.0185) produced the greatest standard deviations suggesting that there are variations among reported relevance scores. Twelve of the expert ratings mean scores were greater than three (*M* > 3) with five less than three (M < 3) but greater than the cutoff (M > 2.5); no expert rating of the items' mean scores were less than the cutoff (M > 2.5). This suggests that all seventeen of the items were rated by the experts as relevant to the School Bus Safety dimension of school safety.

Another research objective was to evaluate the scale's internal consistency through reliability analysis with Cronbach's alpha (α > .70) (Nunnally & Bernstien, 1996) and Pearson correlations (*r* > .30). The Pearson's correlation coefficients between the expert ratings on relevancy of the items were greater than .30 except for variable (**S9V2b_Seatblt**) with a trivial relationship with variable (**S9V7b_Seat**, *r* = .20, *p* = .153). The expert panel's responses obtained through the RAS were observed to be very reliable, with a reliability coefficient of (α =.9620). The individual items on the scale for Section Nine (B) are displayed on Table 59 showing very strong reliability.

Table 59
Section Nine (B) School Bus Safety - Statistics

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
1b	How safe do I feel if I know the bus safety rules?	Knowledge of School Bus Rules	S9V1b_Rule	3.3333	0.6143	0.9617	54
2b	How safe do I feel if the bus has seat belts?	School Bus Seat Belts	S9V2b_Seatblt	3.3333	0.6442	0.9623	54
3b	How safe do I feel if my friends and I are standing up and trading seats while the bus is moving?	Moving Around on Bus	S9V3b_Move	3.0556	0.8336	0.9581	54
4b	How safe do I feel if students are being loud while the bus is crossing train tracks?	Loud Students/Train Track Crossing	S9V4b_Train	3.0185	0.8353	0.9580	54
5b	How safe do I feel if I was the only student on the bus?	Alone on the Bus	S9V5b_Alone	3.0556	0.6845	0.9619	54
6b	How safe do I feel if the other students on the bus are older than I am?	Student's Age (Grade Level)	S9V6b_Grade	2.9074	0.7835	0.9616	54
7b	How safe do I feel if I must sit on the bus with a student I do not know?	Random Assigned Seating	S9V7b_Seat	2.7037	0.7922	0.9634	54
8b	How safe do I feel if students are throwing things (like paper balls or rubber bands) on the bus?	Students Throwing Items on Bus	S9V8b_Thrw	3.0185	0.8124	0.9575	54
9b	How safe do I feel if all the students needed to exit the bus because of an emergency?	Emergency Bus Exist	S9V9b_EmExit	3.2037	0.6835	0.9594	54
10b	How safe do I feel if I must climb through the bus	Emergency Bus Exist (Window)	S9V10b_Wndw	3.0741	0.7975	0.9582	54

Item	Student Question	Description	Variable Name	Mean* (*M* > 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable ($\alpha > .70$)	*n*
	window to exit the bus during an emergency?						
11b	How safe do I feel if I am playing tag or chasing my friends when waiting at the school bus stop?	Unguarded Behavior at the Bus Stop	S9V11b_UngrdB	2.9815	0.8793	0.9586	54
12b	How safe do I feel if I am crossing the street without a crosswalk to catch the bus on time?	Sense of Urgency to Catch Bus	S9V12b_Urgncy	2.8889	0.8393	0.9589	54
13b	How safe do I feel if I am sitting near the road waiting for the school bus?	Students on Curb at Bus Stop	S9V13b_Curb	3.0185	0.8124	0.9591	54
14b	How safe do I feel if I don't know my bus driver's name or the bus number?	Bus Information	S9V14b_Info	3.0926	0.7338	0.9604	54
15b	How safe do I feel if I missed the bus, so I took a ride with a stranger who offers to take me to school?	Ride w/ Stranger	S9V15b_Strangr	2.9815	1.0185	0.9596	54
16b	How safe do I feel if I am standing close to the bus when the bus pulls up?	Distance from Bus	S9V16b_DisBus	3.0000	0.8009	0.9575	54
17b	How safe do I feel if I am walking behind the bus after I get off the bus?	Students Exiting the Bus	S9V17b_Exit	3.0556	0.8560	0.9588	54

*4- point Likert-type scale from Strongly disagree (1) to Strongly agree (4).
Experts' Question: "This item is relevant to the School Bus Safety factor of school safety." The mean cutoff for this study is 2.5; items with greater means are retained (M > 2.5).

Summary

The experts' responses obtained through the RAS for each section were observed to be very reliable, with a reliability coefficient of (α >.70). There were variables with trivial relationships between other variables reported with the Pearson's coefficient correlation: (**S2V7a_StdntPres**) with (S2V1a_Lkdr, *r* = .29, *p* = .019); (S2V2a_AutoLk, *r* = .25, *p* = .043); (S2V4a_Cam, *r* = .28, *p* = .024); and (S2V5a_SftyPres, *r* = .19, *p* = .118). In other words, when experts rated the relevance of the items to school safety, the item about "student presence as hall monitors" had a small relationship with some of the other items regarding "locked doors", "automatic locked doors", "seeing security cameras", and "the presence of security officers." (**S2V7b_StdntPres**) with (S2V5b_SftyPres, r = .28, *p* = .024). When the experts rated the items of relevance to the Target Hardening factor of school safety, "student presence as hall monitors" had a trivial relationship with "the presence of security officers." (**S3V4a_Rules**) with (S3V8a_WlkHll, *r* = .29, *p* =.021). In other words, "following rules" and "walking in the halls with the class" had a trivial relationship according to the parameters for this study.

(**S3V10a_Play**) with (S3V1a_Knwldg, *r* = .28, *p* = .025); (S3V2a_TchrDmnr, *r* = .15, *p* = .038); and (S3V5a_KnwldgLk, *r* =.15, *p* = .254). This is interpreted as the items regarding "students playing during a safety drill" does not have a strong relationship with the items about "knowledge about safety drill procedures", "whether the teacher is calm during a safety drill", and "knowledge of students knowing how to lock the doors during a safety drill."

(S3V10b_Play) with (S3V1b_Knwldg, *r* = .29, *p* =.049); (S3V2b_TchrDmnr, *r* = .12, *p* = .352); (S3V4b_Rules, *r* =.29, *p* = .020); and (S3V5b_KnwldgLk, *r* = .18, *p* = .169). This was like Section Three (A), with one additional variable: "following rules."

(**S5V4a_Clean**) with (S5V1a_GrfftIn, *r* = .27, *p* =.044); (S5V2a_GrfftO, *r* = .24, *p* = .068); (S5V6a_Brkn, *r* = .26, *p* = .050); and (S5V7a_DmPrmtr, *r* = .15, *p* = .253). When experts rate the items to school safety, there are a few items with a trivial relationship, which is interpreted as: the "cleanliness of the outside of the school" does not have a strong relationship with "bad or mean words written on the bathroom walls", "bad or mean words written on the outside walls of the school", "broken school property", and "broken or damaged school perimeter."

(S5V4b_Clean) with (**S5V7b_DmPrmtr**, *r* = .21, *p* = .105). This is the same as above, however the experts rated the item to the theoretically assigned area of school safety – School Physical Disorder. All other variables had a strong reliability coefficient (*r* > .30).

Below is a list of items that school safety experts (law enforcement and school guardians) rated as not relevant to school safety, addressing the question: (A) This item is relevant to school safety for our schools today (2023-2024).

Table 60

SPSS Scale Items Expert-Rated as Not Relevant to School Safety for Schools Today

Section and Item	Student Question	Description	Variable Name	Mean (*M* < 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable (a > .70)	*n*
Section Five (A) School Physical Disorder							
S5_3a	How safe do I feel if I see trash laying on the hall floors?	Trash in Halls	S5V3a_Trsh	2.439	.8664	0.8843	57
S5_5a	How safe do I feel if the outside of the school building looks dirty with mold or dirt?	Dirt on Building	S5V5a_Dirt	2.544	.8466	0.8806	57
Section Seven (A) Health/Hygiene							
S7_1a	How safe do I feel if I see a student sneezing or coughing, and we are not wearing face masks?	No Face Mask w/ Evidence of Sickness	S7V1a_NoMsk	2.290	.8750	0.9782	55
S7_2a	How safe do I feel if the teacher tells me to wear a face mask because a student is feeling sick, and I might get sick too?	Face Mask Protection Against Virus	S7V2a_MskVirs	2.255	.9854	0.9757	55
S7_3a	How safe do I feel if I wear a face mask that has been at the bottom of my bookbag for weeks?	Dirty Face Masks	S7V3a_DrtyMsk	2.091	.9482	0.9791	55
S7_4a	How safe do I feel if I take a drink of water from my friend's water cup? (My friend was sick last week but looks okay now.)	Sharing Water	S7V4a_Shar	2.182	.9248	0.9770	55
S7_5a	How safe do I feel if other students stand close to me when we are lining up to go out?	Social Distance (Standing)	S7V5a_Stnd	2.236	.9019	0.9784	55
S7_6a	How safe do I feel if my friend (who does not look sick) whispers in my ear	Social Distance (Whispering)	S7V6a_Wspr	2.218	.9367	0.9367	55

Section and Item	Student Question	Description	Variable Name	Mean (*M* < 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable (a > .70)	*n*
	or talks close to my face?						
S7_7a	How safe do I feel if my friend (who does not look sick) shares part of their lunch or snack with me?	Sharing Food	S7V7a_Food	2.273	.9320	0.9320	55
S7_8a	How safe do I feel if I hear that a student in my class left school early because they tested positive for COVID-19?	Positive Case for COVID-19	S7V8a_COVID	2.309	.9403	0.9787	55
S7_9a	How safe do I feel if I went to the bathroom but forgot to wash my hands and now, we are going to eat lunch?	Hand Washing	S7V9a_Hand	2.164	.8769	0.9747	55
S7_10a	How safe do I feel if I must share a desk with other students throughout the day?	Sharing Desks	S7V10a_Desk	2.309	.9000	0.9759	55
Section Eight (A) Student Pedestrian Safety							
S8_7a	How safe do I feel if I am riding a bike or scooter on the sidewalk without a helmet?	Bike Helmets	S8V7a_Helmt	2.527	.8132	0.9594	55
Section Nine (A) School Bus Safety							
S9_7a	How safe do I feel if I must sit on the bus with a student I do not know?	Random Assigned Seating	S9V7a_Seat	2.500	.7950	0.9757	54

There were only three items rated by the experts that were considered as not relevant to the theoretically assigned areas of school safety. This addresses the question: *(B) This item is relevant to the (insert factor name) factor of school safety* (Table 61).

Table 61
SPSS Scale Items Expert-Rated as Not Relevant to Theoretically Assigned Areas of School Safety

Section and Item	Student Question	Description	Variable Name	Mean (*M* < 2.5)	*SD*	Cronbach's Alpha w/ Deleted Variable (a > .70)	*n*
Section Seven (B) Health/Hygiene							
S7_3b	How safe do I feel if I wear a face mask that has been at the bottom of my bookbag for weeks?	Dirty Face Masks	S7V3b_DrtyMsk	2.527	1.0815	0.9739	55
S7_5b	How safe do I feel if other students stand close to me when we are lining up to go out?	Social Distance (Standing)	S7V5b_Stnd	2.527	0.9973	0.9754	55
S7_6b	How safe do I feel if my friend (who does not look sick) whispers in my ear or talks close to my face?	Social Distance (Whispering)	S7V6b_Wspr	2.527	0.9786	0.9733	55

Differences Between Experts for Section Two (A - KW) Target Hardening

RQ3: Is there a difference among school safety personnel classifications when enquiring about target hardening item relevance to school safety, addressed on the SPSS Scale?

The null hypothesis (H0): There is no difference in perceived relevance among school safety personnel classifications regarding target hardening items.

The alternative hypothesis (H1): There is a difference in perceived relevance among school safety personnel classifications regarding target hardening items.

For this study, and to answer RQ3, an investigation of the school safety personnel (SRDs, SROs, and Guardians/SSOs) relevance scores for target hardening was conducted. Table 62 provides an example of the experts' question.

Table 62
Section Two (A) Target Hardening – Question Example

Section 2 _Target Hardening			
#	**SPSS Scale (Student Question)**	**RAS Question***	**Response Choice**
3	How safe do I feel if ALL the doors are locked and will NOT open from the outside?	1. This item is relevant to school safety for our schools today (2023-2024)	Strongly disagree (1) Disagree (2) Agree (3) Strongly agree (4)

*Relevancy Assessment Survey (RAS) used to collect data from the expert panel (law enforcement and school guardians).

Since Section Two -Target Hardening data contained 64 participants—50.0% of the total population in the county of interest—for school safety, this study used those data. SRD's (*n* = 33) accounts 51.6% for this study and 89.2% of the total SRD population; SRO's (*n*= 15) accounts for 23.4% for this study and 45.5% of the total SRO population; Guardian/SSO's (*n* = 13) accounts for 20.3% for this study and 22.4% of the total Guardian/SSO population; and there were 3 "undefined which makes 4.7% for this study. 73.4% (*n* = 47) were male, 23.4% (*n* = 15) female, with 3.1% (*n* = 2) chose not to disclose their gender. 15.6% (*n* = 10) did not have children and 84.4% (*n* = 54) indicated that they have children.

As a reminder, School Resource Deputies (SRDs) work for the county Sheriff's office; School Resource Officers (SROs) are employed by nine municipalities; and Guardians, or Safe School Officers (SSOs) are employed by the school district. There are differences between the SRO, SRD, and Guardians' backgrounds and training. The SRDs and SROs are essentially trained together which include: FDLE solo response to active shooter, tactical emergency casualty care

(Stop the Bleed), and moving to contact. The SRDs and SROs are required to attend a school resource basic training, a 40-hour course.

After SWAT, school resource deputies receive the second-highest level of active shooter training within the agency" stated XXX County Sheriff Peyton Grinnell (Daily Commercial, 2022). The SROs, the SRDs are trained in juvenile behavior and mediation, the SRDs collaborate closely with the Department of Juvenile Justice and the State Attorney's Office to identify alternatives to making juvenile arrests. The SRDs also train in radio communication under pressure and have Emotional Intelligence Training. The SRDs have more training opportunities: The SRDs are the leading law enforcement agency in the county, they are contacted by the FBI through their Intel Unit regarding school threats. “Our Intel Unit routinely collaborates on a wide range of issues with the FBI and Secret Service” (Lt. O’Brien, XXX County Sheriff’s Office, 2024).

Guardians have school safety training as well, but there are definite differences. Guardians must pass an annual qualification, then they have quarterly training courses, single response training (a two-day course), and simulation training. The guardians are placed through an intense 144 hours of active assailant and school safety training operated by the county Sheriff’s Office. Further, there are essentially two guardian units: 1. Uniformed Guardians, and 2. Administrative Guardians. Uniformed Guardians are paid, open-carry (the gun is visible) officers, while the Administrative Guardians are concealed-carry (guns are hidden) volunteers and are school administrators (principals, vice principals, school counselors) or custodial personnel. A small portion of Administrative Guardians are not assigned to a school, they are located within the building of the county school board. This

small group act as substitutes for the guardians, much like a substitute teacher for the school system. The guardians (both uniformed and administrative) have a diverse background: while some have been in the field of education for years, others are ex-military, ex-law enforcement, retired fire fighters, retired FBI, while others do not have any prior law enforcement training or experience in an educational setting.

To investigate whether the differences in the groups reflect in their expert perception of safety questions, a composite score was created from the experts' scores for Target Hardening by averaging all the expert rating items in Section Two (A). Target hardening expert ratings of relevancy scores were compared across the school safety personnel classifications. The statistical assumptions were tested for the ANOVA. Levene's test for homogeneity of variances was not statistically significant F (3,60) = 0.118, p = 0. 949. Therefore the group variances were equal.

Normality was tested with the Shapiro-Wilk Test. The SRD classification was statistically significant SW (33) = 0.845, $p < 0.001$. Therefore, the assumption of normality was violated. The distributions of target hardening for the other three groups (SRO, SSO, undefined) were not significantly different from normal. Inspection of the boxplot (Figure14) below, shows outliers for (SRDs) and (SROs). Since the assumptions of the ANOVA were not met, a Kruskal Wallis was used to compare groups. Mean ranks of the school safety relevancy scores increased from undefined (29.17), to Guardian/SSO (30.92), to SRO (31.33), to SRD (33.95) for school safety personnel classification groups (Table 63), although, they were not statistically significant χ^2 (3) = 0.454, p = 0.929.

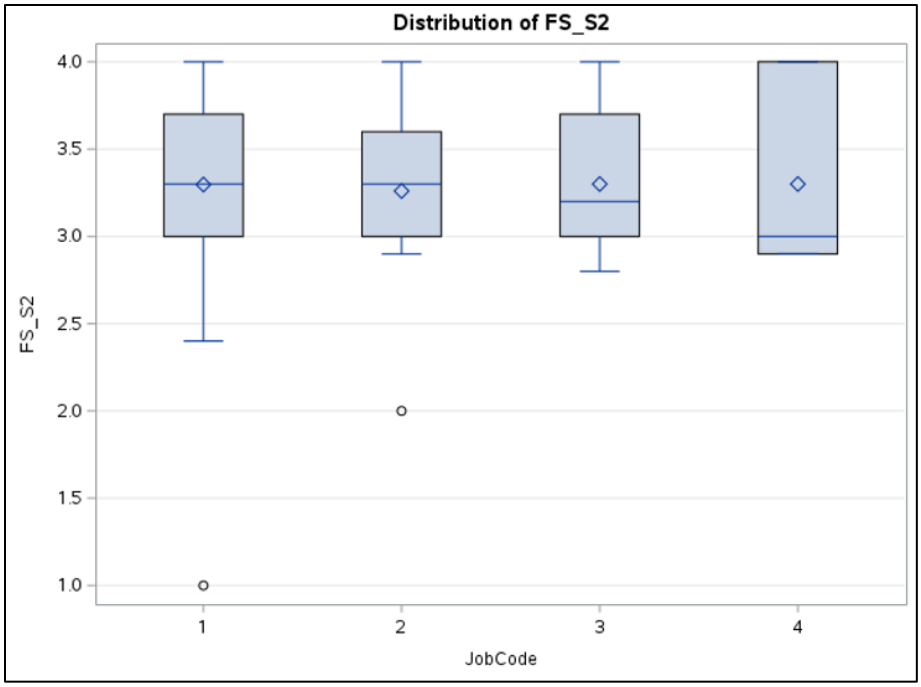

Figure 14: Section Two (A) – Box plot for job code classification
Note: SRD = 1; SRO = 2; Guardians = 3; undefined = 4

Table 63
Section Two (A) Target Hardening by School Safety Personnel

School Safety Personnel Classification	n	Mean Ranks
SRD	33	33.95
SRO	15	31.33
Guardian/SSO	13	30.92
Undefined	3	29.17

The purpose of this section of analysis using a Kruskal-Wallis H test (non-parametric test) was to also examine on an item-by-item basis to determine if there were differences in school safety relevance expert ratings between the school safety groups in Section Two (A). The individual items are ordinal, and the assumption of normality was violated; therefore, an ANOVA is not an appropriate test. Below are the results for each of the 10 questions for Section Two (A) – Target Hardening referring to Table 64.

Table 64

Section Two (A) Target Hardening - Kruskal-Wallis H Test with Mean Ranks

#	Item	Variable	Mean Rank		Chi-Sq	df	Pr > ChiSq
1a	How safe do I feel if ALL the doors are locked and will NOT open from the outside?	S2V1a_Lkdr	33.36	SRD	0.7256	3	0.8672
			32.73	SRO			
			31.69	SSO			
			25.33	Other			
2a	How safe do I feel if the classroom doors lock by themselves when they close?	S2V2a_AutoLk	31.97	SRD	0.7871	3	0.8526
			33.20	SRO			
			34.58	SSO			
			25.83	Other			
3a	How safe do I feel if the classroom doors can lock but the teacher must lock them?	S2V3a_ManLk	33.56	SRD	2.6564	3	0.4477
			26.43	SRO			
			35.96	SSO			
			36.17	Other			
4a	How safe do I feel if I see security cameras in the halls at school?	S2V4a_Cam	31.39	SRD	0.6606	3	0.8824
			35.10	SRO			
			33.08	SSO			
			29.17	Other			
5a	How safe do I feel if I see a police officer or a guard watching everyone at school?	S2V5a_SftyPres	33.30	SRD	1.1446	3	0.7663
			32.93	SRO			
			32.08	SSO			
			23.33	Other			
6a	How safe do I feel if I see teachers and other adults watching everyone at school?	S2V6a_TchrPres	32.18	SRD	0.0370	3	0.9981
			32.50	SRO			
			33.15	SSO			
			33.17	Other			
7a	How safe do I feel if I see student patrols watching the halls at school?	S2V7a_StdntPres	33.55	SRD	0.9472	3	0.8140
			30.60	SRO			
			30.42	SSO			
			39.50	Other			
8a	How safe do I feel if all students must wear a picture ID badge?	S2V8a_StdntID	35.03	SRD	2.2915	3	0.5141
			27.60	SRO			
			31.31	SSO			
			34.33	Other			
9a	How safe do I feel if I see a fence or a wall around the whole school?	S2V9a_Prmtr	32.03	SRD	0.4438	3	0.9311
			34.87	SRO			
			31.54	SSO			
			30.00	Other			
10a	How safe do I feel if the classroom windows can open from the inside?	S2V10a_Wndws	34.17	SRD	1.6665	3	0.6444
			32.93	SRO			
			27.42	SSO			
			34.33	Other			

Question 1) Locked Doors

For variable **(S2V1a_Lkdr)**, "How safe do I feel if ALL the doors are locked and will not open from the outside?", the mean ranks of the school safety relevancy scores increased from undefined (25.33), to Guardian/SSO (31.69), to SRO (32.73), to SRD (33.36) for school safety

personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 0.7256$, $p = 0.8672$ (Table 64). SRDs (33.36) evaluated the question about locked doors more relevant than the other groups, but not enough to show a significant difference.

Question 2) Automatic Locked Doors

For variable **(S2V2a_AutoLk)**, "How safe do I feel if the classroom doors lock by themselves when they close?", the mean ranks of the school safety relevancy scores increased from undefined (25.83), to SRD (31.97) to SRO (33.20), to Guardian/SSO (34.58), for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 0.7871$, $p = 0.8526$ (Table 64). Guardians/SSOs (34.58) evaluated the question about automatic locked doors more relevant than the other groups, but not enough to show a significant difference.

Question 3) Manually Locked Doors

For **(S2V3a_ManLk)**, "How safe do I feel if the classroom doors can lock but the teacher must lock them?", the mean ranks of the school safety relevancy scores increased from SRO (26.43), to SRD (33.56) to Guardian/SSO (35.96), to undefined (36.17), for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 2.6564$, $p = 0.4477$ (Table 64). The undefined group (36.17) evaluated the question about manually locked doors more relevant than the other groups, but not enough to show a significant difference.

Question 4) Security Camera Presence

For **(S2V4a_Cam)**, "How safe do I feel if I see security cameras in the halls at school?", the mean ranks of the school safety relevancy scores increased from undefined (29.17) to SRD

(31.39), to Guardian/SSO (33.08), to SRO (35.10), for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 0.6606$, p = 0.8824 (Table 64). SROs (35.10) evaluated the question about security camera presence more relevant than the other groups, but not enough to show a significant difference.

Question 5) Safey Personnels' Presence

For **(S2V5a_SftyPres)**, "How safe do I feel if I see a police officer or a guard watching everyone at school?", the mean ranks of the school safety relevancy scores increased from undefined (23.33) to Guardian/SSO (32.08), to SRO (32.93), to SRD (33.30) for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 1.1446$, $p = 0.7663$. (Table 64). SRDs (33.30) evaluated the question about safety personnels' presence more relevant than the other groups, but not enough to show a significant difference.

Question 6) Teacher Presence

For **(S2V6a_TchrPres)**, "How safe do I feel if I see teachers and other adults watching everyone at school?", the mean ranks of the school safety relevancy scores increased from SRD (32.18) to SRO (32.50), to Guardian/SSO (33.15), to undefined (33.17) for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 0.0370$, $p = 0.9981$. (Table 64). The undefined group (33.17) evaluated the question about teacher presence more relevant than the other groups, but not enough to show a significant difference.

Question 7) Students Patrols

For **(S2V7a_StdntPres)**, "How safe do I feel if I see student patrols watching the halls at school?", the mean ranks of the school safety relevancy scores increased from Guardian/SSO (30.42) to SRO (30.60) to SRD (33.55) to undefined (39.50) for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 0.9472$, $p = 0.8140$. (Table 64). The undefined group (39.50) evaluated the question about student patrol presence more relevant than the other groups, but not enough to show a significant difference.

Question 8) Student Picture ID Badge

For **(S2V8a_StdntID)**, "How safe do I feel if all students must wear a picture ID badge?", the mean ranks of the school safety relevancy scores increased from SRO (27.60) to Guardian/SSO (31.31) to undefined (34.33) to SRD (35.03) for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 2.2915$, $p = 0.5141$. (Table 64). SRDs (35.03) evaluated the question about student picture ID badges more relevant than the other groups, but not enough to show a significant difference.

Question 9) Perimeter

For **(S2V9a_Prmtr)**, "How safe do I feel if I see a fence or a wall around the whole school?", the mean ranks of the school safety relevancy scores increased from undefined (30.00) to Guardian/SSO (31.54) to SRD (32.03) to SRO (34.87) for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 0.4438$, $p = 0.9311$. (Table 64). SRDs (34.87) evaluated the question about school perimeters more relevant than the other groups, but not enough to show a significant difference.

Question 10) Accessible Windows

For **(S2V10a_Wndws)**, "How safe do I feel if the classroom windows can open from the inside?", the mean ranks of the school safety relevancy scores increased from Guardian/SSO (27.42) to SRO (32.93) to SRD (34.17) to undefined (34.33) for school safety personnel classification groups, but the differences were not statistically significantly $\chi^2(3) = 1.6665$, $p = 0.6444$. (Table 64). The undefined group (34.33) evaluated the question about accessible windows more relevant than the other groups, but not enough to show a significant difference.

Conclusion: Differences Between Groups in Section Two (A – KW) Target Hardening

When testing for assumptions for an ANOVA, the assumption of equal variances was met but the test for normality was violated. Since the assumptions of the ANOVA were not met, a Kruskal Wallis was used to compare groups. Mean ranks of the school safety relevancy scores increased from undefined (29.17), to Guardian/SSO (30.92), to SRO (31.33), to SRD (33.95) for school safety personnel classification groups, they were not statistically significant χ^2 (3) = 0.454, p = 0.929. There were no significant differences between the experts' relevance scores regarding target hardening questions on the SPSS Scale. Therefore, there is insufficient evidence to reject the null hypothesis (H0). This indicates that when reporting the relevance scores for the target hardening items, the school safety personnel agree and/or disagree as one unit.

What does this mean?

An interpretation is provided below to gain a better understanding of how the results from both Section Two (A) and Section Two (A-KW) work together. Section Two (A) provides

mean scores, item 7a was used as an example because it had lowest mean score (*M* = 2.609, *SD* = .9018) of all the target hardening questions (see Table 65). Reviewing item 7a, regarding the variable (**S2V7a_StdntPres**) "How safe do I feel if I see student patrols watching the halls at school?" The expert ratings mean score for this item was less than three (*M* < 3) but greater than the cutoff (M > 2.5). This suggests that all the experts agree, as a team, that this item, although had a lower mean score, was relevant to school safety (using the parameter of this study, M > 2.5); therefor the item is retained.

Table 65
Section Two (A) Target Hardening – Low Mean Score

Item	Student Question	Description	Variable Name	Mean	Std. Deviation
7a	How safe do I feel if I see student patrols watching the halls at school?	Students Patrols	S2V7a_StdntPres	2.609	.9018

Although there was agreement in the score and the item (**S2V7a_StdntPres**) is kept in the scale, it was not a solid "agree = 3" - the threshold was enacted to retain the score. Therefore, further investigation was necessary to pursue a clearer picture of the experts' perception of this item's relevancy to school safety. There were 10 expert ratings of a score of four, "strongly agree", that the question regarding student presence as hall monitors are relevant to school safety. However, eight expert ratings had a score of one, "strongly disagree" regarding the question being relevant to school safety (Figure 15). The box and whisker plots (Figure 16) show varying scores between the groups, with participants from three of the groups (SRD, SRO, and Guardians/SSO) who indicated that this question is not relevant to school safety; this is where the previously mentioned eight "strongly disagree" scores derived from. The Guardians/SSOs (JobCode 3) held the lowest mean rank (30.42) compared to the other groups and even though the figures show differences, and the mean ranks are different,

the Kruskal-Wallis H test shows that there is no significant difference between the groups $\chi^2(3) = 0.9472$, $p = 0.8140$. This means that the school safety personnel (as one unit) ranked the item with a mean between "disagree, 2" and "agree, 3" ($M = 2.609$, $SD = .9018$) to school safety for the SPSS Scale on a 4-point Likert-type scale from 1 = strongly disagree to 4 = strongly agree, but this is greater than the cutoff (M > 2.5), which is why the item was retained and deemed as relevant to the school safety scale.

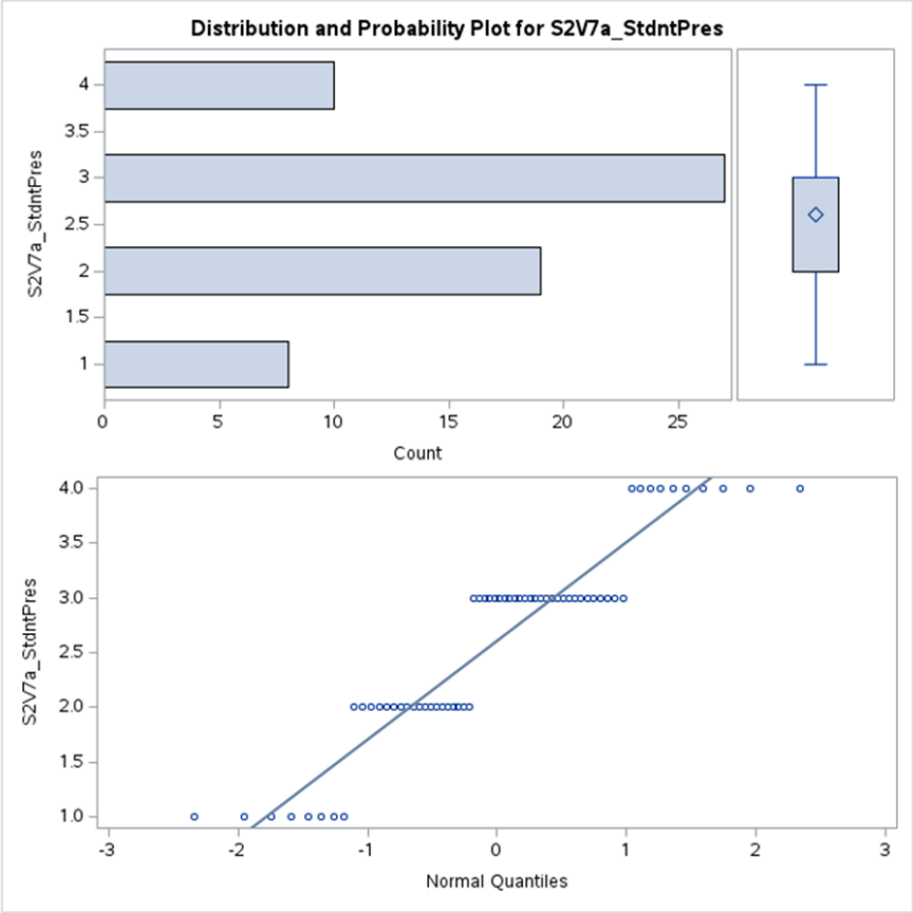

Figure 15: Distribution and probability for variable (S2V7a_StdntPres)
Student Presence as Hall Monitors Among Job Classifications

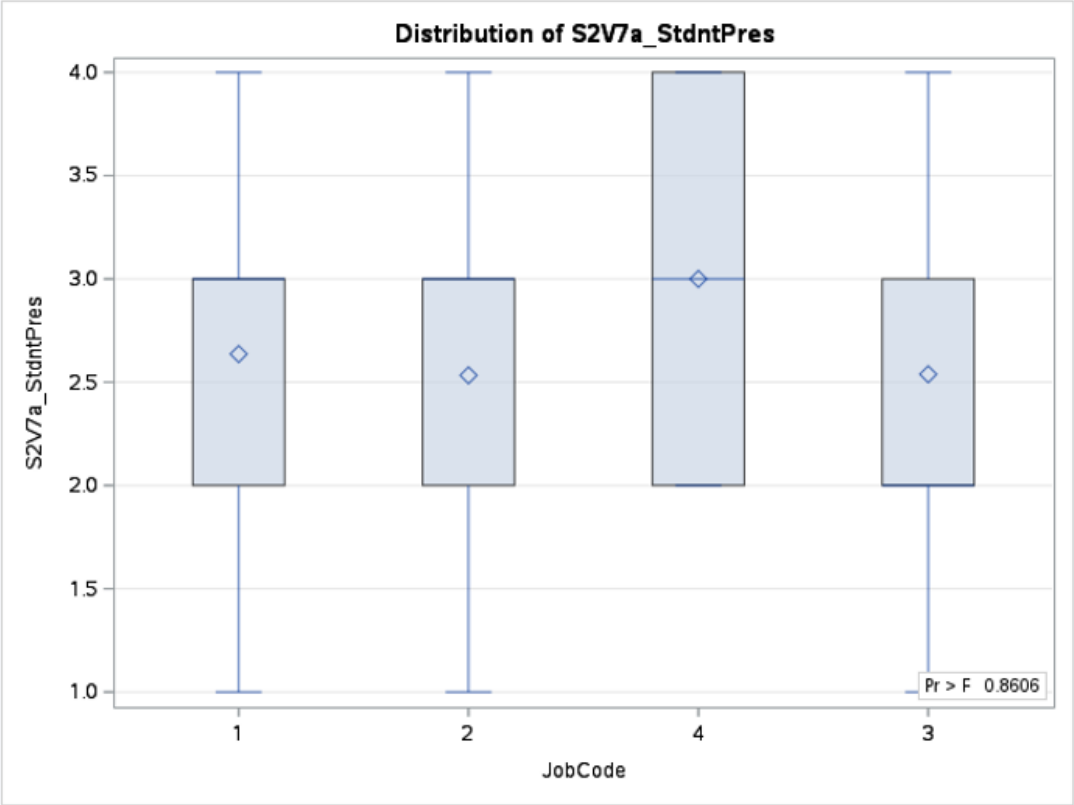

Figure 16: Box plot distribution of relevance scores for variable (S2V7a_StdntPres) Student Presence as Hall Monitors Among Job Classifications
Note: Job Codes are listed as follows: School Resource Deputies (SRD) – 1, School Resource Officers (SRO) – 2, Guardians/SSO – 3, and undefined – 4.

Suitability

RQ4: Is there a difference among school safety personnel classifications when enquiring about the suitability of the SPSS Scale regarding school safety?

There were 54 participants, (42.2% of the total school safety personnel population for the county of interest): SRDs (n = 31) who make up 57.4% of this section of the study and 83.8% of the total SRD population; SROs (n = 12) who make up 22.2% of this section of the study and 36.4% of the total SRO population; Guardians (n = 8) who make up 14.8% of this section of the study and 13.8% of the total Guardian/SSO population; the unidentified (n = 3) who make up 5.56% of this section of the study. Male (*n* = 38; 70.37%) and female (*n* = 14;

25.9%), and 3.7% (*n*= 2) chose not to disclose their gender. There were participants (*n* = 45) who have children 83.3% and participants (*n* = 9) without children 16.7%. The length of employment showed a range from one year to 20 years (*M* = 11.7 years, *SD* = 6.984).

The purpose of this analysis was to determine if the SPSS Scale is a suitable measure for school safety and to examine differences (if any) in the expert's suitability scores. The participants were asked "Does the content of the SPSS Scale appear to be suitable to measure the perception of student's school safety?" with a response score of 1 = no, 2 = maybe, and 3 = yes. A Kruskal-Wallis H test was conducted to find differences in the school safety classifications. Values are mean ranks unless otherwise stated. Distribution of the school safety personnel's suitability scores were not similar in all groups, as assessed by inspection of the boxplot (Figure 26). The mean ranks of the suitability scores increased from SRO (25.75) to SRD (26.66), to undefined (30.17), to Guardian/SSO (32.38), among the school safety personnel classification, but the differences were not statistically significant $\chi^2(3) = 1.467$, $p = 0.690$ (Figure 17) and (Table 66). This is interpreted as there are no differences in the school safety personnel classification groups when rating the suitability of the scale to measure students' perception of safety, but whether the scale is a suitable measure is undecided (M = 2.6) where 2 = "maybe" and 3 = "yes." After inspection of Figure 18, the School Resource Deputy (SRD) group indicated that the content of the SPSS Scale is not a suitable measure for student's perception of school safety (1 = no). Further examination was required to deliver a better interpretation of the results. Below is a qualitative analysis for this investigation.

Table 66

Face Validity Kruskal-Wallis H Test with Mean Ranks

Item	*N* = 54		Mean Rank		Mean	Chi-Sq	df	Pr > ChiSq
Does the content of the SPSS Scale appear to be suitable to measure the perception of student's school safety?	31	SRD	26.66	SRD	2.5556	1.467	3	0.690
	12	SRO	25.75	SRO				
	8	SSO	32.38	SSO				
	3	Other	30.17	Other				

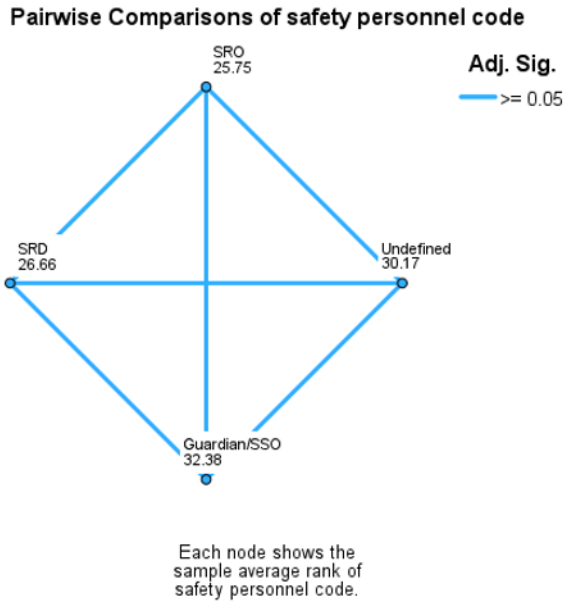

Figure 17: Pairwise comparison of school safety personnel for face validity values

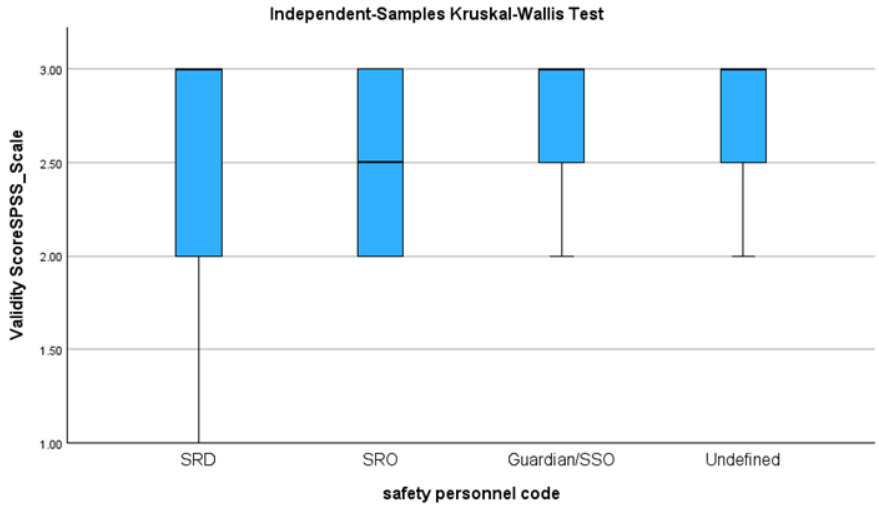

Figure 18: Kruskal-Wallis *H* Test and face validity

Qualitative Analysis: Suitability of the SPSS Scale to Measure Students' Perception of School Safety

The question of suitability of the SPSS Scale to measure students' perception of school safety could be interpreted as undecided (M = 2.6) where 2 = "maybe" and 3 = "yes." The parameter for this study in the previous section was set as the mean value greater than two point five (M > 2.5) is retained as relevant, however, for this section the scale is only three points (1 = no, 2 = maybe, and 3 = yes). I do not agree with collapsing the scale to a dichotomous response. Therefore, further investigation was necessary. One participant from the SRD classification responded with a score of one (no = 1); the scale is not suitable. This discovery led to a qualitative analysis of the nine sections, both (A) and (B) to uncover a possible conclusion for this one participant's' suitability response. Examining the experts' rating scores of relevance to school safety and to the factor of school safety, for sections one through nine, there are responses from 1 – "strongly disagree to 4 - "strongly agree" on the 4-point Likert-type scale. In other words, full scale is being used.

The one SRD's expert perception of relevancy for Section One (Locations at School) is marked not relevant to school safety and the questions are not relevant to the dimension of (Locations at School). This SRD's expert perception of relevancy for Section Two (Target Hardening) was scored as relevant except for item (**S2V9a_Prmtr**) and (**S2V9b_Prmtr**) which is interpreted as asking students about their perception of safety about having a perimeter around the school is not a relevant question for school safety today, nor is it relevant to the factor of Target Hardening. This SRD provided mixed responses for Section Three (Safety Drills and Procedures). All the questions for both Sections A and B were scored not relevant except

for the items (**S3V1a_Knwldg**) “How safe do I feel if I know what to do during a safety drill?” (**S3V2a_TchrDmnr**) “How safe do I feel if my teacher is calm during a safety drill? (**S3V4a_Rules**) “How safe do I feel if other students follow the rules during a safety drill?” and (**S3V5a_KnwldgLk**) “How safe do I feel if I know how to lock the classroom door if needed, during a safety drill?” The remainder of the questions for Section Three A and B were scored with either a 3 – “agree” or 4 - “strongly agree” that they are relevant to schools today and relevant to the factor of Safety Drills and Procedures. The one SRD’s expert perception of relevancy for Section Four (Code of Student Conduct) was scored as 4 – “strongly agree” while Section Five (School Physical Disorder) was not relevant except for the item (**S5V4a_Clean**) “How safe do I feel if the outside of the school building looks clean?” which this one SRD expert scored as relevant. Section Six (Behavior Management) was also not relevant according to this one SRD participant, apart from one item (**S6V6a_ClsMan**) “How safe do I feel if the teacher could calm loud or disruptive students?” it was scored as a 4 – “strongly agree” that it is both relevant to schools today and relevant to the factor of Behavior Management. Section Seven (Heath/Hygiene) was scored with a one (1 = “strongly disagree”) for both A and B apart from one question (**S7V9b_Hand**) How safe do I feel if I went to the bathroom but forgot to wash my hands and now, we are going to eat lunch? This was scored with a three (3 = “agree”) relevant to the factor of Health/Hygiene but was not relevant to school safety. Section Eight (Student Pedestrian Safety) and Nine (School Bus Safety) were both scored with the strongest degree of relevance (4 – strongly agree) for both Sections A and B. The investigation of the SRD response led to the question: “What other factors this expert might include in school safety if he/she does not agree that the SPSS Scale is an appropriate measure for school safety?” The

results found that key topics reported from this one SRD should include: violence, bullying, peer victimization, weapons, firearms, contraband, threats against school, and threats against peers with no other suggestions than to include the sections that were purposely (required) excluded.

Omitted Variable Bias

RQ5: Are there relevant themes that emerge from the omitted topics of the SPSS Scale among school safety personnel classifications?

There were 54 participants, (42.2% of the total school safety personnel population for the county of interest): SRDs (n = 31) who make up 57.4% of this section of the study and 83.8% of the total SRD population; SROs (n = 12) who make up 22.2% of this section of the study and 36.4% of the total SRO population; Guardians (n = 8) who make up 14.8% of this section of the study and 13.8% of the total Guardian/SSO population; the unidentified (n = 3) who make up 5.56% of this section of the study. Male (*n* = 38; 70.37%) and female (*n* = 14; 25.9%), and 3.7% (*n*= 2) chose not to disclose their gender. Most (83.3%) of the participants have children (*n* = 45) while only a small portion (16.7%) do not (*n* = 9). The length of employment showed a range from one year to 20 years (*M* = 11.7 years, *SD* = 6.984). This section's goal was to ascertain what the participants believed an appropriate scale would include to gauge school safety.

To identify themes among the school safety personnel (*n* = 54) for the SPSS Scale's future development, a qualitative analysis was carried out. The SRDs agreed (*n* = 26) that the most important factor of school safety is "threats against schools." A total aggregate consensus of 87.04% (*n* = 47) was reached by SRD (83.9%), SRO (83.3%), Guardians/SSO (100%), and the undefined group of school safety personnel (100%) (Table 67). There were

other recurring themes among the school safety personnel. The second-highest facet of school safety, "threats against individuals," was agreed upon by 85.19% (*n* = 46) of all the groups, followed by 83.33% (*n* = 45) who agreed bullying is important when measuring school safety for schools today (2023 – 2024). The recommendations are in align with past studies on school safety, however, the issues were not permitted for this current study. Other concerns outside of the list of issues provided were recommended as an open-ended response format at an individual level. Those recommendations are as follows: The SRD group - “How to stay clean at all times”; SRO group – “Vaping, internet sexting, cyber bullying, cyber stalking”; and the Guardians suggested – “Visible armed security personnel” and “kids interacting with wildlife.” These will be considered for future studies.

Table 67

Expert Perception: Omitted Variable Bias for the SPSS Scale for 5th Grade Students

Other Factors of School Safety	School Safety Personnel Classification				Total % per factor
	School Resource Deputies/SRD N=31	School Resource Officers/SRO N = 12	Guardians/ SSO N = 8	Undefined School Safety N = 3	N = 54
1 = Violence	25 (81.6%)	9 (75.0%)	7 (87.5%)	1 (33.3%)	42 (77.78%)
2 = Bullying	25 (81.6%)	**11 (91.7%)**	7 (87.5%)	2 (66.7%)	45 (83.33%)
3 = Peer victimization	14 (45.2%)	5 (41.7%)	7 (87.5%)	2 (66.7%)	28 (51.85%)
4 = Weapons	12 (74.2%)	10 (83.3%)	**8 (100%)**	2 (66.7%)	32 (59.26%)
5 = Firearms	22 (71.0%)	9 (75.0%)	5 (62.5%)	1 (33.3%)	37 (68.52%)
6 = Contraband	18 (58.1%)	8 (66.7%)	5 (62.5%)	1 (33.3%)	32 (59.26%)
7 = Threats against schools	**26 (83.9%)**	**10 (83.3%)**	**8 (100%)**	**3 (100%)**	**47 (87.04%)**
8 = Threats against individuals	25 (81.6%)	10 (83.3%)	**8 (100%)**	**3 (100%)**	46 (85.19%)
9 = Other	1 (3.2%)	1 (8.3%)	2 (25%)	0 (0.00%)	4 (7.41%)

Question on the Relevancy Assessment Survey (RAS): What other factors or topics (if any) should be included on this SPSS Scale for 5th grade elementary students? (Mark all that apply)

CHAPTER FIVE: DISCUSSION AND CONCLUSION

The increasing number of deaths at school triggered the start of research. Being safe and feeling safe are two distinct ideas. Nonetheless, after years of investigation, this researcher believes that feeling safe comes from learning how to be safe. Safety requires quick thinking and situational awareness, a cognitive process which can be enhanced through training. Today, school survival procedures are being taught through quarterly drills and controversial songs. School physical disorder (e.g., respect for school property) and behavior management issues are governed through classroom management and enforced by the student code of conduct. Health and hygiene, pedestrian safety, and school bus safety are discussed at the beginning of the year and children are reminded as they violate rules. Although learning and training are beyond the scope of this current study, it is important to understand this connection; repetitive training (Meir, Oron-Gilad, & Parmet, 2015; Schwebel, Combs, Rodriguez, Severson, & Sisiopiku, 2016) like the SRDs, SROs, and Guardians' active assailant training, combined with "behavioral norms marketing" (Morrongiello *et* al., 2019. p. 200) (e.g., Following the rules is cool – everyone does it attitude) can modify behavior and student perception of school safety. Recognizing these concepts helps to make sense of the rationale behind generating student's perception of school safety questions for scale development based on previous investigations, observations of school safety drills, and understanding law enforcement and Guardian training.

The main objective of this study was to refine the questions of the SPSS Scale to find relevant items and theoretical factors to investigate the differences in law enforcement perspectives found in the preliminary investigation. A series of tests and observations were

conducted over the course of three years. The preliminary study's goal was 1) to investigate relevant dimensions of the school safety domain and explore school safety procedures that are currently in use; 2) to formulate and organize questions that would be approved to gauge elementary school students' perceptions about school safety and start the elimination of irrelevant items to build an appropriate grade-level SPSS Scale for the primary analysis. The goal of the primary study was 3) to assess validity and reliability of expert's perceived school safety relevancy scores of the SPSS Scale's items and theoretical factors of school safety; and 4) to determine whether school guardians and law enforcement share the same concerns about school safety.

This study adds to the body of knowledge in measurement literature along with school safety and school climate research. One of the work's contributions to this field of study is the identification of a gap in the literature about the absence of a comprehensive self-report scale to measure primary students' perception of school safety. The other finding was the dearth of research on the relevance of school safety items from a law enforcement and school guardian standpoint.

This study addressed the creation and validation of the Student Perception of School Safety (SPSS) Scale through the Relevancy Assessment Survey (RAS). The field of school safety measurement is advanced by identifying pertinent factors and items through internal structure evidence, creating well-structured, age-appropriate school safety survey items, and discovering that target hardening items are rated as relevant to school safety by law enforcement (SRDs and SROs) and school safety guardians with no discernible differences between classifications. When thinking about target hardening measures within the schools,

the school board and law enforcement may find it helpful to know that the SRDs, SROs, and Guardians can be classified as one unit (a team).

The SPSS Scale was designed to measure student perception of safety, yet as we have learned, children's behavior is modified through repetition and individual learning, which could alter their perception of an event. This research is not a matter of changing students' minds or about altering their perception of safety. It is about finding relevant school safety items and factors to create a scale for future implementation to understand what elementary students believe to be safe or unsafe at school. The following discussions are regarding each dimension of school safety through the lens of experts in law enforcement and school guardians, starting with the preliminary analysis with teachers and officers.

Preliminary Study

Pre - RQ1: Will teachers and police officers show differences in school safety priorities when asked about the relevancy of the items to school safety on the SPSS Scale?

Preliminary assessment of the 163-item SPSS Scale was conducted with teachers (*n*=3) and law enforcement officers (*n* = 5) with expertise in school safety who assessed the items for relevance, language, and clarity. Q-Methodology allowed us to examine subjectivity in a systematic way. The eigenvalues of the coefficients indicated a better degree of consistency between the experts' responses about the applicability of the items for Teacher1, Teacher2, and Teacher 3 on the SPSS Scale. Together, the three components that were obtained account for almost 73% of the variations in the scores' variances. Although the sample size was small, the results showed that teachers and police officers have differing perspectives on the importance of school safety. In addition to belonging to two distinct groups and having different priorities from teachers, officers also differ from one another (Table 68). Although we

can see a difference and speculate which dimensions of safety the officers and teachers deemed relevant to school safety, we will not know where the differences lie among the officers or between the officers and teachers without conducting a follow-up study.

Table 68
Factor Structure of Teachers and Officers

Factor Structure (Correlations)			
	Factor1	**Factor2**	**Factor3**
Teacher1	**0.87449**	0.22484	0.19180
Teacher2	**0.83893**	0.25488	0.32537
Teacher3	**0.82402**	0.01081	0.41891
Officer1	0.17331	**0.95845**	-0.00931
Officer2	0.20876	**0.95798**	0.12558
Officer5	0.31102	-0.15975	**0.77830**
Officer4	0.12887	0.07368	**0.69430**
Officer3	0.48239	0.31870	**0.73612**

Pre – RQ2: What suggestions are made to retain or remove items?

The Q-Methodology supported the preliminary qualitative analysis for item removal based on experts' view of relevancy of school safety, which led to approximately 27% reduction of items. Teachers and officers were not the same to some degree; the qualitative study revealed that the former had concerns about the items' phrasing, including language and understandability, which helped with the construction of another version of the SPSS Scale. By consensus, the teachers recommended eliminating about half of the items found in the section on health and hygiene safety. There was no consensus of item removal from the officers' perspective. Suggestions were made that students should be asked questions regarding red drills separately from fire drills and that the question about whether students understand safety drill classroom protocols should be more explicit. All the officers and teachers agreed to keep 59 items (35.2%) of the 163-item on the scale. Additional items were chosen to remain

on the scale based on participant suggestions and relevance from prior studies. Expert judgments were compared with recommendations found in research to warrant the relevance of the items. This preliminary analysis prepared the items for a primary analysis using the SPSS Scale. The differences found among the officers and between the teachers and officers prompted the primary investigation of those who stand guard on school campuses - law enforcement and Guardians.

Primary Study

A Relevancy Assessment Survey (RAS) was employed to work as the tool to collect expert ratings from school safety personnel (law enforcement and school guardians). To examine patterns of the expert ratings regarding the SPSS Scale, these relevancy score data were examined using two questions for each of the 79 items on the SPSS Scale:

(A) This item is relevant to school safety for our schools today (2023-2024).

(B) This item is relevant to the (*insert factor name*) factor of school safety.

Based on the variations discovered in the preliminary research, law enforcement and school guardians were the focus of this primary study. The purpose of this study was to examine those differences found in the preliminary study in more detail and determine whether they would persist with a greater number of participants. Additionally, this study aimed to develop a scale that would incorporate relevant school safety issues rather than extraneous items unrelated to school safety, found in past studies.

It is the responsibility of school safety personnel to be aware of how their school's entrances and exits are laid out and to be ready for any situation. There were essentially three classifications of school safety personnel utilized in this analysis: School Resource Deputies

(SRDs) who work for the county Sheriff's office; School Resource Officers (SROs) who are employed by nine municipalities; and Guardians, or Safe School Officers (SSOs) employed by the school district. To add to the differences that the preliminary study produced, there are in fact differences between the SRO, SRD, and Guardians' backgrounds and differences in their training. The SRDs and SROs are trained together at schools during the year on teacher workdays and at the schools during the summer break. The training includes: FDLE solo response to active shooter, tactical emergency casualty care (Stop the Bleed), and moving to contact. The SRDs and SROs are required to attend a school resource basic training, a 40-hour course. Whereas the Guardians must pass a qualification, then they have quarterly training courses, single response training (a two-day course), and simulation training. The guardians are placed through an intense 144 hours of active assailant and school safety training operated by the county Sheriff's Office. Further, there are essentially two guardian units: 1. Uniformed Guardians, and 2. Administrative Guardians. Uniformed Guardians are paid, open-carry (the gun is visible) safety officers, while the Administrative Guardians are concealed-carry (guns are hidden) volunteers and are school administrators (principals, vice principals, school counselors) or custodial personnel. A small portion of Administrative Guardians are not assigned to a school, per se, they are located within the building of the county school board. This small group act as substitutes for the guardians, much like a substitute teacher for the school system. The guardians (both uniformed and administrative) have a diverse background: while some have been in the field of education for years, others are ex-military, ex-law enforcement, retired fire fighters, retired FBI, while others do not have any prior law enforcement training or experience in an educational setting.

Normally, one would discuss attrition rate at the end of a study, but for this analysis, it is important to learn that each of the nine sections of the scale had different sample sizes. The SPSS Scale consisted of nine sections, which could have contributed to the attrition rate when you consider item fatigue (Hess et al., 2012). However, the time to complete the survey was estimated at 30 minutes and of those who began the survey (53.9%) and were still involved by the end of the survey (42.2%), it took them between 25 and 35 minutes, which is not an unreasonable time. Therefore, this researcher might conclude that boredom (Hess et al., 2012) may have played a part in the participant attrition rate. The questions were repetitive asking if the items were relevant to school safety and to the factor of school safety. As the participants got deeper into the study, they chose to drop out of the study, with most participants in the Guardian/SSO classification with an attrition rate of 46.7%. The overall attrition rate was roughly 21.7%. The School Resource Deputy (SRD) classification exhibited the lowest attrition rate (8.8%).

Although, this study retained a high percentage of the total population within the county of interest (42.2%), due to the varying attrition rates between the job classification groups, differential attrition came to mind; this is when attrition rates vary amongst groups. There is a difference in the traits of participants who discontinued and those who continued (46.7% attrition among Guardian/SSO and only 8.8% attrition among the SRDs) which could skew the results. However, the results concluded that there was no statistically significant difference between groups, therefore differential attrition was not an issue.

RQ1: To what degree do expert ratings of item relevance reflect a common viewpoint regarding school safety?

Using a 4-point Likert-type scale from 1 “strongly disagree” to 4 “strongly agree” for each item on the79-item SPSS Scale to answer the questions:

Section (A) – “This item is relevant to school safety for our schools today (2023-2024).”

Section (B) – “This item is relevant to the (insert factor) of school safety.”

The goal was to find a pattern among the expert rating scores on item relevance to school safety and item relevance to the item’s theoretically assigned area of school safety. To investigate the relevance scores among the expert evaluations, a principal component analysis (PCA) was conducted; this procedure was carried out for each dimension of school safety that this study addresses, apart from Section One: Locations at School – it only had two questions. This dimensionality reduction technique is used to sort the items while simultaneously minimizing the loss of information to narrow down overlapping observed variables to a handful of components. As a “rule of thumb”, the percentage of variance explained should be > 60%. There were no more than three components in a section of measured variables. In total for the SPSS Scale, the variance explained ranged from 70.49% to 88.41%. which indicates that the principal components explain a large amount of variability in the items. There were four “A” sections (Four, Six, Seven, and Eight), that appeared to have a good fit and produced one component, and four “B” sections (Four, Six, Seven, and Eight). This was the ideal outcome, to have one component per section: rotation was not possible with only one component. This is interpreted as having strong expert rating relevant value correlations between the questions on the scale. For the (A) sections, the variance explained ranged from 73.26% (Section Eight (A) Student Pedestrian Safety) to 84.01% (Section Seven (A) Health/Hygiene). The (B) sections

produced lower scores, from 70.49% (Section Eight (B) Student Pedestrian Safety) to 82.86% (Section Seven (B) Health/Hygiene) which indicates that the components explain a large amount of variability of the items. It is interesting to find that the lowest variance for both (A) and (B) was for Section Eight – Student Pedestrian Safety which had strong eigenvalues of 8.7907 (A) and 8.4587 (B). The greatest variance for both (A) and (B) was for Section Seven – Health/Heigen (Table 69). Which we will discuss in more depth in the following section. The remaining four sections are grouped with more than one principal component.

Table 69
Four Sections with a One Principal Component

Section	# of Items	Eigenvalue	% of Variance
Section Four (A) Code of Student Conduct	4	3.0624	75.65%
Section Four (B) Code of Student Conduct	4	2.9428	73.57%
Section Six (A) Behavior Management	7	5.5239	78.91%
Section Six (B) Behavior Management	7	5.5991	79.99%
Section Seven (A) Health/Hygiene	10	8.4013	84.01%
Section Seven (B) Health/Hygiene	10	8.2854	82.85%
Section Eight (A) Student Pedestrian Safety	12	8.7907	73.26%
Section Eight (B) Student Pedestrian Safety	12	8.4587	70.49%

There were four "A" sections (Four, Six, Seven, and Eight) and four "B" sections (Four, Six, Seven, and Eight) that produced one component. This was the ideal outcome, to have one component per section: rotation was not possible with only one component.

Target Hardening

Target Hardening Section Two (A) had a clear two-factor pattern. Eight of the items grouped on Factor 1 and the other two items grouped on Factor 2: "manually locked doors" and "student's presence as hall monitors." These two questions do not make clear logical sense. However, we must remind ourselves that the question being asked is whether the items are relevant for schools today. Through the lens of school safety experts, these two items are grouped differently than the other eight. Section Two (B) did not have a clear pattern. Variable (**S2V8b_StdntID**) (F1 = 0.57715 and F2 =0.50871) was regarding student identification and was asked if this question is appropriately placed within the correct factor (Target Hardening).

Kitsantas, et al., (2004) found when conducting an exploratory factor analysis that “school locks” and “metal detectors” did not load on their EFA for target hardening. For this reason, this study did not include metal detectors, but did include locked doors, both manual and automatic. For this study, the expert ratings of relevancy of locked doors grouped differently: automatic doors in Factor 1 and manual doors in Factor2. Student identification may need to be moved to another section of the SPSS Scale or further investigated.

Safety Drills and Procedures

The most common school safe practice and procedures are red alerts, fire drills, and locked doors (Crepeau-Hobson, Filaccio, & Gottfried, 2005). The items with locked doors were in the Target Hardening section because they satisfied both criteria in earlier research, and as they were thought to be considered "hardening" of the school perimeter, it made sense to include those items in Target Hardening. To further support my decision to place the locked door items in the Target Hardening area, locked doors were chosen in accordance with the Cybersecurity and Infrastructure Security Agency's (2022) recommendations for layered school security.

Suggestions from the preliminary study were to include knowledge of classroom procedures and have questions about red drills separate from fire drills. However, the psychological risk assessment for this study advised to not identify procedures that involve active shooters, which includes language/words resembling “shooter,” “red drills,” “weapons,” “guns,” etc. therefore this study, if proceeding with crisis drills, was to omit these words and carefully construct the questions by combining the drills and not truly having a distinction between red alerts (active shooter) or fire drills.

Safety Drills and Procedures Section Three (A) and (B) had a similar two-component pattern for ten items. Both section (A) and section (B) were grouped with five of the ten variables for the first component, although they were not in the same order. The expert ratings of the items found that “students playing during a drill”, “alone in the bathroom during a drill”, “walking in the hall with others during a drill”, “walking alone in the hallway during a drill”, and “other students talking during a drill”, were grouped together in Factor 1. Four of the ten variables loaded on the second factor for section (A) and section (B) alike, which included whether the “teacher was calm during a drill”, “students knowing how to lock the classroom door during a drill”, “general sense of knowing what to do during a safety drill” and “following the rules”. This suggests that the expert rating of relevancy grouped the items in a theoretically understandable manner. However, the variable about students hiding (How safe do I feel if I am hiding behind a desk or under a table during a safety drill?), did not clearly group on either component within either section (A) or (B) suggesting that variable (**S3V6a_StdntHd**) and (**S3V6b_StdntHd**) (F1= 0.55560, F2 = 0.46086) should be further investigated before removing it from the SPSS Scale.

School Physical Disorder

School Physical disorder is a result of vandalism and destruction of school property and is one of the issues that contributes to a decrease in perception of school safety (Plank, Bradshaw, & Young, 2009). Past studies on school physical disorder items included cleanliness of different locations at school and of the school building, like broken school property and vandalism such as graffiti. Although Plank, Bradshaw, and Young, (2009) investigated the

association between two variables (social disorder and physical disorder) their questions were formed by a school district and therefore were used as a foundation for this current study.

School Physical Disorder Section Five (A) had two components with expert ratings of the seven items. Factor 1 loaded with four of the seven items (**S5V5a_Dirt, S5V3a_Trsh, S5V1a_GrfftIn,** and **S5V6a_Brkn**). However, there is not a clear theoretical pattern. Logic might suggest that the inside and the outside of the building would make up the two groups, but this is not the case. Variable (**S5V5a_Dirt**) "How safe do I feel if the outside of the school building looks dirty with mold or dirt?" and variable (**S5V4a_Clean**) "How safe do I feel if the outside of the school building looks clean?" loaded on two different components. Keep in mind for this study, the items are judged on relevance to school safety by experts. This pattern is tired to the degree of relevancy to school. Also, there is not a clear factor pattern for the variables in Section (B) when asked if the items are placed in the correct factor of school safety. Factor 1 loaded with (**S5V6b_Brkn, S5V7b_DmPrmtr, S5V1b_GrfftIn,** and **S5V2b_GrfftO**) which covers content of broken school property, damaged school perimeter, and graffiti inside the school and outside the school. Factor two loaded with two variables (**S5V4b_Clean** and **S5V3b_Trsh**) school cleanliness and trash on the property. However, the variable (**S5V5b_Dirt**) (F1= 0.67023, F2 = 65282) in section two, did not clearly load on either factor suggesting that the variable might not belong in the School Physical Disorder section and further investigation is needed before it is dropped from the SPSS Scale.

School Bus Safety

The items for this section of the current study were derived from school bus safety research (Abulhassan, et al., 2016; Davis & Abulhassan, 2021; Elias, Sullivan, & Mc Cray, 2001;

Federal Aviation Administration (FFA); Matolcsy, 2009). Eight tips from the Florida Highway Safety and Motor Vehicles (FHSMV) were used for item content along with Allen, Hardin, and Henderson's (2006) research of the bus drivers' perception on problematic issue, such as: students' misbehavior, distractions, children making too much noise, getting out of the seat while the bus is moving, arguing, vandalism, and opening the emergency door. Federal Aviation Administration (FFA) reported that young children may not make it out of the bus alive under certain emergency conditions, which is why this current study constructed items to ask school safety experts about the relevancy of items on bus emergency conditions.

Section Nine School Bus Safety (A) grouped with two components for seventeen items but did not provide a clear theoretical grouping. The variable (**S9V14a_Info**) loaded across the components (Factor 1 = 0.60843 and Factor 2 = 0.60486). Section Nine (A) Factor 1 had the largest portion of the items (**S9V15a_Strangr, S9V13a_Curb, S9V12a_Urgncy, S9V3a_Move, S9V16a_DisBus, S9V4a_Train, S9V8a_Thrw, S9V10a_Wndw, S9V9a_EmExit, S9V17a_Exit, S9V11a_UngrdB**), they appear to be related to injury or urgency. Factor 2 for section (A) loaded with five items (**S9V5a_Alone, S9V1a_Rule, S9V7a_Seat, S9V6a_Grade, S9V2a_Seatblt**). Section Nine (B) there were three factor patterns. The same eleven variables loaded on Factor 1 related to injury or urgency. Factor 2 loaded with four variables (**S9V7b_Seat, S9V6b_Grade, S9V5b_Alone, S9V14b_Info**) which appear to be related to emotional safety, and for section (B), factor three loaded with two variables (**S9V2b_Seatblt** and **S9V1b_Rule**) which appear to be related to school bus rules or enforcement. Section (B) had a clearer picture of the school safety expert ratings to evaluate the relevancy of the items.

Summary

At this point, you may be questioning why the latent variables are not labeled. This was a principal component analysis (PCA) to examine consistency among the expert ratings. The principal component analyses models provided evidence that the Relevancy Assessment Survey (RAS) for the Student Perception of School Safety (SPSS) Scale for: Code of Student Conduct Section Four (A) and (B); Behavior Management Section Six (A) and (B); Health/Hygiene Section Seven(A) and (B); Pedestrian Safety Section Eight (A) and (B) produced a clear pattern with a one component in each section; this was the ideal outcome. This could be interpreted as the items are rated by the experts in a similar manner on the relevancy survey. Additionally, Target Hardening Section Two (A); School Physical Disorder Section Five (A); and School Bus Safety Section Nine (B) resulted in a clear pattern for school safety expert's judgments on relevance of items and items to factors (Table 70).

Table 70
Summary of Principal Components for Sections Two - Nine

Title	Section	% of variation	# of Items	# of Factors	Clear Pattern?
Target Hardening	Section Two (A)	73.43%	10	Two	Yes
	Section Two (B)	72.88%	10	Two	No
Safety Drill and Procedures	Section Three (A)	75.4%	10	Two	No
	Section Three (B)	76.91%	10	Two	No
Code of Student Conduct	Section Four(A)	75.65%	4	One	No rotation
	Section Four(B)	73.57%	4	One	No rotation
School Physical Disorder	Section Five(A)	82.35%	7	Two	Yes
	Section Five(B)	88.41%	7	Two	No
Behavior Management	Section Six (A)	78.91%	7	One	No rotation
	Section Six (B)	79.99%	7	One	No rotation
Health/Hygiene	Section Seven(A)	84.01%	10	One	No rotation
	Section Seven(B)	82.85%	10	One	No rotation
Pedestrian Safety	Section Eight (A)	73.26%	12	One	No rotation
	Section Eight (B)	70.49%	12	One	No rotation
School Bus Safety	Section Nine (A)	79.20%	17	Two	No
	Section Nine (B)	80.92%	17	Three	Yes

Reliability

RQ2: Do the expert ratings of school safety relevance scores regarding the SPSS Scale demonstrate adequate reliability?

A measure's degree of consistency is known as its reliability. When a test yields the same result every time under the same circumstances, it is considered dependable/reliable. The degree to which distinct elements of the same feature or concept are measured by different items in an instrument is known as internal consistency (Cronbach, 1951). Cronbach describes validation as a process by which the researcher collects inferential evidence (Crocker & Algina, 2008). A scale cannot be considered valid unless it possesses strong reliability, except for content validity and internal consistency reliability, they are not related. The scale's variables have a higher level of internal consistency the closer the Cronbach's alpha reliability coefficient is to 1.0. The Cronbach's Alpha test allows for multi-level replies. For instance, the safety experts were asked to score their answers on a scale of one to four after answering each question. A Cronbach's Alpha score of 0.7 is typically seen as indicative of satisfactory dependability. When the number of variables is held constant, the Cronbach's alpha coefficient rises either as the average inter-item correlations rise or with the increase of number of items (Crocker & Algina, 2008). The SPSS Scale was not measured with 79 items 2x. The items were separated into sections ranging from two items in Section One (twice) to seventeen items in Section Nine (twice). The expert ratings of internal consistency were measured through reliability analysis with Cronbach's alpha ($\alpha > .70$) (Nunnally & Bernstien, 1996) and Pearson correlations ($r > .30$). The experts rated each student item on the SPSS Scale using the Relevancy Assessment Survey (RAS), which has a two-part question. The first question measures the item relevancy to schools today, and the second question measures relevancy of

the items to the theoretically assigned areas of school safety. School safety personnel (experts) were asked to rate the statements: (A) “This item is relevant to school safety for our schools today (2023-2024)” and (B) “This item is relevant to the (insert factor) factor of school safety” using a 4-point Likert-type scale from 1 strongly disagree to 4 strongly agree. Within the nine sections and for both questions, the standard deviations were smaller than the respective mean values, however, there were some standard deviations in the expert responses which stood out as larger than the others within the section. The expert ratings obtained through the RAS were observed to be very reliable in each section (Table 71), with a reliability coefficient > 0.70. as illustrated in Table 71.

Table 71
SPSS Scale Internal Consistency Sections Two through Nine

Section	*n*	# of Items	# of Factors Retained	Eigenvalue(s)	% of Variance >60%	Cronbach’s Alpha ($\alpha > .70$)
Section 2 (A) Target Hardening	64	10	Two	6.27; 1.07	73.43%	.920
Section 2 (B) Target Hardening	64	10	Two	6.26; 1.02	72.88%	.920
Section 3 (A) Safety Drill and Procedures	62	10	Two	5.64; 1.89	75.4%	.912
Section 3 (B) Safety Drill and Procedures	62	10	Two	5.63; 2.05	76.91%	.911
Section 4 (A) Code of Student Conduct	59	4	One	3.06	75.65%	.895
Section 4 (B) Code of Student Conduct	59	4	One	2.94	73.57%	.879
Section 5 (A) School Physical Disorder	57	7	Two	4.54; 1.21	82.35%	.907
Section 5 (B) School Physical Disorder	57	7	Two	5.14; 1.04	88.41%	.937
Section 6 (A) Behavior Management	56	7	One	5.52	78.91%	.954
Section 6 (B) Behavior Management	56	7	One	5.59	79.99%	.957
Section 7 (A) Health/Hygiene	55	10	One	8.40	84.01%	.978
Section 7 (B) Health/Hygiene	55	10	One	8.28	82.85%	.976
Section 8 (A) Student Pedestrian Safety	55	12	One	8.79	73.26%	.963
Section 8 (B) Student Pedestrian Safety	55	12	One	8.45	70.49%	.960
Section 9 (A) School Bus Safety	54	17	Two	12.28; 1.17	79.20%	.975
Section 9 (B) School Bus Safety	54	17	Three	10.73; 1.69; 1.32	80.92%	.962

For this current study, experts are evaluating the SPSS Scale items based on whether they perceive the items are relevant to school safety or the theoretical dimension of school safety. As a result, if an item is not using the entire scale, it indicates that experts strongly

agree or strongly disagree that the item is relevant. The response scale has four (4) points; the midway between the scale is two point five (2.5). Therefore, if the mean values are equal to or below the midway point, the item, according to these parameters, is not relevant to school safety or to the theoretical area of school safety and should be removed. With the mean values (*M*), are standard deviations (*SD*) and reflect the differences in experts' responses to the items – zero values indicate identical responses (Coaley, 2010). In other words, the disagreement (to some degree) of the experts' view of relevant items is shown by the standard deviation.

Within four different sections of the SPSS Scale, 14 items were rated by the safety experts as "not relevant" to schools today. Interestingly, the entire Section Seven (A) Health/Hygiene was judged to be irrelevant to school safety like the in the preliminary study; the teachers had deemed nearly half of the items as "not relevant." Three questions from Section Seven (B) Health/Hygiene were rated as "not relevant" to the Health/Hygiene factor of school safety.

Differences Between Experts for Section Two (A - KW) Target Hardening

RQ3: Is there a difference among school safety personnel classifications when enquiring about target hardening item relevance to school safety, addressed on the SPSS Scale?

The null hypothesis (H0): There is no difference in perceived relevance among school safety personnel classifications regarding target hardening items.

The alternative hypothesis (H1): There is a difference in perceived relevance among school safety personnel classifications regarding target hardening items.

There are many studies investing school safety perceptions of target hardening methods, most are from the perspective of principals, staff, and teachers. When students are

involved, they are most always in higher grades (> 6th grade). One example used survey research to investigate security measures of students (6th - 8th grade) and principals. The results concluded that school resource officers (SROs) produce a positive effect on students' feelings of safety at schools (McDevitt & Panniello, 2005; May, Fessel, & Means, 2004) and that having police and security officers on campus increases students' feelings of safety (Brown, 2006). Although the principals of the schools stated that they felt comfortable (24.3%), they believed that the presence of SROs made the school seem unsafe (14.9%) (May, Fessel, & Means, 2004). For this study, and to address RQ3, the concept was flipped to investigate how the school safety personnel (SRDs, SROs, and Guardians/SSOs) judge relevance of target hardening measures.

The purpose of this section was to determine if there is a difference among school safety personnel classifications (SRD, SRO, and Guardians) regarding Target Hardening items using the Relevancy Assessment Survey (RAS). This study used the Target Hardening data from Section Two since it included 64 participants, or 50.0% of the county's population (see Target Hardening for participant demographics).

A composite score was created for Target Hardening by averaging all the items in Section Two (A). Target hardening was compared across the school safety personnel. The statistical assumptions were tested for the ANOVA. Levene's test for homogeneity of variances was not statistically significant F (3,60) = 0.118, p = 0. 949.Therefore the group variances were equal. Normality was tested with the Shapiro-Wilk Test. The SRD classification was statistically significant SW (33) = 0.845, $p < 0.001$. Therefore, the assumption of normality was violated. The distributions of target hardening for the other three groups (SRO, SSO, undefined) were

not significantly different from normal. Since the assumptions of the ANOVA were not met, a Kruskal Wallis was used to compare groups. Mean ranks of the school safety relevancy scores increased from undefined (29.17), to Guardian/SSO (30.92), to SRO (31.33), to SRD (33.95) for school safety personnel classification groups (Table 20), they were not statistically significant χ^2 (3) = 0.454, p = 0.929. This is interpreted as there are no differences in the school safety personnel groups.

The next step was to look at the items one-by-one utilizing the Kruskal-Wallis H test (non-parametric test) to see if there were differences in the expert ratings of item relevance. This was only completed for the Target Hardening section. There is insufficient evidence to reject the null hypothesis (H0). This indicates that when reporting the relevance scores for the target hardening items, the school safety personnel agree and/or disagree as one unit.

Discussion: Differences Between Experts for Section Two (A – KW) Target Hardening

The school safety personnels' responses were thoroughly examined through mean ranks. Even though the length of employment ranges from one year to 20 years (*M* = 11yrs), and there is variation of gender and parenthood, there are no differences. This contributes to school safety research by offer findings that differences do not exist between School Resource Deputies (SRD), School Resource Officers (SRO), and Guardians/(SSO) when determining item relevance for school safety research for the Target Hardening dimension; They are a team of school safety experts protecting the students and school personnel from possible threats.

Suitability

RQ4: Is there a difference among school safety personnel classifications when enquiring about the suitability of the SPSS Scale regarding school safety?

The descriptive statistics are the same as Section Nine, School Bus Safety.

Table 72
School Safety Personnel Classification for Suitability of the SPSS Scale

Group	*n*	% of population	% for Study
SRD	31	83.8%	57.4%
SRO	12	36.4%	22.2%
Guardians/SSO	8	13.8%	14.8%
Undefined	3	N/A	5.6%

The purpose of this analysis was to determine the suitability of the SPSS Scale to measure student perception of safety and to determine if there are differences in the school safety personnel's perception of suitability. A Kruskal-Wallis H test was used to determine if there were differences in the experts' ratings. An inspection of the boxplot suggested that the suitability scores for the SPSS Scale were not similar in all school safety classification groups. The Guardian/SSO ranked the suitability scores the highest, with the lowest scores from the SROs. This means that the Guardian/SSO group found the SPSS Scale more suitable as a measure of school safety than the SROs but not enough to demonstrate a significant difference. After further investigation, one School Resource Deputy (SRD) was discovered who "strongly disagreed" that the content of the SPSS Scale is a suitable measure for student's perception of school safety. A qualitative investigation followed to further understand this response. There were some sections of the SPSS Scale that, by this one participant, that were considered irrelevant to school safety, Locations at School, School Physical Disorder, Behavior Management, and Health/Hygiene were three of the leading contributors for this response. While Section Eight (Student Pedestrian Safety) and Nine (School Bus Safety) were both valued

with the strongest level of agreeance of relevance for both sections A and B. It was clear from examining at the SRD's response that the expert did not believe the scale was a good indicator for school safety. This begs the question: what other elements might they consider? The findings showed that this SRD felt it important to include certain subjects: weapons, firearms, contraband, bullying, peer victimization, violence, and threats against peers and schools—all of which were not allowed in this study. The mean ranks are, nevertheless, generally rather high. In conclusion, there are no differences in the school safety personnel classification groups when rating the suitability of the scale to measure students' perception of safety, but whether the scale is a suitable measure of school safety, is undecided.

Omitted Variable Bias

RQ5: Are there relevant themes that emerge from the omitted topics of the SPSS Scale among school safety personnel classifications?

National and school-related violence and deaths are discussed at the start of the literature review to argue in favor of the need for safety measures at school. Although the topics of violence, bullying, victimization, weapons, contraband, and threats are often used as variables of school safety and school climate, after a psychological review, these variables were removed from the SPSS Scale. The scale was not permitted to address these topics or any other violence-related behavior that could cause unintentional emotional distress. Additionally, contrary to the preliminary study's findings, during the IRB's psychological review, it was advised that the terms "active shooter", "active intruder" or "red drills", are not permitted on the SPSS Scale when delivered to students. Therefore, the term "safety drill" was created to act in place of those terms. The term "dangerous places at school" is used within the school safety literature, but the word "dangerous" had to be removed; the section was

changed to read “locations at school.” Other forbidden terms were: “pedestrian,” “target hardening”, or any word that could inflict distress to students. The final approved titles for the SPSS Scale were eventually removed to acquire approval for this study. However, the titles were approved and included in the RAS for the experts to judge items to factor relevance.

To identify themes among the school safety personnel (*n* = 54) for the SPSS Scale's future development, qualitative analyses were carried out. The SRDs agreed that the most important factor in school safety is "threats against schools." A total aggregate consensus of 87.04% (*n* = 47) was reached. There were other themes among the school safety personnel; like "threats against individuals”, and “bullying”. Other concerns outside of the list of issues provided were recommended as an open-ended response format at an individual level: SRD - “How to stay clean at all times”; SRO – “Vaping, internet sexting, cyber bullying, cyber stalking”; and the Guardians suggested – “Visible armed security personnel” and “kids interacting with wildlife.” The ladder made me smile, it had not crossed my mind, nor had I read about this in research as wildlife being included as a dimension of school safety. However, I believe that in some rural school districts this might be relevant, and it should be addressed. Wildlife could be included in the pedestrian safety section, walking to schools in a rural area.

Considering the university's desire to have certain components removed from the SPSS Scale, the expert opinion on relevant school safety matters should include those sections that were eliminated (Figure 19). The column on the left illustrates the original factors of school safety found in research. The middle shows which sections were removed or with title changes. The last column on the right illustrates the nine factors that the experts reviewed for this study.

Figure 19: Dimensions of school safety removed from the SPSS Scale for university approval From left to right: Original SPSS Scale factors; Factor removal or modification; Factors evaluated for this current study.

General Conclusion

This study addresses four of the eight categories of validity evidence of Messick (1995).

1. Content evidence: A table of specifications (Blueprint) was used as an organizer to gauge importance of dimensions (number of items) to operationally define "school safety." Content representativeness is the degree to which items represent a sample of the larger domain. This was addressed through teachers and officer judgments and then law enforcement and school Guardians' judgments of the items, factors, and suitability of the scale. Content relevance was addressed by ensuring that the items are included in the domain (school safety) definition.
2. Substantive evidence: Concerns judging what kinds of thinking processes and skills students must use to complete the items successfully (Crocker & Algina, 2008). A literature review of child cognition and proper response format for children was used as well as the Flesh-Kinkaid Readability Formula.
3. Internal structure evidence was investigated through a principal component analysis.

4. Reliability evidence is the consistency of the results and was reported through Cronbach's alpha.

This study was a systematic examination of the SPSS Scale's content to determine whether it covers a representative sample of the school safety domain to be measured and to ensure that the SPSS Scale does not contain irrelevant items. While there was one question asking the suitability of the scale (face validity), this study focused on content validity regarding a well-defined domain, school safety. Qualified experts in the field of school safety (law enforcement and school guardians) were given a structured survey to rate each item on the SPSS Scale on a level of relevancy and to determine relevancy to the theoretical dimension in which the item was placed.

Construct validity is the extent to which a scale measures a theoretical construct (Crocker & Algina, 2008). A principal component analysis was conducted in each section separately. The SPSS items through the RAS items were evaluated for relevance. The structure correlation was interpreted as level of relevance to school safety and relevance to the theoretical factor of school safety to determine item removal or item shift (moving the item to another dimension of school safety for a better "fit").

Recalling the results of the preliminary analysis, Factor 3 was correlated with Factor 1 (r =.36). This means that Officer5, Officer4, and Officer3 rate the item relevancy on the SPSS Scale like Teacher1, Teacher2, while there were differences between the officer groups. Learning that a portion of the Guardians have a background like teachers and the law enforcement have training with FBI, I predicted differences in the groups measured item relevancy in the primary study.

For the primary analysis, three completely different groups were employed. Some of the guardians may have been principals or other school administrators; others may have been former FBI agents or members of the military; still others may not have had any prior experience with firearms or in educational environments. Subsequently, there are city police officers who serve as SROs in schools and have some training in common with SRDs. The SRDs are just one level below SWOT; the Sheriff's deputies have had extensive training in school threats.

While there are differences in background and training, the results of the Kruskal-Wallis H tests show that there are no statistically significant differences between the safety experts' ratings at the beginning of the SPSS Scale's Target Hardening questions, nor are there any statistically significant differences between the experts' ratings at the end of the SPSS Scale's regarding the suitability question. Therefore, when interpreting the principal component analysis data, one might conclude that their agreement in the expert's ratings. If the expert assessments were inconsistent, the factor patterns' conclusion might not have been as obvious.

Within four different sections of the SPSS Scale, 14 items were rated by the safety experts as "not relevant" to schools today. Interestingly, the entire Section Seven (A) Health/Hygiene was judged to be irrelevant to school safety. In the preliminary study, the teachers had deemed nearly half of the Health and Hygiene items as "not relevant." Relevant ratings would indeed be low if the safety issues are outside the scope of law enforcement and Guardians; school safety is larger than what they have reported. Since school safety is a broad

topic, one might conclude that school nurses may have a different perspective of the Health/Hygiene dimension of school safety.

The number one topic that was suggested by the safety experts to improve the suitability of the SPSS Scale to measure elementary students' perception of school safety was "threats against schools". The second most important topic was "threats against individuals" followed by "bullying" (Table 73). Although the topics of violence, bullying, victimization, weapons, contraband, and threats are often used as variables of school safety and school climate research, after a psychological review by the university IRB, these variables were removed from the SPSS Scale The scale was not permitted to address these topics with children or any other violence-related behavior that could cause unintentional emotional distress.

Table 73
Topics of School Safety Suggested by Law Enforcement and Guardians

Other Factors of School Safety	School Safety Personnel Classification				
	School Resource Deputies/SRD N=31	School Resource Officers/SRO N = 12	Guardians/ SSO N = 8	Undefined School Safety N = 3	Total % per factor N = 54
1 = Violence	25 (81.6%)	9 (75.0%)	7 (87.5%)	1 (33.3%)	42 (77.78%)
2 = Bullying	25 (81.6%)	**11 (91.7%)**	7 (87.5%)	2 (66.7%)	**45 (83.33%)**
3 = Peer victimization	14 (45.2%)	5 (41.7%)	7 (87.5%)	2 (66.7%)	28 (51.85%)
4 = Weapons	12 (74.2%)	10 (83.3%)	**8 (100%)**	2 (66.7%)	32 (59.26%)
5 = Firearms	22 (71.0%)	9 (75.0%)	5 (62.5%)	1 (33.3%)	37 (68.52%)
6 = Contraband	18 (58.1%)	8 (66.7%)	5 (62.5%)	1 (33.3%)	32 (59.26%)
7 = Threats against schools	**26 (83.9%)**	**10 (83.3%)**	**8 (100%)**	**3 (100%)**	**47 (87.04%)**
8 = Threats against individuals	25 (81.6%)	10 (83.3%)	**8 (100%)**	**3 (100%)**	**46 (85.19%)**
9 = Other	1 (3.2%)	1 (8.3%)	2 (25%)	0 (0.00%)	4 (7.41%)

Question on the Relevancy Assessment Survey (RAS): What other factors or topics (if any) should be included on this SPSS Scale for 5th grade elementary students? (Mark all that apply)

The items regarding threats and bullying that were removed from the scale before this school safety expert panel could review and rate the SPSS Scale for relevancy are listed below

(Table 74). The items are developed based on previous research found in school safety and school climate literature.

Table 74
Draft Version of SPSS Scale Items Regarding Threats

#	**Threat question not used in the current study.**
	Threats Against Schools and Within Schools
	A written or spoken (future tense) statement to inflict harm or pain to a person or group of people, or to damage property to harm others. (Example: If I see you after school, I'm going to give you a black eye!)
1	**How safe do I feel if** I know how to report a threat made against the school or a student?
2	**How safe do I feel if** I know that I do not have to give my name when reporting a threat?
3	**How safe do I feel if** I report my friend because they made a threat?
4	**How safe do I feel if** I hear that a threat has been made against my school?
5	**How safe do I feel if** I hear that a threat has been made to hurt me?
6	**How safe do I feel if** I hear that a threat has been made to hurt a student I do not know?
7	**How safe do I feel if** I hear that a fake bomb threat will be made against the school as a joke?
8	**How safe do I feel if** I hear a student say, "*I'm so mad that I could shoot up the school!*"?

Table 75
Draft Version of SPSS Scale Items Regarding Bullying

#	**Bullying question not used in the current study.**
	Violence, Bullying and Peer Victimization
	Violence is an aggressive behavior such as battery, fighting, harassment, hazing, intimidation, or physical attacks. **Bullying** is **repeatedly (over and over)** teasing, hitting, hurting, threatening, name-calling, ignoring, and leaving someone out on purpose. **Peer victimization** is students hurting students
1	**How safe do I feel if** I am standing alone in front of my school building after school waiting on my ride to pick me up?
2	**How safe do I feel if** I go to an after-school event at my school?
3	**How safe do I feel if** I am alone in the bathroom at school and a group of students come in?
4	**How safe do I feel if** I am in the lunchroom, and I do not get to sit with my friends?
5	**How safe do I feel if** I am walking alone in the hall, and I must pass a group of students I do not know?

#	Bullying question not used in the current study.
6	**How safe do I feel if** I am alone on the school playground area or at recess?
7	**How safe do I feel if** a student hits or pushes me?
8	**How safe do I feel if** a student hits or pushes my friend?
9	**How safe do I feel if** I see a physical fight at school?
10	**How safe do I feel if** I am involved in a physical fight at school?
11	**How safe do I feel if** a student always makes fun or teases me at school?
12	**How safe do I feel if** a student always makes fun or teases my friend at school?
13	**How safe do I feel if** students talk about the way I look or talk about my disability I may have?
14	**How safe do I feel if** I am in the lunchroom, and I do not get to sit with my friends?

This study contributes to school safety research. Developing scale items to measure school safety has proved to be a challenging endeavor, and a risky one from a student's perception of completing a dissertation. From item development to scale structure to response format, all geared toward a vulnerable population on a sensitive topic. Precautions were taken to avoid psychological risk to students. To be sure, these precautions are warranted, however, students are reminded of active shooters on a regular basis through red drills conducted at school. Students are bullied every day, and topics that are deemed "too scary" are realities our young students must face. The point of contention here is: Why do we not gather information on how primary school students view these crucial aspects of school safety?

Childhood is when it is best to modify thinking, as in the case of Morrongiello *et* al., (2019) suggesting that the use of "behavioral norms marketing" could influence perception. To be clear, we do not want students to feel safe when they are not safe, that is considered a false sense of security, but rather to report their perception of safety.

How well a test evaluates every crucial aspect of the subject matter it is intended to measure is referred to as content validity. In other words, quality judgement (Vogt, 1993). This study contributes to school safety research: Relevant school safety items and relevant factors of current safety concerns were discovered. Additionally, this study found that there are no differences among law enforcement and Guardians regarding target hardening items and the suitability of the SPSS Scale. Further development of the SPSS Scale is possible. The SPSS Scale could be a tool to gather evidence of safety perception contributing to school safety research even further than this study has done. Once completed, this scale could guide administration to modify school safety procedures, and provide evidence to modify children's safe practices, then, regardless of the safety domain, it could reduce errors in safety procedures, and in the end, help find ways to promote a positive perception of school safety.

Limitations and Recommendation for Future Research

Construct validity is how well the scale represents the construct, in this instance, each domain of school safety. Construct validity is a journey; content validity if the first step towards construct validity before administering to the intended recipients (5th graders). This study assessed the relevance of items of school safety and items on theoretical safety factors through expert ratings.

To account for internal consistency reliability, the SPSS Scale was created with multiple items within each dimension (DeVellis, 2017; Goodhue & Loiacono, 2002). Although the participants' time spent completing the SPSS Scale was reasonable (25 to 35 minutes) and the survey allowed for the participants to leave the study and then later come back to where they left off, the scale was admittingly long; it consisted of nine sections with 79 items to read and

judge, and each of the 79 items had two questions to answer. There was warning about “item fatigue and boredom” (Hess et al., 2012), which could have contributed to a portion of the attrition rate. It is recommended for future research to separate the sections with individual online modules. As the participants complete each module a certificate would be made available to print as a reward so that the participants can feel a sense of accomplishment as they proceed through the sections of the SPSS Scale. Thus, addressing item fatigue and boredom (Hess et al., 2012).

A generalizability study was not conducted to determine if the results can travel beyond this sample. However, critical to the development of the SPSS Scale, almost one hundred percent (91.9%) of the School Resource Deputies (SRD) were represented for the county of interest, therefore I am confident in the representation. While the other groups were not as well represented, differences do not exist between the groups (School Resource Deputies (SRD), School Resource Officers (SRO), and Guardians/(SSO)) when determining item relevance for school safety research for the target hardening dimension.

The population that was assessed for this study did not require the use of desirability measures. However, the Children's Social Desirability Scale (CSD) (Crandall, Crandall, & Katkowsky, 1965) is advised for future use in conjunction with the SPSS Scale for children to prevent responses that might be intended to impress others. A short version of the Children’s Social Desirability Scale (S-CSD) with 14 questions (Miller et al., 2014) is preferred for younger children, this addresses the item fatigue issue mentioned earlier. There is enough data to move forward with the SPSS Scale development.

Next steps would be to revise the items and eliminate those with low mean scores and low correlations and recruit a larger sample within a larger population pool, possibly in the tri-county area. Future researchers could conduct a similar study with school nurses to measure the relevance of Health and Hygiene and teachers to address the Behavior Management sub scale of school safety. They may find the items more relevant to school safety than the law enforcement and Guardians as I believe that the subscales could be discipline specific.

APPENDIX A: IRB APPROVAL – VULERNABLE POPULATION

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

APPROVAL

April 21, 2023

Dear Diana Scott:

On 4/21/2023, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title:	Development and psychometric validation of the Student Perception of School Safety (SPSS) Scale
Investigator:	Diana Scott
IRB ID:	STUDY00005125
Funding:	None
Grant ID:	None
IND, IDE, or HDE:	None
Documents Reviewed:	• HR-251 by Sivo, Category: Faculty Research Approval; • Administrator Guidelines.docx, Category: Other; • Study 5125 SPSS Scale 4.19.2023 with full scale DDS.docx, Category: Survey / Questionnaire; • Study 5125, Assent, 4.19.2023 DDS.docx, Category: Other; • Study 5125, Children's Social Desirability (S-CSD) Scale, 4.16.2023 DDS.docx, Category: Survey / Questionnaire; • Study 5125, Consent, 4.19.2023 DDS.pdf, Category: Consent Form; • Study 5125, Email to Teachers, 4.19.2023 DDS.docx, Category: Recruitment Materials; • Study 5125, Protocol DDS_4.21.23.docx, Category: IRB Protocol; • Study 5125, Recruitment Reminders for Parents, 4.16.2023 DDS.docx, Category: Recruitment Materials; • Study 5125, Recruitment to Principals, 4.19.2023 DDS.docx, Category: Recruitment Materials

The IRB approved the protocol on 4/12/2023 to 4/11/2024.

In conducting this protocol, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB

Library within the IRB system. Guidance on submitting Modifications and a Continuing Review or Administrative Check-in is detailed in the manual. If continuing review is required and approval is not granted before the expiration date, approval of this protocol expires on that date.

Use of the stamped version of the consent form is required. To document consent, use the consent documents that were approved and stamped by the IRB. Go to the Documents tab to download them.

When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

IRB #2 Chair

APPENDIX B: IRB APPROVAL – LAW ENFORCEMENT

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

July 11, 2023

Dear Diana Scott:

On 7/11/2023, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study, Initial Study
Title:	Development and validation of the Student Perception of School Safety (SPSS) Scale: Item relevancy from law enforcement perspectives
Investigator:	Diana Scott
IRB ID:	STUDY00005711
Funding:	None
Grant ID:	None
Documents Reviewed:	• HRP-251 - FORM - Faculty Advisor Scientific-Scholarly Review Signed by SIVO.pdf, Category: Faculty Research Approval; • Invitation to Participate in Research.docx, Category: Recruitment Materials; • Relevancy Assessment Survey (RAS) for SPSS Scale_IRB approved.docx, Category: Survey / Questionnaire; • Study 5711, Consent_FORM254_7.11.2023_DDS.pdf, Category: Consent Form; • Study 5711, Protocol_FORM255_7.11.2023_DDS.docx, Category: IRB Protocol

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Jonathan Coker
Designated Reviewer

APPENDIX C: IRB APPROVAL MODIFICATIONS – GUARDIANS

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

October 10, 2023

Dear Diana Scott:

On 10/10/2023, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Modification / Update
Title:	Development and validation of the Student Perception of School Safety (SPSS) Scale: Item relevancy from law enforcement perspectives
Investigator:	Diana Scott
IRB ID:	MOD00004705
Funding:	None
Documents Reviewed:	• Invitation to Participate in Research_10.5.2023.docx, Category: Recruitment Materials; • IRB Scott 4705 Relevancy Assessment Survey (RAS) for SPSS Scale 10.9.23.docx, Category: Survey / Questionnaire; • Study 5711, Consent_FORM254_10.5.2023_DDS.pdf, Category: Consent Form; • Study 5711, Protocol_FORM255_10.5.2023_DDS.docx, Category: IRB Protocol;

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in is detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Kamille C. Birkbeck

Kamille Birkbeck
Designated Reviewer

APPENDIX D: FBI ACTIVE SHOOTER PERMISSION FOR REPRODUCTION

Acknowledgments

This report was written by the Federal Bureau of Investigation (FBI) in collaboration with the Advanced Law Enforcement Rapid Response Training (ALERRT) Center at Texas State University.[1]

This report is in the public domain. Authorization to reproduce this publication in whole or in part is granted. The accompanying citation is as follows: *Active Shooter Incidents in the United States in 2022*, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C., and the Advanced Law Enforcement Rapid Response Training (ALERRT) Center at Texas State University, published 2023.

The FBI and the ALERRT Center support the *Don't Name Them* campaign. This campaign encourages media, law enforcement, and public information officers to shift their focus from the perpetrators of active shooter incidents toward the victims, survivors, and heroes who stopped them, as well as the communities that come together to help in the healing process. To learn more, visit dontnamethem.org.

1 This report supplements the previous publications: Blair, J. Pete, and Schweit, Katherine W. *A Study of Active Shooter Incidents in the United States Between 2000 and 2013*, Texas State University and Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C. 2014; *Active Shooter Incidents in the United States in 2014 and 2015*, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C. 2016; *Active Shooter Incidents in the United States in 2016 and 2017*, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C. 2018; *Active Shooter Incidents in the United States in 2018*, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C. 2019; *Active Shooter Incidents in the United States in 2019*, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C. 2020; *Active Shooter Incidents in the United States in 2020*, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C. 2021; and *Active Shooter Incidents in the United States in 2021*, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C. 2022.

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Active Shooter Incidents in the United States in 2021, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C., and the Advanced Law Enforcement Rapid Response Training (ALERRT) Center at Texas State University, published 2022. Active Shooter Incidents in the United States in 2021 — FBI.

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