

SCHOOL LEVEL AND URBANICITY DIFFERENCES IN SCHOOL THREAT  
SCENARIO PLANS: A NATIONAL ANALYSIS

---

Dissertation

Presented to

The Faculty of the Department of Educational Leadership  
Sam Houston State University

---

In Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

---

by

David S. McAlpin

December, 2021

SCHOOL LEVEL AND URBANICITY DIFFERENCES IN SCHOOL THREAT  
SCENARIO PLANS: A NATIONAL ANALYSIS

by

David S. McAlpin

---

APPROVED:

Dr. Frederick C. Lunenburg  
Dissertation Chair

Dr. John R. Slate  
Committee Member

Dr. Janene W. Hemmen  
Committee Member

Dr. Stacey L. Edmonson  
Dean, College of Education

## **DEDICATION**

This dissertation is dedicated to my son, Rylan, and daughter, Ainsley. They are my hope, joy, and peace in this everchanging world. Their love, support, and daily doses of reality keep me grounded. My love for them is limitless. Remember, Rylan and Ainsley, you can do all you want in life if you are willing to work hard for it.

## ABSTRACT

McAlpin, David S., *School level and urbanicity differences in school threat scenario plans: A national analysis*. Doctor of Education (Educational Leadership), December 2021, Sam Houston State University, Huntsville, Texas.

### **Purpose**

The overall purpose of this journal-ready dissertation was to determine the degree to which school level (i.e., elementary, middle, and high schools) and school urbanicity (i.e., city, suburb, town, and rural) were related to written safety plans (i.e., active shooter, hostage, bomb, and pandemic flu/disease threats) and drilled safety plans (i.e., evacuation, lockdown, and shelter-in-place) based on school administrator responses to a nationwide school safety survey. The first specific purpose was to ascertain the extent to which the frequencies of written school safety plans for active shooter, hostage, and bomb threats differ by school level and urbanicity. The second specific purpose was to establish the extent to which the frequencies of drilled school safety plans for evacuation, lockdown, and shelter-in-place practices differ by school level and urbanicity. The third specific purpose was to examine the extent to which written pandemic flu/disease safety plans differ by school level and urbanicity. In the third study, analyses were performed to determine if trends were present for school safety written pandemic flu/disease plans by school level and urbanicity.

### **Method**

For these quantitative analyses, a causal-comparative research design was utilized. Archival data within the public domain from the United States Department of Education National Center for Education Statistics School Survey on Crime and Safety

for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years were obtained and analyzed.

## **Findings**

Concerning school safety for written and drilled plans by school level and urbanicity, elementary schools had statistically lower frequencies of safety plans for written active shooter, hostage, pandemic flu/disease, bomb threats, and drills for shelter-in-place in most instances than did middle and high schools for the years of study. Schools in rural settings had statistically significant results that indicated cases did exist for no safety drill performance for lockdowns and shelter-in-place for the two school years. Furthermore, statistically significant results existed for schools located within cities for written hostage, bomb, and pandemic flu/disease threat plans. In most instances, existing research literature correlated with results for the school years in question. Implications for policy and for practice, as well as recommendations for future research, were provided.

**KEYWORDS:** Active shooter threat; Bomb threat; Drilled safety plan; Evacuation; Hostage threat; Lockdown; School level; Shelter-in-Place; Urbanicity; Written safety plan

## ACKNOWLEDGEMENTS

I would like to first acknowledge Sam Houston State University for allowing me to fulfill my dream of obtaining a doctoral degree. Included in my appreciation are those professors who taught, facilitated, and directed me through this process. They include: Dr. Billings, Dr. Combs, Dr. Edmonson, Dr. Ellis, Dr. Fuller, Dr. Harris, Dr. Holzweiss, Dr. Martinez-Garcia, and Dr. Moore.

Most influential in the latter part of the doctoral program were Dr. Lunenburg, Dr. Slate, and Dr. Hemmen. Without each of them encouraging and prompting me to write, the infamous five letter word, I would not be in this station of my life. Many thanks to Dr. Lunenburg for serving as the chairperson of the dissertation committee along with Dr. Slate and Dr. Hemmen keeping me in check as members. I am eternally indebted to each of you for your knowledge, kindness, support, and patience. It has been an amazing experience with several trials along the way, but in the end, it was worth it! Thanks for believing in me.

As a child born to a young single teenage mother over four decades ago, I will never forget the sacrifices she made for my sister and me. Her love, support, work ethic, and desire to witness us succeed in life fanned the flame within me to never give up, get back up when I was down, and not look back because that was not the direction I was going. Mom, thanks for always being there.

In addition, I would like to express my deepest and most heartfelt gratitude to Cohort 42, Amy, Candace, Chris, Deidre, Divina, Florinda, Jessica, Josh, Misti, Natalie, Tania, and Yeri, thanks for putting up with me for the last several years. It has been a

pleasure. I have learned a tremendous amount from each of you. Cohort 42 you are amazing and will continue to do great things!

Furthermore, a special thanks to the Orangefield Independent School District and the Board of Trustees for allowing me to achieve my goal of becoming a superintendent and for their support as I continued my educational pursuits.

This acknowledgement is a very small thread in the fabric of my life. There are many more intricate pieces that have made me who I am. To my family, friends, co-workers, teachers, and coaches, many thanks, your influence in my life will never be forgotten or taken for granted.

# TABLE OF CONTENTS

	<b>Page</b>
DEDICATION.....	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	viii
LIST OF TABLES.....	xi
LIST OF FIGURES.....	xv
CHAPTER I: INTRODUCTION.....	01
Statement of the Problem.....	21
Purpose of the Study.....	23
Significance of the Study.....	24
Definition of Terms.....	25
Literature Review Search Procedures.....	30
Delimitations.....	31
Limitations.....	32
Assumptions.....	32
Procedures.....	33
Organization of the Study.....	33
CHAPTER II: SCHOOL LEVEL AND URBANICITY DIFFERENCES IN WRITTEN PLANS FOR ACTIVE SHOOTER, HOSTAGE, AND BOMB THREAT SCENARIOS: A NATIONAL ANALYSIS.....	35
Abstract.....	36



Method .....	45
Results.....	47
Discussion.....	53
Conclusion .....	56
References.....	57

CHAPTER III: SCHOOL LEVEL AND URBANICITY DIFFERENCES IN  
DRILLED PLANS FOR EVACUATION, LOCKDOWN, AND

SHELTER-IN-PLACE SCENARIOS: A NATIONAL ANALYSIS.....	78
Abstract.....	79
Method .....	90
Results.....	91
Discussion.....	97
Conclusion .....	101
References.....	102

CHAPTER IV: SCHOOL LEVEL AND URBANICITY DIFFERENCES IN  
WRITTEN PLANS FOR PANDEMIC FLU/DISEASE SCENARIOS: A

NATIONAL ANALYSIS .....	124
Abstract.....	125
Method .....	134
Results.....	136
Discussion.....	141
Conclusion .....	145
References.....	146

CHAPTER V: DISCUSSION.....	158
Conclusion .....	168
REFERENCES .....	170
APPENDIX.....	178
VITA.....	180

## LIST OF TABLES

<b>Table</b>	<b>Page</b>
2.1 Descriptive Statistics for Written Active Shooter Threat Scenario Plans by School Level for the 2015-2016 School Year.....	60
2.2 Descriptive Statistics for Written Active Shooter Threat Scenario Plans by School Level for the 2017-2018 School Year.....	61
2.3 Descriptive Statistics for Written Hostage Threat Scenario Plans by School Level for the 2015-2016 School Year.....	62
2.4 Descriptive Statistics for Written Hostage Threat Scenario Plans by School Level for the 2017-2018 School Year.....	63
2.5 Descriptive Statistics for Written Bomb Threat Scenario Plans by School Level for the 2015-2016 School Year.....	64
2.6 Descriptive Statistics for Written Bomb Threat Scenario Plans by School Level for the 2017-2018 School Year.....	65
2.7 Descriptive Statistics for Written Active Shooter Threat Scenario Plans by Urbanicity for the 2015-2016 School Year.....	66
2.8 Descriptive Statistics for Written Active Shooter Threat Scenario Plans by Urbanicity for the 2017-2018 School Year.....	67
2.9 Descriptive Statistics for Written Hostage Threat Scenario Plans by Urbanicity for the 2015-2016 School Year.....	68
2.10 Descriptive Statistics for Written Hostage Threat Scenario Plans by Urbanicity for the 2017-2018 School Year.....	69

2.11 Descriptive Statistics for Written Bomb Threat Scenario Plans by Urbanicity for the 2015-2016 School Year.....	70
2.12 Descriptive Statistics for Written Bomb Threat Scenario Plans by Urbanicity for the 2017-2018 School Year.....	71
3.1 Descriptive Statistics for Drilled Evacuation Scenario Plans by School Level for the 2015-2016 School Year.....	106
3.2 Descriptive Statistics for Drilled Evacuation Scenario Plans by School Level for the 2017-2018 School Year.....	107
3.3 Descriptive Statistics for Drilled Lockdown Scenario Plans by School Level for the 2015-2016 School Year.....	108
3.4 Descriptive Statistics for Drilled Lockdown Scenario Plans by School Level for the 2017-2018 School Year.....	109
3.5 Descriptive Statistics for Drilled Shelter-in-Place Scenario Plans by School Level for the 2015-2016 School Year.....	110
3.6 Descriptive Statistics for Drilled Shelter-in-Place Scenario Plans by School Level for the 2017-2018 School Year.....	111
3.7 Descriptive Statistics for Drilled Evacuation Scenario Plans by Urbanicity for the 2015-2016 School Year.....	112
3.8 Descriptive Statistics for Drilled Evacuation Scenario Plans by Urbanicity for the 2017-2018 School Year.....	113
3.9 Descriptive Statistics for Drilled Lockdown Scenario Plans by Urbanicity for the 2015-2016 School Year.....	114

3.10 Descriptive Statistics for Drilled Lockdown Scenario Plans by Urbanicity for the 2017-2018 School Year.....	115
3.11 Descriptive Statistics for Drilled Shelter-in-Place Scenario Plans by Urbanicity for the 2015-2016 School Year.....	116
3.12 Descriptive Statistics for Drilled Shelter-in-Place Scenario Plans by Urbanicity for the 2017-2018 School Year.....	117
4.1 Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by School Level for the 2007-2008 School Year.....	148
4.2 Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by School Level for the 2009-2010 School Year.....	149
4.3 Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by School Level for the 2015-2016 School Year.....	150
4.4 Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by School Level for the 2017-2018 School Year.....	151
4.5 Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by Urbanicity for the 2007-2008 School Year.....	152
4.6 Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by Urbanicity for the 2009-2010 School Year.....	153
4.7 Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by Urbanicity for the 2015-2016 School Year.....	154
4.8 Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by Urbanicity for the 2017-2018 School Year.....	155

5.1 Summary of Results for Written School Safety Plans by School Level for the 2015-2016 and 2017-2018 School Years .....	159
5.2 Summary of Results for Written School Safety Plans by Urbanicity for the 2016-2017 and 2017-2018 School Years .....	160
5.3 Summary of Results for Drilled School Safety Plans by School Level for the 2015-2016 and 2017-2018 School Years .....	161
5.4 Summary of Results for Drilled School Safety Plans by Urbanicity for the 2015-2016 and 2017-2018 School Years .....	162
5.5 Summary of Results for Written School Safety Pandemic Flu/Disease Plans by School Level for the 2008-2009, 2009-2010, 2015-2016 and 2017-2018 School Years .....	163
5.6 Summary of Results for Written School Safety Pandemic Flu/Disease Plans by Urbanicity for the 2008-2009, 2010-2011, 2015-2016 and 2017-2018 School Years .....	164

## LIST OF FIGURES

<b>Figure</b>	<b>Page</b>
2.1 Percent of Schools Without a Written Plan for an Active Shooter Threat by School Level for the 2015-2016 and 2017-2018 School Years.....	72
2.2 Percent of Schools Without a Written Plan for a Hostage Threat by School Level for the 2015-2016 and 2017-2018 School Years.....	73
2.3 Percent of Schools Without a Written Plan for a Bomb Threat by School Level for the 2015-2016 and 2017-2018 School Years.....	74
2.4 Percent of Schools Without a Written Plan for an Active Shooter Threat by Urbanicity for the 2015-2016 and 2017-2018 School Years.....	75
2.5 Percent of Schools Without a Written Plan for a Hostage Threat by Urbanicity for the 2015-2016 and 2017-2018 School Years.....	76
2.6 Percent of Schools Without a Written Plan for a Bomb Threat by Urbanicity for the 2015-2016 and 2017-2018 School Years.....	77
3.1 Percent of Schools Without a Drilled Plan for an Evacuation by School Level for the 2015-2016 and 2017-2018 School Years.....	118
3.2 Percent of Schools Without a Drilled Plan for a Lockdown by School Level for the 2015-2016 and 2017-2018 School Years.....	119
3.3 Percent of Schools Without a Drilled Plan for a Shelter-in-Place by School Level for the 2015-2016 and 2017-2018 School Years.....	120
3.4 Percent of Schools Without a Drilled Plan for an Evacuation by Urbanicity for the 2015-2016 and 2017-2018 School Years.....	121

3.5 Percent of Schools Without a Drilled Plan for a Lockdown by Urbanicity for the 2015-2016 and 2017-2018 School Years.....	122
3.6 Percent of Schools Without a Drilled Plan for a Shelter-in-Place by Urbanicity for the 2015-2016 and 2017-2018 School Years.....	123
4.1 Percent of Schools Without a Written Plan for Pandemic Flu/Disease by School Level for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 School Years.....	156
4.2 Percent of Schools Without a Written Plan for Pandemic Flu/Disease by Urbanicity for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 School Years.....	157



## CHAPTER I

### INTRODUCTION

In a recent National Center for Education Statistics study (Diliberti et al., 2019) of public schools in the United States, approximately 962,300 violent incidents were reported that involved sexual violence, robbery, and physical attacks during the 2017-2018 school year. In addition to violent school events, 476,100 nonviolent incidents also occurred in public schools. Nonviolent incidents included theft, possession of weapons, and illegal drug related offenses that can ultimately affect student outcomes, faculty and staff morale, and public opinions related to the uniquely diverse educational institutions dispersed across the United States.

Further research in school safety issues conducted by the United States Secret Service in partnership with the United States Department of Education have produced copious amounts of data to better understand dangerous school safety events. Alathari et al. (2019) analyzed 41 safety incidents of targeted school violence from 2008 to 2017 that involved (a) current or former students, (b) intentional use of a weapon, (c) perpetrated harm or death to a student or school employee, (d) occurred at or near school property, and (e) deliberate targeting of a student or school employee. This was a secondary study that followed a 2002 examination of targeted school violence that reviewed 37 school safety incidents from 1974-2000 (Alathari et al., 2019). The types of data analyzed for the most recent study were (a) the implementation of the attacks, (b) school data, and (c) demographic school attacker data. As noted by Alathari et al. (2019) based on the data collected, 95% or 39 of the 41 cases studied occurred at public schools. Of the 39 public schools 73% were high schools, 22% transpired at middle schools, and 2% of the events

occurred at elementary schools during the years in question. Furthermore, the locales where these targeted incidents were reported are as follows: 34% suburban, 27% cities, 24% rural schools, and 15% in small towns (Alathari et al., 2019). Perpetrators of school violence often demonstrate intention to do harm to others, experienced some form of psychological or behavioral tendencies, used a firearm or had access, and suffered from a tragic homelife (Alathari et al., 2019).

Correspondingly, a similar study in 2021 developed cooperatively between the United States Department of Education and the United States Secret Service for the purposes of analyzing plots against schools was administered. In this three-part investigation there were 67 reports of potential attacks or plots against schools from 2006-2018 creating concerns related to school safety (Alathari et al., 2021). Alathari et al. (2021) stated that the focus of part one of the study would include: (a) planning of the plot, (b) who planned the plot, and (c) how the plots were thwarted. In most cases schools that were targeted were high school at 84% consisting of 56 of the 67 reported plots, 15% of the occurrences were from middle schools, and the remaining 1% were made up of a combination of school levels housed in one complex. Moreover, these plots were prevented throughout approximately 33 states with 37% initiated in suburban areas, 25% in rural areas, and 21% occurring in towns based on this analysis (Alathari et al., 2021). Overall, the outcomes related to this valuable study could enhance the prevention skills necessary to assist in the aversion of similar plots in the future and reduce the most common reactive approaches to school safety incidents.

Educational leaders must address safety concerns of all types (e.g., types of violent acts perpetrated against schools, and natural and manmade disasters) directed at

school age children and all members of the learning community. Exhaustive efforts should be taken by school officials, legislators, and policymakers to divert focus back to the principled purposes of education that reinforce students' overall mental, physical, and social well-being through proactive and preventive safety practices and protocols.

### **Review of the Literature for School Safety Written Plans**

Almost daily threats of violence are directed at schools in the United States. They can occur in the form of bomb threats, school shootings, natural and man-made disasters, and all other forms of violence. It is the responsibility of school leadership to determine the urgency and severity of a threat. Furthermore, educational leaders can be at a disadvantage when experiencing a school emergency because of an ineffectively developed plan due to their failure to follow state and national guidelines set forth in law by legislators (McAlpin & Slate, 2021). By demonstrating proactiveness through implementing responses to action (i.e., development, preparation, mitigation, and recovery), educational leaders could minimize the effects of hazardous safety concerns for school system personnel and students (Lopez et al., 2020). Being proactive when addressing a security risk is essential to providing the best possible guidance to students, faculty, and staff in a potential emergency.

In the United States, as many as 13 states have enacted legislation that requires the establishment of school safety studies, councils, and committees (Council of State Governments Justice Center, 2014). Approximately 33 states have implemented policies that require all schools to develop a comprehensive emergency operations plan (Council of State Governments Justice Center, 2014). McAlpin and Slate (2021) commented that legislators across the United States have issued laws that enforce the development,

implementation, training, and practice of security plans to improve the overall response of school leaders during a crisis. Educational leaders must be competent and prepared when addressing threats against schools. By responding appropriately as school leaders, with adequate information and quality resources, dangerous situations could be swiftly mitigated allowing for more successful resolutions to a school safety incident.

School safety issues have transformed the educational system in the United States substantially in recent years. Increases in the use of technology, mental health issues, and the breakdown of nuclear families has contributed to the increase in incidents and safety breaches in the public education system in the United States. Fisher et al. (2017) argued violence that occurs outside of the school setting can have an adverse effect on students and ultimately carryover to the school community. Fisher et al. (2017) concluded that students who experienced exposure to violent community events were most susceptible to negative school outcomes due to (a) close proximity to the event, (b) the time frame of the event, and (c) knew the victim or perpetrator. School leaders have been thrust, possibly unprepared, into these challenging situations. Additionally, protecting the mental, physical, and social well-being of students especially those individuals who experience difficulties at home and school are expectations placed upon educators. Educational leaders must build trust, inspire others to act, and enhance their school safety acumen.

Although having a high-quality schoolwide safety plan is important, failure to implement the protocols and practice the drills within the plan could be tantamount to negligence. Kano et al. (2007) conducted a study on safety preparedness of 83 schools in three unified school districts in Los Angeles County, California. They concentrated on

the school districts' emergency operations plans, emergency response training, and the application of the required Standardized Emergency Management System set forth by the state. Respondents in this study believed they were well-prepared for disasters and emergencies that could possibly affect their school districts. Unfortunately, the questions in the survey related to school preparedness did not reflect these perceptions.

Standardized Emergency Management System implementation was meager among all district schools. This lack of enactment is cause for concern because the management systems are mandated by the state. Other concerns were a lack of recent training in emergency response procedures, which was compounded by the high turnover rates at the sample districts. Recommended in the Kano et al. (2007) study was that key stakeholders and state officials create more realistic expectations not only in training requirements, but also in the types of skills necessary to address the most common safety concerns in the sample school districts in general.

Tragic events occur every day in educational settings without provocation or an obvious purpose. The Virginia Polytechnic Institute shooting is considered one of the most tragic school violence events in recent history. Fallahi et al. (2009) surveyed college students and college faculty and staff perceptions of the Virginia Polytechnic Institute shooting three weeks after this event that occurred in 2007. A sampling of students, 145 females and 167 males, participated in the study along with 237 faculty and staff members of which 130 were faculty and 107 were staff members. Students in this study responded to questions about the causes of the shooting and answered most frequently with mental illness, lack of social support, and poor parenting. Moreover, faculty and staff members responded similarly, but considered violent video games and

media as contributors to this type of violent act upon schools. Although a variety of suggested causes for this horrific event were expressed during this study, far more questions were raised than answers to this type of adverse school safety event.

Throughout the Fallahi et al. (2009) study, two important themes emerged in the areas of mental health and lack of friends. The two respondent groups, students and staff, in the study considered poor prevention practices as key elements in relation to school violence. Students in this study perceived good parenting as a major inhibitor of school violence, contrasted with faculty and staff members who were more inclined to select the effects of media related violence as a contributor. Although the Virginia Polytechnic Institute perpetrator did not state why he committed such a heinous crime, more research on this topic could provide information to assist school leaders and communities on how to mitigate such events in the future (Fallahi et al., 2009). It is imperative that educational leaders learn more about the warning signs and behaviors that can contribute to such tragedies.

School hostage events, although extremely rare, can occur and end very tragically based on information from two unique school safety incidents from the past. Two public schools, Cokeville Elementary located in Cokeville, Wyoming in 1986 and more recently Platte Canyon High School in Bailey, Colorado in 2006, were attacked using a combination of terrorizations. Active shooter and hostage threats were used in both incidents, but in the case of the Cokeville Elementary event a bomb mechanism was employed. School leaders in both tragedies were left to mitigate the disaster and to provide crisis management techniques. In an effort to prevent school terrorist acts,

school leaders collaborated to develop school safety action plans to prevent such events in the future.

In 1986 a breach in security at Cokeville Elementary led to a hostage situation that endangered 135 students, 14 teachers, the campus principal, and three other adults confined to a classroom with two campus intruders and a bomb device (Lowe, 1987). Lowe (1987) further analyzed the hostage situation which transpired for approximately two hours and ended abruptly when one of the perpetrators accidentally detonated the bomb, killing himself and severely injuring a multitude of hostages. Post event observations and mitigation actions assisted in the recovery process. Lowe (1987), who was the school district's superintendent at the time of the tragedy, reflected on the occurrence and concluded certain coping mechanisms were necessary to process all the information related to the horrifying event for all involved. Lowe (1987) described the following five principles as a method of management and recovery during and after a crisis: (a) empathy should be applied to the circumstance, (b) counseling services should be incorporated, (c) organizational practices during and after the event should be maintained, (d) a plan should be devised for an expedient return to a normal routine, and (e) learn from the tragic event.

Coincidentally, another hostage situation would take place just over 20 years later in Platte Canyon High School where students, school leaders, teachers, other school employees, and community members experienced a disturbing event in the early weeks of the 2006-2007 school year. Dishman et al. (2011) conducted a study based on the recovery process and administrative response to the harrowing event. A lone gunman entered the Platte Canyon High School campus and took a class of college-prep English

students hostage and asked the teacher to leave. The hostage event lasted approximately four hours during which time the offender released all but two of the female captives. Throughout the hostage situation the remainder of the campus occupants were on lockdown, a recommended school safety practice, and local county law enforcement officials were involved in negotiations with the assailant. The attacker warned school leaders and law enforcement officials of an imminent and potentially harmful action that was planned by the culprit. This new time frame hindered the negotiators response to the situation and expedited a plan of action. Law enforcement officers entered the classroom in question with the use of explosives, but were unable to prevent the murder suicide that left a 16-year-old female dead along with the assaulter. Due to the school district preparedness and the implementation of school safety protocols and procedures, a potentially catastrophic loss of life was prevented (Dishman et al., 2011). During an investigation based on hostage written plans by school level using a national survey, McAlpin and Slate (2021), indicated that school administrators reported having hostage written plans for (a) elementary schools at 58%, (b) middle schools at 62%, and (c) high schools at 66%. The lack of written plans for each of these school levels is concerning due to the severity of hostage threats. School leaders who collaborate with students, school employees, key stakeholders, and policymakers could be catalysts in the development of programs and prevention plans that reduce hostage style crimes such as the events that occurred at Cokeville Elementary and Platte Canyon High School.

Correspondingly, educational leaders who demonstrate excellence in their schools academically and through effective policies and procedures could enhance the culture and climate of their institutions (McAlpin & Slate, 2021). Educators, in their efforts to



provide a safe learning environment that protects the mental, physical, and social well-being of students and staff, contribute to the overall health and well-being of the school community. Similarly, school officials must use their management skills to foster a vision for school safety that includes written policies and procedures, positive learning environments, accountability, consistency, and collaboration.

### **Review of the Literature for School Safety Drilled Plans**

Emergency operations plans that include drills are critical for school leaders when life threatening events occur in educational settings. Educational leaders need to prepare for catastrophic school safety events through the use of practiced safety drills.

Evacuation drills are recommended in schools when addressing certain dangerous situations, such as a bomb threat, even when a hoax is a possibility due to the enormous pressure to perform this drill as a discretionary practice (Newman, 2005). Since the mass school shooting at Columbine High School in Littleton, Colorado lockdown drills were introduced and considered practical for addressing active shooter situations (Schildkraut, Grogan, & Nabors, 2020). Similarly, school officials must determine if shelter-in-place protocols are necessary to mitigate loss of life and property from disasters such as tornadoes, chemical leaks, and earthquakes (Stough et al., 2018). In a survey conducted by the National Center for Education Statistics, respondents from the 2017-2018 school year indicated that 93% of public school students were drilled in evacuation procedures, 96% of public school students were drilled on lockdown techniques, and 83% of public school students were drilled for shelter-in-place protocols (Wang et al., 2020).

According to Campbell (2020), from 2014-2018 approximately 3,200 school fires occurred in each of the years of study. These reported fires caused one death, 39 injuries,

and an estimated \$37 million in U.S. dollars of property damage (Campbell, 2020). In the 2018-2019 school year, a total of 66 school shootings were reported in both private and public educational institutions with 29 deaths and 37 injuries related to the shootings throughout the United States (Wang et al., 2020). In addition, administrators of the National Oceanic and Atmospheric Administration Centers for Environmental Information documented that an average of over 1,200 tornadoes develop annually in the United States. These types of disasters are cause for robust school safety programs. School leaders who prepare for emergencies using quality safety action plans with applicable drills can improve survival rates when unforeseen disasters occur.

In a recent investigation, Kingshott and McKenzie (2013) examined elements that comprised effective emergency operations plans for schools. In their investigation, they focused on the perceptions and attitudes of school personnel toward emergency operations plans and school district safety practices. Apathy was determined to play a substantial part in creating and using emergency operations plans (Kingshott & McKenzie, 2013). Unfortunately, because of the perceived low probability of incidents happening on their specific campuses, respondents did not recognize the importance of designing, training, and practicing school safety plans as a necessary requirement of their role as an educator (Kingshott & McKenzie, 2013). Educators must not become complacent in the adherence to and in the practice of safety procedures in school settings that could most importantly save lives. Educational leaders and elected officials are charged with providing a safe learning environment for students and the overall school community (McAlpin & Slate, 2021). School officials are held accountable in most states for performing frequent safety exercise (e.g., evacuations, lockdowns, and shelter-

in-place drills) in efforts to improve response time and to apply the necessary skills to prepare for possible threats to their schools.

Through the implementation of school safety prevention practices and the regular incorporation of life-saving drills, school leaders could reduce student anxiety, stress, susceptibility to danger, and improve upon their abilities during a disaster. Students of all ages are reliant upon faculty, staff, and administrators to guide them through safety incidents that can take place in school settings (Stough et al., 2018). Incidents such as fires, bomb threats, active shooters, tornadoes, chemical leaks, or other natural disasters require a tremendous amount of training and observance of drill routines. School leaders need to establish and enforce the practice of safety drills such as evacuations, lockdowns, and shelter-in-place plans to improve student and staff responses and to curtail fears in relation to school emergencies. Stough et al. (2018) declared in their study of school-related disasters that six overarching factors existed: (a) application of safety protocols are essential when children are involved, (b) it is important to have knowledge of a variety of safety practices in multiple settings, (c) if students are at risk then school personnel are at risk, (d) school employees of all types should be highly trained enough in school-related safety techniques to make sound autonomous decisions in a crisis, (e) students should be well versed in safety practices to make decisions independently if necessary, (f) well-designed school facilities are essential to school safety, and (g) legislators play a role in guaranteeing a safe learning environment for students and members of the school community.

Implementing safety drills on a frequent basis could improve students and educators' responses to catastrophic events. Because of the complexity and enormity of

school facilities and the challenges of student management it can be difficult to plan, mitigate, and respond to school safety concerns in a concise and practical manner (Stough et al., 2018). Stough et al. (2018) affirmed the notion that educators should adhere to the practice of *in loco parentis*, in other words, in place of the parent. That is, they have a moral obligation to nurture and support students while under their care and supervision, especially during a crisis situation. Safety practices and drills should be used by school leaders to reduce apprehensions and diminish possible adverse reactions to school safety incidents.

Bomb threats are a common occurrence for schools in the United States and can disrupt the educational learning process for students. Newman (2005) reported that almost 5% of all bomb threats in the United States during 1999 were directed at schools. The United States Bureau of Alcohol, Tobacco, Firearms, and Explosives Department recorded approximately 1,055 incidents where bombs were found on school properties across the country during a 12-year period. Whereas, of the 1,055 aforementioned incidents, only 14 of those threats were accompanied with prior notifications or warnings (Newman, 2005). Further documented by Newman (2005) was the infrequency of actual bombs on school premises resulting in a majority of these emergencies declared as false alarms. Regardless, this type of threat may require an evacuation of an entire campus. Schools that are forced to evacuate are often later closed for a period of time leading to disruptions to the educational process, resulting in student learning and financial losses (Newman, 2005). Trump and Miller (2015) concluded in their study of 812 United States public schools that 30% of threats resulted in an evacuation and 10% of those threats closed these institutions for a period of time following the incident. High schools

experienced 70% of the overall threats with middle schools at 18%, and elementary schools received approximately 10% of these threats (Trump & Miller, 2015).

Perpetrators of school violence are using more unconventional techniques to cause harm and create fear in our school systems. Technological advances in recent years have contributed to increases in school related threats and have required evacuations in the United States. Trump and Miller (2015) established that 37% of school threats were conducted through the use of electronic means, with social media being used at a rate of 28%. Moreover, of the 812 school related threats, 359 were bomb threats that composed 44% of the total threats in the 2014-2015 school year (Trump & Miller, 2015). Safety events that require an evacuation of schools occur in the United States too frequently based on the aforesaid data. Evacuation drills should be practiced regularly and efficiently with school leader oversight. This method enables school health safety officials to enforce compliance with emergency plans and assist in ensuring members of the learning community remain safe and protected.

Active shooter situations are addressed by practicing lockdown drills as a measure to mitigate these types of threats. Wang et al. (2020) confirmed that educational settings were second only to private business settings as the most likely location of an active shooter threat. From 2000 to 2017, there were 52 total active shooters in elementary, secondary, and postsecondary schools. Of the aforementioned active shooter situations, 37 occurred at the elementary and secondary school levels, with 15 incidents reported in postsecondary institutions during the same 17-year time frame (Wang et al., 2020). Victims of these active shooter events included a total of 153 casualties in elementary and secondary schools, 67 killed and 86 wounded, from 2000-2017 (Wang et al., 2020).

Wang et al. (2020), in the same National Center for Education Statistics study of elementary and secondary school settings, determined all 37 of the active shooters were male and a majority of the offenders were current or previously enrolled students.

Based on these data, it is imperative that lockdown drills be conducted in educational settings. Lockdown drills are performed by school safety officials through the use of a simulated threat such as an active shooter scenario. The active shooter scenario is presented to the campus administration and the lockdown drill is initiated. Next, a public service announcement is made by a campus official stating the campus is on lockdown or a similar statement is made following the emergency operations plan created specifically for that campus. Lastly, the occupants of the entire school are locked down in their classrooms or other designated areas and participants remain silent until the drill is concluded by school officials with a final public service announcement. Educational leaders need to instruct students and staff in the correct training methods of executing a lockdown procedure in preparation for an actual event (Dickson & Vargo, 2017). School district safety personnel may reproduce loud noises, screams, and knocking on classroom doors to create a semblance of reality to improve the success of the lockdown procedure (Stevens et al., 2020). Stevens et al. (2020) noted, however, that lockdown drills should never be performed without prior notification to prevent confusion and potential harm to all involved. Though lockdown drills are required to be conducted across many states, only a limited number of research studies have been published regarding this type of school safety training (Stevens et al., 2020).

Safety drills are an ideal way to mitigate the health and well-being of school community members in an effort to prevent and prepare for breaches in school security.

Shelter-in-place protocols are essential elements of a quality school safety plan. A shelter-in-place response is activated in situations such as an inclement weather event, a tornado, a hazardous liquid or gas leak, or to address an imminent threat risk that is slower moving (e.g., an acute viral disease). Practicing shelter-in-place protocols can help enhance the possibility of survival during a multitude of natural or man-made disasters. School leaders are expected to respond quickly to threats that involve sheltering-in-place by following best practices. The United States Department of Labor Occupational Safety and Health Administration recommends that during shelter-in-place events those individuals in leadership roles should (a) lock all exterior doors and close all windows; (b) gather essential resources such as flashlights, batteries, duct tape, and first aid supplies; (c) shelter in a large ground floor room that is in the interior of the building; and (d) have a hard-wired telephone for communication with authorities.

The most common of all the shelter-in-place events are tornadoes. These natural disasters are very violent and can cause serious loss of life and property damage increasing the importance of practicing shelter-in-place drills. Tornadoes develop into a vast array of sizes and speeds. They range from wind speeds of 40 miles per hour to over 300 miles per hour, traveling up to 50 miles, and have been recorded at over 2 miles wide according to Burgess et al. (2014). Regrettably, on March 1, 2007 in Enterprise, Alabama, was the location of a devastating tornado that struck Enterprise High School taking the lives of eight students (Gurspan, 2021). Additionally, on May 22, 2011 a tornado touched down in Joplin, Missouri that damaged almost half of the Joplin Independent School District's 20 structures (Banzet-Ellis, 2014). Fortunately, the event occurred on a Sunday while school was out of session leaving school officials to help

piece their communities and schools back together after the destruction from the wind storm. Similarly, in May of 2013 in Moore, Oklahoma a tornado touched down and traveled just over 50 miles at wind speeds over 200 miles per hour destroying over 4,250 structures, injuring 212 people, and killing 24 others (Brumfield, 2014). This tornado caused the walls and ceilings to collapse at the Plaza Towers Elementary School where more than 70 students were sheltered with nine students ultimately losing their lives from this tragic event (Brumfield, 2014). School leaders must practice proactiveness, preparedness, and prevention as it relates to any emergency or disaster such as a tornado requiring a shelter-in-place response that could befall their educational institutions.

### **Review of the Literature for Written Pandemic Flu/Disease Plans**

Designers of school emergency operations plans consider a multitude of possible circumstances that could pose a threat to school safety. Educational leaders must consistently review, modify, implement, and practice safety strategies in efforts to prevent disasters from occurring. One such area, that of pandemic flu/disease preparation, should be included in school district safety plans. Dietz and Black (2012) stated that communicable diseases, like those transmitted during a pandemic, can cause harm to everyone associated with the illness not only to those suffering from the sickness. Social and economic circumstances from the disease can have worldwide ramifications (Dietz & Black, 2012). Vessy et al. (2007) stated that communicable diseases account for approximately 70 and 164 million school days of absenteeism. Understanding the risks of pandemics has increased awareness for prevention and preparedness as a proactive measure (Mossad, 2009). Mossad (2009) stated that non-pharmaceutical methods such as personal hygiene and social distancing have been emphasized as



potential control measures. Through the development and implementation of pandemic flu/disease written plans, educational leaders could help to ensure that their schools remain secure and operative during such events.

As would be expected, predicting a global disease outbreak can be futile even for the most experienced epidemiologist. This delay, in most situations, leads to diminished reaction time and a possible basis for the unique chain of events that could be the early stages of a pandemic. A pandemic could potentially affect all sectors of our civilization, placing extreme importance on planning for such an event (United States Health and Human Services, 2006). According to the publication produced by the United States Health and Human Services, *Pandemic Influenza Planning: A Guide for Individuals and Families*, cancelation of school related activities and school closures may occur rapidly and without prior notice increasing the necessity for a pandemic plan. A relatively new viral disease, the novel coronavirus of COVID-19, was officially documented and reported by the World Health Organization in December 2019. Coronaviruses are common to animals (e.g., pangolins and bats) whose immune systems are resistant to such diseases and often remain dormant within these types of creatures (Maital & Barzani, 2020). Correspondingly, with this type of virus the probability exists of transferring this disease to human hosts potentially causing severe lung and respiratory complications that could affect other organs and body systems of the infected individual (Maital & Barzani, 2020). Viruses replicate and modify their genetic makeup in a remarkably expeditious rate spreading from host to host through bodily fluids and close contact like most communicable diseases (Maital & Barzani, 2020).

The aforementioned viral outbreak caused educational institutions worldwide to cease operations in response to this deadly illness. The coronavirus was and remains a global event exacerbated by lack of communication, preparedness, and most of all fear. As the disease permeated across the globe, death and devastation were left in its wake. Much of the initial response to this virus was reactionary thus creating vast amounts of confusion on how to minimize the circulation of this deadly respiratory disease. Unfortunately, the World Health Organization assisted by various disease control centers globally were unable, in a timely fashion, to provide world leaders with the vital information for dissemination among their countries population in an effort to reduce the propagation of COVID-19.

The educational community was affected by the viral outbreak once the disease reached a critical level. Responses to COVID-19 caused world financial markets to be suppressed along with commerce related services, nationally and internationally, which subsided drastically through the duration of the health-related catastrophe. The collapse of the global economy due to the effects of COVID-19 in relation to the economies of the Group of Seven countries along with China who together create 60% of the international supply and demand, 65% of worldwide manufacturing, and 41% of global exports were devastated (Weder di Mauro et al., 2020). Weder di Mauro et al. (2020) asserted that during the COVID-19 health crisis employees were not able to work for various reasons according to (a) they contracted the disease, (b) caring for others who were ill, (c) staying home with children due to school closures, and (d) factory shutdowns. Additional prolonged factors of the pandemic were (a) minimal travel, (b) the rigors of the quarantine process, and (c) the mental exhaustion due to varying factors (Weder di Mauro

et al., 2020). Proactive measures must be employed by countries around the world to address the possibility of global pandemics through cooperation in the areas of public health and economic progression prior to the onslaught of a virus like COVID-19 (Weder di Mauro et al., 2020). Similarly, educational leaders must communicate with local, state, and when possible, at the federal level through legislators and policymakers to ensure the needs of students, faculty, staff, and their local communities are prepared for pandemic events in the future.

Regrettably, school officials were forced to close the doors of their educational institutions affecting millions of students around the world due to lockdowns and quarantine practices associated with COVID-19. Similarly, as with most health crises, the unpredictability of the disease generated confusion among health officials and health care providers in relation to the appropriate response to this type of sickness. As the contagion infected individuals across the world, mainly the elderly and immune compromised, the death rates for these sectors of the population increased rapidly during the peak of the pandemic. Much of the global school age student population, who were not as susceptible to this tragic disease, were without the necessary supports that schools provide in the areas of mental, physical, and social well-being. School settings are often the most ideal locale to meet student needs, especially during an event such as the COVID-19 health emergency. Educational leaders who did not prepare in advance and who did not have a quality written pandemic plan present were at a substantial disadvantage as they attempted to respond to such an unyielding virus.

The United States Department of Health and Human Services Centers for Disease Control and Prevention provides an array of documents related to pandemic flu outbreaks

for schools. Published in April 2017, the *Get Your School Ready for Pandemic Flu* document was designed to be used by educational leaders nationally as a baseline tool for pandemic plan design, implementation, and practice. Although this document could be modified based on the current COVID-19 pandemic, it includes practical disease prevention protocols that could be a first defense for the spread of many types of viruses not only the coronavirus. In addition, because flu vaccines require an enormous amount of time and resources to develop and distribute it may be necessary to utilize nonpharmaceutical interventions to prevent the spread of deadly diseases such as (a) not reporting to work or school when ill, (b) cover your nose and mouth when coughing, and (c) washing hands regularly with soap and water (United States Department of Health and Human Services Centers for Disease Control and Prevention, 2017). As implemented globally for schools during COVID-19, the United States Department of Health and Human Services Centers for Disease Control and Prevention suggested community nonpharmaceutical interventions such as (a) limited close contact, (b) creating distance between students at tables and desks, (c) modifying leave and attendance policies, (d) postponing or canceling large events, and (e) the possibility of school dismissal or closing. Additionally, school officials should establish quality cleaning protocols to prevent surface contact and cross contamination measures throughout their educational institutions if a disease manifestation is suspected (United States Department of Health and Human Services Centers for Disease Control and Prevention, 2017). Elementary school age children are targeted groups for the implementation of prevention methods such as hand washing programs and alcohol-free hand sanitizer effectiveness to decrease the incidence and spread of communicable

diseases (Cauchemez, et al., 2008). Educational leaders should plan and be prepared to engage in practices suggested by the United States Department of Health and Human Services Centers for Disease Control and Prevention to ensure the overall mental, physical, and social well-being of students, faculty, and staff during a pandemic flu/disease type of occurrence.

Historically, the 20th century experienced three known pandemics, the Spanish Influenza of 1918, the Asian Flu (H2N2) of 1957, and the Hong Kong Flu (H3N2) of 1968 (Weder di Mauro et al., 2020). Similarly, five pandemics have plagued the 21st century: the Severe Acute Respiratory Syndrome (SARS) in 2002, Avian Flu (N1H1) of 2009, Swine Flu (H1N1) of 2009, Middle East Respiratory Syndrome (MERS) of 2012, Ebola Virus Disease (EVD) of 2012-2014 in regions of Africa, and the Coronavirus (COVID-19) of 2019 (Weder di Mauro et al., 2020). The increased incidence of known global pandemics in the last two centuries are cause for concern along with the possibility of additional outbreaks on the horizon. Educational leaders must coordinate, collaborate, and create effective pandemic flu/disease plans to ease health concerns, minimize the spread of disease, and mitigate student, faculty, staff, and their communities' concerns in relation to fears associated with these types of events.

### **Statement of the Problem**

School personnel and students are not well-prepared with respect to safety and security protocols in schools in the United States (Steeves et al., 2017). The lack of involvement in school safety processes could interfere with the ability of educators to assist in developing students' mental, physical, and social well-being. Steeves et al. (2017) indicated that school personnel and students are not usually part of the planning

and implementation process of safety and security protocols. Furthermore, Steeves et al. (2017) asserted the importance of realistic safety planning programs being implemented in the development of prevention and preparation techniques used in public schools. Preparing for both common and the less frequent types of school threats (i.e., active shooter, hostage, and bomb threats) should not be ignored as school leaders design safety action plans.

In recent years legislation has been passed at the national, state, and local levels to ameliorate school safety by enhancing communication, awareness, prevention, plan design, and practice of safety drills. School accountability in relation to safety, according to Steeves et al. (2017), could be reinforced and refined through legislative actions. In a recent investigation Diliberti et al. (2019) analyzed crisis planning techniques for a national study on school safety and determined that the most frequently performed school safety drills were for (a) natural disasters at 94%, (b) active shooters at 92%, and (c) bomb threats or incidents at 91%. When school leaders were asked which factors most limited their safety prevention efforts, they responded that the three most frequently reported factors were (a) inadequate funds at 36%; (b) limitations on student placements or systems for students who disrupt the educational process at 34%; and (c) federal, state, or district policies related to behavioral concerns of students who are in special education programs at 19% (Diliberti et al., 2019).

Because of crime and safety issues, public schools in the United States now have characteristics of a fortress, features that detract from schools being places of learning and knowledge. According to Rooney (2015), creating an environment similar to a prison fails to consider the social and emotional learning elements that students need to

be well-rounded individuals. In addition, Rooney (2015) indicated that students need a multitude of experiences to learn more about themselves and their culture. Educational leaders are challenged with the task of creating a safe learning environment to protect the overall mental, physical, and social well-being of their students, faculty, and staff. According to McAlpin and Slate (2021), school leaders are essential in producing the necessary changes for school safety purposes. Nevertheless, efforts should be employed to unify and be inclusive of members of the school community when devising these strategies to overcome such school related catastrophes.

### **Purpose of the Study**

The overall purpose of this quantitative journal-ready dissertation was to determine the degree to which school level (i.e., elementary, middle, and high schools) and school urbanicity (i.e., city, suburb, town, and rural) were related to written safety plans (i.e., active shooter, hostage, bomb, and pandemic flu/disease threats) and drilled safety plans (i.e., evacuation, lockdown, and shelter-in-place) based on school administrator responses to a nationwide school safety survey. The first specific purpose was to ascertain the extent to which the frequencies of written school safety plans for active shooter, hostage, and bomb threats differ by school level and urbanicity. The second specific purpose was to establish the extent to which the frequencies of drilled school safety plans for evacuation, lockdown, and shelter-in-place practices differ by school level and urbanicity. The third specific purpose was to examine the extent to which written pandemic flu/disease safety plans differ by school level and urbanicity. In the third study, analyses were performed to determine if trends are present for school safety written pandemic flu/disease plans by school level and urbanicity.

### **Significance of the Study**

Literature related to safety and emergency planning is limited in the areas of written and drilled plans for educational settings. Researchers have performed a plethora of studies based on student, faculty, and staff reactions to crises and their perceptions of safety in schools, however, more research investigations are warranted in the areas of prevention and preparedness. Educational leaders need to be engaged in the formation of a school culture and a climate in which the implementation of high-quality safety practices is encouraged. Threats to the mental, physical, and social well-being of school community members must be eradicated in school settings. Increases in awareness of security issues such as written plans for active shooter, hostage, bomb threats, and pandemic flu/diseases can produce mitigation techniques to reinforce safety protocols. In addition, the regular performance of safety drills such as evacuations, lockdowns, and shelter-in-place procedures can minimize apprehension and confusion during a disaster. Evidence provided in this dissertation offers educational leaders at the elementary, middle, and high school levels essential data regarding the presence of, or absence of, written and drilled security plans. Moreover, information about the written and drilled security plans within this investigation are provided for school urbanicity levels. Through the conducted analyses hereunder, the recorded findings can assist educational leaders in the development and implementation of written and drilled security plans for their educational constituencies.



## **Definition of Terms**

Key terms for the three research investigations in this journal-ready dissertation are provided for the reader below.

### **Active Shooter Threat**

This phrase will be used to refer to “An individual actively engaged in killing or attempting to kill people in a confined and populated area; in most cases, active shooters use firearm(s) and there is no pattern or method to their selection of victims” (Diliberti et al., 2019, p. A-3).

### **Bomb Threat**

This term will refer to “A bomb threat is generally defined as a threat to detonate an explosive or incendiary device to cause property damage, death, or injuries, whether or not such a device actually exists” (University of South Florida Emergency Management, n.d., para.1).

### **City**

For the purposes of this dissertation, “A territory inside an urbanized area (defined as densely settled “cores” with populations of 50,000 or more of Census-defined blocks with adjacent densely settled surrounding areas) and inside a principal city (defined as a city that contains the primary population and economic center of a metropolitan statistical area, which, in turn, is defined as one or more contiguous counties that have a “core” area with a large population nucleus and adjacent communities that are highly integrated economically or socially with the core)” (Robers et al., 2010, p. 172).

**Drilled Safety Plan**

This phrase will be defined as “A drill is a coordinated, supervised activity usually employed to validate a single, specific operation or function in a single agency or organizational entity” (City of San Francisco Department of Emergency Management, n.d., para. 1).

**Elementary School**

This term will be interpreted as “A school whose lowest grade is 6 or lower, and whose highest grade is 8 or lower” (Diliberti et al., 2019, p. 14).

**Evacuation**

This term refers to the following explanation “The immediate and urgent movement of people away from a threat or actual occurrence of a hazard” (United States Department of Labor Occupational Safety and Health Administration, n.d., para. 3).

**High School**

This phrase will be used to refer to “Schools in which the lowest grade is not lower than grade 9 and the highest grade is not higher than grade 13” (Diliberti et al., 2019, p. 14).

**Hostage Threat**

Interpret this phrase using the following definition “Hostage situations are defined as events whereby the actor(s) (i.e., the hostage taker(s)) are holding one or more person’s captive against their will” (Bayerl et al., 2014 p. 197).

**Lockdown**

This term will be referred to as “A procedure that involves occupants of a school building being directed to remain confined to a room or area within a building with specific procedures to follow. A lockdown may be used when a crisis occurs outside of the school and an evacuation would be dangerous. A lockdown may also be called for when there is a crisis inside and movement within the school will put students in jeopardy. All exterior doors are locked and students and staff stay in their classrooms” (Padgett et al., 2020, p. A-3).

**Metropolitan Statistical Area**

This term will be described using the following definition “A region that consists of a city and surrounding communities that are linked by social and economic factors” (Office of Management and Budget, 2000, p. 82,235).

**Middle School**

This term will be described as “Schools in which the lowest grade is not lower than grade 4 and the highest grade is not higher than grade 9” (Diliberti et al., 2019, p. 14).

**Pandemic Flu/Disease**

For the purposes of this document this term occurs “When a new flu virus emerges that can infect people and spread globally” (United States Department of Health and Human Services Centers for Disease Control and Prevention, n.d., para. 1).

**Rural**

This term can be defined as “Fringe rural areas (Census-defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster), distant rural areas (Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than 10 miles from an urban cluster), and remote rural areas (Census-defined rural territory that is more than 25 miles from an urbanized area, as well as rural territory that is more than 10 miles from an urban cluster)” (Roberts et al., 2010, p. 173).

**School Level**

This term is based on “The lowest and highest grades offered by the school (i.e., elementary, middle, and high schools)” (Padgett et al., 2020, p. 14).

**School Survey on Crime and Safety**

For the purposes of this journal-ready dissertation “The School Survey on Crime and Safety (SSOCS), a nationally representative survey of U.S. K–12 public schools, is managed by the National Center for Education Statistics (NCES), an agency within the U.S. Department of Education’s Institute of Education Sciences. The SSOCS collects detailed information from public schools on the incidence, frequency, seriousness, and nature of violence affecting students and school personnel. In the SSOCS, information is also obtained about the programs, practices, and policies that schools have in place to prevent and reduce crime. Data from this collection can be used to examine the relationship between school characteristics and violent crimes in regular public primary, middle, high, and combined schools” (Padgett et al., 2020, p. 1).

**Shelter-in-Place**

This phrase will be used to refer to “Finding a safe location indoors and staying there until you are given an “all clear” or told to evacuate. You may be asked to shelter-in-place because of an active shooter; tornado; or chemical, radiological, or another hazard” (Yale University Emergency Management, n.d., para. 1).

**Suburban**

The following definition will be used to describe this term “A territory outside a principal city (defined as a city that contains the primary population and economic center of a metropolitan statistical area, which, in turn, is defined as one or more contiguous counties that have a “core” area with a large population nucleus and adjacent communities that are highly integrated economically or socially with the core) and inside an urbanized area (defined as densely settled “cores” with populations of 50,000 or more of Census-defined blocks with adjacent densely settled surrounding areas)” (Robers et al., 2010, p. 172).

**Town**

This term is defined as “A territory inside an urban cluster (defined as densely settled “cores” with populations between 25,000 and 50,000 of Census-defined blocks with adjacent densely settled surrounding areas)” (Robers et al., 2010, p. 173).

**Urbanicity**

Interpret this phrase using the following definition “Refers to the impact of living in urban areas at a given time. A review of the published literature suggests that most of the important factors that affect health can be considered within three broad themes: the

social environment, the physical environment, and access to health and social services” (Vlahov & Galea, 2002, p. S1).

### **Written Safety Plan**

The term will refer to “A written document that describes the process for identifying the physical and health hazards that could harm workers, procedures to prevent accidents, and steps to take when accidents occur” (Business and Learning Resources, n.d., para. 1).

### **Literature Review Search Procedures**

For the purposes of this literature review *school safety* is the practice of creating a learning environment that protects the mental, physical, and social well-being of students, staff, and all members of the learning community. During the process of conducting this literature review, several issues related to school safety were recognized and they are as follows: general perceptions of school safety, student and teacher perceptions of school safety, safety preparedness of schools, the prevalence of bullying in schools, and the need for proactive measures to prevent school shootings.

Data collected during the research portion of the literature review were through the use of electronic database searches. The databases that yielded the most scholarly and peer-reviewed journals were Education Source and Educational Resource Information Center (ERIC), Education Source, and Sam Houston State University’s Engine Orange. Research terms for this review included *school safety, perceptions, schools, school resource officer, drilled safety plans, written safety plans, pandemic, lockdown, shelter-in-place, evacuation, school shootings, school fires, school tornadoes, urbanicity, active shooter, hostage, bomb threats, safety plans, coronavirus, COVID-19,*

*pandemic flu, Cokeville Elementary, Platte Canyon High School, Joplin, Missouri tornado, Moore, Oklahoma tornado, and school violence.* The following key word searches were most effective in finding quality resources related to this review. Key words *school safety* and *perceptions* resulted in 131 results in Education Source, 220 results in ERIC, and Sam Houston State University's Engine Orange produced 23 results. Additionally, key words *prevention, education* and *schools* searches generated 379 results in Education Source and 186 results in ERIC. Besides limiting the searches to scholarly and peer-reviewed journals, publication dates were restricted to 2000-2021, except for *Cokeville Elementary* where 1980-2021 was utilized.

### **Delimitations**

The three studies contained in this journal-ready dissertation were limited to data from respondents to the School Survey on Crime and Safety for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years for the United States. Data for this study included written safety plans for active shooter, hostage, and bomb threats, drilled safety plans for evacuation, lockdown, and shelter-in-place, and written safety plans for pandemic flu/disease from the School Survey on Crime and Safety for the above mentioned school years solely and only in the United States. Further limitations included analyzing data on written and drilled safety plans by school level (i.e., elementary, middle, and high schools) and urbanicity (i.e., city, suburban, town, and rural) that was obtained from the School Survey on Crime and Safety for the 2007-2008, 2009-2010, 2015-2016 and 2017-2018 school years in the United States. The written and drills safety plans of interest for this journal-ready dissertation were for school level and urbanicity.

### **Limitations**

In this journal-ready dissertation, the effect of school level and urbanicity on the written safety plans for active shooter, hostage, and bomb threats, drilled safety plans for evacuation, lockdown, and shelter-in-place, and written safety plans for pandemic flu/disease was addressed. As a result, key limitations were present. Data for this examination included written safety plans for active shooter, hostage, and bomb threats, drilled safety plans for evacuation, lockdown, and shelter-in-place, and written safety plans for pandemic flu/disease from the School Survey on Crime and Safety for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years exclusively and only in the United States. Data were not analyzed for public schools whose school leaders did not respond to the School Survey on Crime and Safety for the school years in question. Collection of data was limited to the school years above and only in the United States because the survey was not conducted every school year. Only quantitative data was analyzed in the three studies in this journal-ready dissertation. Accordingly, the degree to which results were generalizable beyond the School Survey on Crime and Safety respondents for public schools whose data was analyzed herein is unknown. Lastly, data from the National Center for Education Statistics for the 2019 and 2020 school years are incomplete due to the COVID-19 pandemic. The research design herein constitutes a causal-comparative study in which cause-effect relationships cannot be established.

### **Assumptions**

The major assumption for this journal-ready dissertation was that the data provided to the United States Department of Education through the School Survey on



Crime and Safety were accurately reported. Any errors reported in relation to school level and urbanicity could negatively affect the results.

### **Procedures**

For this journal-ready dissertation, approval was requested by this researcher's dissertation committee. Once approval was obtained from the dissertation committee, additional approval was requested from the Sam Houston State University Institutional Review Board. After both approvals were obtained, archival data within the public domain from the United States Department of Education National Center for Education Statistics School Survey on Crime and Safety for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years were downloaded and analyzed.

### **Organization of the Study**

In this journal-ready dissertation, three research investigations occurred. In the first journal-ready dissertation article, the effect of school level and urbanicity on written safety plans (i.e., active shooter, hostage, and bomb threats) for the 2015-2016 and 2017-2018 school years in the United States was examined. In the second article, the effect of school level and urbanicity on drilled safety plans (i.e., evacuation, lockdown, and shelter-in-place) for the 2015-2016 and 2017-2018 school years in the United States was investigated. In the last article, the effect of school level and urbanicity on written pandemic flu/disease safety plans for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years in the United States was addressed.

This journal-ready dissertation comprises five chapters. Chapter I contains the background of the study, statement of the problem, purpose of the study, significance of the study, theoretical framework, definition of terms, delimitations, limitations, and

assumptions of the three research investigations. In Chapter II, the framework for the first journal-ready investigation is provided with the effect of school level and urbanicity on written safety plans for active shooter, hostage, and bomb threats. In Chapter III, the second journal-ready dissertation was an analysis into the effect of school level and urbanicity on drilled safety plans evacuation, lockdown, and shelter-in-place. In Chapter IV, the third journal-ready dissertation investigation contains the effect of school level and urbanicity on written pandemic flu/disease safety plans. To conclude, in Chapter V, the results interpreted in the three research articles were discussed.

## CHAPTER II

### SCHOOL LEVEL AND URBANICITY DIFFERENCES IN WRITTEN PLANS FOR ACTIVE SHOOTER, HOSTAGE, AND BOMB THREAT SCENARIOS: A NATIONAL ANALYSIS

This dissertation follows the style and format of *Research in the Schools (RITS)*.

### **Abstract**

This study was conducted to examine the effect of school level and urbanicity for written school safety plans in the areas of active shooter, hostage, and bomb threat scenarios for the 2015-2016 and 2017-2018 school years. Inferential statistical analyses of nationwide survey data revealed the presence of statistically significant differences in the incidence of written school safety plans. Elementary schools were more than two times less likely to have a written plan for bomb threats than were high schools. School located in the rural urbanicity category yielded statistically significant differences for written hostage and bomb threat plans in relation to other urbanicity groups. Recommendations for future research, as well as implications for policy and practice, were discussed.

*Keywords:* Active shooter; Hostage; Bomb threat; Written plan; Elementary; Middle school; High school; School safety; Safety drills; School shootings; Urbanicity

SCHOOL LEVEL AND URBANICITY DIFFERENCES IN WRITTEN PLANS FOR  
ACTIVE SHOOTER, HOSTAGE, AND BOMB THREAT SCENARIOS: A  
NATIONAL ANALYSIS

Almost daily threats of violence are directed at schools in the United States. They can occur in the form of bomb threats, school shootings, natural and man-made disasters, and all other forms of violence. It is the responsibility of school leadership to determine the urgency and severity of a threat. Furthermore, educational leaders can be at a disadvantage when experiencing a school emergency because of an ineffectively developed plan due to their failure to follow state and national guidelines set forth in law by legislators (McAlpin & Slate, 2021). By demonstrating proactiveness through implementing responses to action (i.e., development, preparation, mitigation, and recovery), educational leaders could minimize the effects of hazardous safety concerns for school system personnel and students (Lopez et al., 2020). Being proactive when addressing a security risk is essential to providing the best possible guidance to students, faculty, and staff in a potential emergency.

In the United States, as many as 13 states have enacted legislation that requires the establishment of school safety studies, councils, and committees (Council of State Governments Justice Center, 2014). Approximately 33 states have implemented policies that require all schools to develop a comprehensive emergency operations plan (Council of State Governments Justice Center, 2014). McAlpin and Slate (2021) commented that legislators across the United States have issued laws that enforce the development, implementation, training, and practice of security plans to improve the overall response of school leaders during a crisis. Educational leaders must be competent and prepared

when addressing threats against schools. By responding appropriately as a school leader, with adequate information and quality resources, a dangerous situation could be swiftly mitigated allowing for a more successful resolution to a school safety incident.

School safety issues have transformed the educational system in the United States substantially in recent years. Increases in the use of technology, mental health issues, and the breakdown of nuclear families has contributed to the increase in incidents and safety breaches in the public education system in the United States. Fisher et al. (2017) argued violence that occurs outside of the school setting can have an adverse effect on students and ultimately carryover to the school community. Fisher et al. (2017) concluded that students who experienced exposure to violent community events were most susceptible to negative school outcomes due to (a) close proximity to the event, (b) the time frame of the event, and (c) knew the victim or perpetrator. School leaders have been thrust, possibly unprepared, into these challenging situations. Additionally, educators are charged with protecting the mental, physical, and social well-being of their students especially those individuals who experience difficulties at home and school as well. Educational leaders must build trust, inspire others to act, and enhance their school safety acumen.

Although having a high-quality schoolwide safety plan is important, failure to implement the protocols and practice the drills within the plan could be tantamount to negligence. Kano et al. (2007) conducted a study on safety preparedness of 83 schools in three unified school districts in Los Angeles County, California. They concentrated on the school districts' emergency operations plans, emergency response training, and the application of the required Standardized Emergency Management System set forth by the

state. Respondents in this study believed they were well-prepared for disasters and emergencies that could possibly affect their school districts. Unfortunately, the questions in the survey related to school preparedness did not reflect these perceptions.

Standardized Emergency Management System implementation was meager among all district schools. This lack of enactment is cause for concern because the management systems are mandated by the state. Other concerns were a lack of recent training in emergency response procedures, which was compounded by the high turnover rates at the sample districts. Recommended in the Kano et al. (2007) study was that key stakeholders and state officials create more realistic expectations not only in training requirements, but also in the types of skills necessary to address the most common safety concerns in the sample school districts in general.

Tragic events occur every day in educational settings without provocation or an obvious purpose. The Virginia Polytechnic Institute shooting is considered one of the most tragic school violence events in recent history. Fallahi et al. (2009) surveyed college students and college faculty and staff perceptions of the Virginia Polytechnic Institute shooting three weeks after this event that occurred in 2007. A sampling of students, 145 females and 167 males, participated in the study along with 237 faculty and staff members of which 130 were faculty and 107 were staff members. Students in this study responded to questions about the causes of the shooting and answered most frequently with mental illness, lack of social support, and poor parenting. Moreover, faculty and staff members responded similarly, but considered violent video games and media as contributors to this type of violent act upon schools. Although a variety of

suggested causes for this horrific event were expressed during this study, far more questions were raised than answers to this type of adverse school safety event.

Throughout the Fallahi et al. (2009) study, two important themes emerged in the areas of mental health and lack of friends. The two respondent groups, students and staff, in the study considered poor prevention practices as key elements in relation to school violence. Students in this study perceived good parenting as a major inhibitor of school violence, contrasted with faculty and staff members who were more inclined to select the effects of media related violence as a contributor. Although the Virginia Polytechnic Institute perpetrator did not state why he committed such a heinous crime, more research on this topic could provide information to assist school leaders and communities on how to mitigate such events in the future (Fallahi et al., 2009). It is imperative that educational leaders learn more about the warning signs and behaviors that can contribute to such tragedies.

School hostage events, although extremely rare, can occur and end very tragically based on information from two unique school safety incidents from the past. Two public schools, Cokeville Elementary located in Cokeville, Wyoming in 1986 and more recently Platte Canyon High School in Bailey, Colorado in 2006, were attacked using a combination of terrorizations. Active shooter and hostage threats were used in both incidents, but in the case of the Cokeville Elementary event a bomb mechanism was employed. School leaders in both tragedies were left to mitigate the disaster and to provide crisis management techniques. In an effort to prevent school terrorist acts, school leaders collaborated to develop school safety action plans to prevent such events in the future.



In 1986 a breach in security at Cokeville Elementary led to a hostage situation that endangered 135 students, 14 teachers, the campus principal, and three other adults confined to a classroom with two campus intruders and a bomb device (Lowe, 1987). Lowe (1987) further analyzed the hostage situation which transpired for approximately two hours and ended abruptly when one of the perpetrators accidentally detonated the bomb, killing himself and severely injuring a multitude of hostages. Post event observations and mitigation actions assisted in the recovery process. Lowe (1987), who was the school district's superintendent at the time of the tragedy, reflected on the occurrence and concluded certain coping mechanisms were necessary to process all the information related to the horrifying event for all involved. Lowe (1987) described the following five principles as a method of management and recovery during and after a crisis: (a) empathy should be applied to the circumstance, (b) counseling services should be incorporated, (c) organizational practices during and after the event should be maintained, (d) a plan should be devised for an expedient return to a normal routine, and (e) learn from the tragic event.

Coincidentally, another hostage situation would take place just over 20 years later in Platte Canyon High School where students, school leaders, teachers, other school employees, and community members experienced a disturbing event in the early weeks of the 2006-2007 school year. Dishman et al. (2011) performed a study based on the recovery process and administrative response to the harrowing event. A lone gunman entered the Platte Canyon High School campus and took a class of college-prep English students hostage and asked the teacher to leave. The hostage event lasted approximately four hours during which time the offender released all but two of the female captives.

Throughout the hostage situation the remainder of the campus occupants were on lockdown, a recommended school safety practice, and local county law enforcement officials were involved in negotiations with the assailant. The attacker warned school leaders and law enforcement officials of an imminent and potentially harmful action that was planned by the culprit. This new time frame hindered the negotiators response to the situation and expedited a plan of action. Law enforcement officers entered the classroom in question with the use of explosives, but were unable to prevent the murder suicide that left a 16-year-old female dead along with the assaulter. Due to the school district preparedness and the implementation of school safety protocols and procedures, a potentially catastrophic loss of life was prevented (Dishman et al., 2011). During an investigation based on hostage written plans by school level using a national survey, McAlpin and Slate (2021), indicated that school administrators reported having hostage written plans for (a) elementary schools at 58%, (b) middle schools at 62%, and (c) high schools at 66%. The lack of written plans for each of these school levels is concerning due to the severity of hostage threats. School leaders who collaborate with students, school employees, key stakeholders, and policymakers could be catalysts in the development of programs and prevention plans that reduce hostage style crimes such as the events that occurred at Cokeville Elementary and Platte Canyon High School.

Correspondingly, educational leaders who demonstrate excellence in their schools academically and through effective policies and procedures could enhance the culture and climate of their institutions (McAlpin & Slate, 2021). Educators in their efforts to provide a safe learning environment that protects the mental, physical, and social well-being of students and staff contribute to the overall health and well-being of the school

community. Similarly, school officials must use their management skills to foster a vision for school safety that includes written policies and procedures, positive learning environments, accountability, consistency, and collaboration.

### **Statement of the Problem**

Teacher and student involvement in the design, development, and implementation of school safety and security procedures can improve their response to potentially life threatening events that can occur in the schoolhouse (Steeves et al., 2017). All types of school threats should be considered when preparing for the unique safety incidents that occur in school settings, not only the most frequent threats (Steeves et al., 2017).

Through the passage of legislation at the national, state, and local levels, safety standards such as awareness, security training, drill practice, and the development of emergency operation plans have reinforced the importance of matters related to school safety and preventative practices (Steeves et al., 2017). In a review of legislative activities pertaining to school safety, Steeves et al. (2017) contended that certain legislation has improved school safety in the area of accountability. In a national examination of school safety, Diliberti et al. (2019) determined that the most frequently performed school safety drills were in preparation (a) natural disasters at 94%, (b) active shooters at 92%, and (c) bomb threats or incidents at 91%.

Educational institutions across the United States prepare and incorporate preventative measures for the worst possible disasters, however, limited data exists regarding whether differences exist in written safety plans by school level and by urbanicity. Hull (2011) reported all schools are expected to plan and prepare for similar emergency events, nevertheless, all educational institutions do not have access to the

same resources to respond adequately. Written safety plans should be specific to each school system as it pertains to their unique locale and potentially dangerous circumstances (Lopez et al., 2020). Superior school safety protocols begin with the implementation of quality written action plans designed specifically for that school system (Kano & Bourque, 2007). By playing a role in the mental, physical, and social well-being of their students, school leaders serve an essential purpose of ensuring a safe and secure learning environment.

### **Purpose of the Study**

The purpose of this study was to examine the degree to which differences were present in active shooter scenario written plans as a function of school level (i.e., elementary, middle, and high schools), and school urbanicity (i.e., city, suburb, town, and rural). Survey data were analyzed to determine the degree to which differences were present in hostage scenario written plans as a function of school level and school urbanicity. Furthermore, the degree to which differences existed in bomb threat scenario written plans as a function of school level and school urbanicity was addressed. Through the analysis of a nationwide dataset, the degree to which school level and school urbanicity differences were present in active shooter, hostage, and bomb threat scenario written plans was determined.

### **Significance of the Study**

A foremost concern for educational leaders is generating a culture of safety in schools, one that increases awareness of security issues, particularly in respect to campus intruder emergencies. Ever present in the media are school safety concerns, these potential fears are of paramount importance to educational leaders. The substance of this

article lies in the information that will be provided to educational leaders at the elementary, middle, and high school levels regarding the presence of, or absence of, written security plans. Moreover, information about three written security plans will be provided at school urbanicity levels. Findings from the analyses conducted herein can assist educational leaders in their generation and implementation of written security plans at their school campuses.

### **Research Questions**

The following research questions were addressed in this study: (a) What is the difference in active shooter scenario written plans in public schools as a function of school level? (b) What is the difference in hostage scenario written plans in public schools as a function of school level?; (c) What is the difference in bomb threat scenario written plans in public schools as a function of school level?; (d) What is the difference in active shooter scenario written plans in public schools by school urbanicity?; (e) What is the difference in hostage scenario written plans in public schools by school urbanicity?; and (f) What is the difference in bomb threat scenario written plans in public schools by school urbanicity? These six research questions were examined separately for the 2015-2016 and the 2017-2018 school years.

## **Method**

### **Research Design**

A causal comparative, ex post facto, research design (Johnson & Christensen, 2020) was present for this study. Archival survey data were downloaded and analyzed herein. Because of the use of already existing data, neither the independent variables of school level and school urbanicity nor the dependent variables of written plans were

altered or modified. As such, the extent to which cause and effect relationships can be made was quite limited (Johnson & Christensen, 2020).

### **Participants and Instrumentation**

Participants who responded to the survey that was analyzed herein were elementary, middle, and high school principals. The survey that was used was the School Survey on Crime and Safety, a federally mandated national survey in which questions are asked about a variety of school related safety and security questions that could assist schools in implementing effective safety measures and prevent or reduce loss of life, property, and incidence of crime in public schools documented by Diliberti et al. (2019). Respondents completed the survey by answering the questions with either a Yes or a No.

For the purpose of this study, school level was based on the standard school levels of elementary, middle, and high schools. The National Center for Education Statistics in 2006 released new standards for determining urbanicity for the purposes of their research parameters. Based on these changes, 12 categories were derived from four specific locales (i.e., city, suburb, town, and rural) replacing the previous classification process of population density with a new standard utilizing proximity to urban centers across the United States.

Written plans constitute school plans that are tangible and in a usable form, not simply verbal or word of mouth. Active shooter scenario written plans provide school leaders with the most ideal techniques to manage a situation where a firearm has been discharged in a school facility by an unwelcome individual with intent to harm others. Similarly, educational institutions also prepare for hostage situations through the use of scenario written plans. School hostage situation preparation is akin to active shooter

scenarios, but requires additional support from local law enforcement departments to prepare for potential negotiation protocols with the assailant. Hostage plans prepare for circumstances that may or may not involve firearms, explosives, or other types of dangerous weapons. Correspondingly, bomb threat scenario written plans provide school leaders with the procedures necessary to address possible bomb(s), an explosive weapon, at school campus sites. Responses to bomb threat scenarios included in a written plan are building evacuation, contacting law enforcement, widespread sweeps of the evacuation destinations, and the isolation of bomb and or bomb materials.

### **Results**

Pearson chi-square procedures were used to answer the research questions previously delineated. The Pearson chi-square method was the appropriate statistical procedure to use because frequency data were present for both independent variables and for all of the survey questions. Because the independent variables and survey items were categorical in nature, chi-squares were the statistical procedure of choice (Slate & Rojas-LeBouef, 2011). With the large sample sizes from the national survey, the available sample size per cell was more than five. Therefore, the assumptions for using Pearson chi-square procedures were met.

#### **Written Plan for Active Shooter Scenario by School Level**

With respect to the 2015-2016 school year, a statistically significant difference was revealed for school level,  $\chi^2(2) = 11.01, p = .004$ . The effect size for this finding, Cramer's V, was below small, .07 (Cohen, 1988). As revealed in Table 2.1, more than two times as many elementary schools did not have an active shooter scenario written

plan compared to high schools. About a third less of elementary schools did not have an active shooter scenario written plan than did middle schools.

-----  
 Insert Table 2.1 about here  
 -----

Concerning the 2017-2018 school year, a statistically significant difference was not yielded for school level,  $\chi^2(2) = 1.60, p = .45$ . Though not statistically significant, high schools were more likely to have written plans for active shooter scenarios than elementary and middle schools. Middle schools were least likely to have a written plan for an active shooter scenario than were elementary and high schools, respectively. Table 2.2 contains the descriptive statistics for this analysis.

-----  
 Insert Table 2.2 about here  
 -----

### **Written Plan for Hostage Threat Scenario by School Level**

Regarding written plans related to hostage scenarios for the 2015-2016 school year by school level, the result was statistically significant,  $\chi^2(2) = 9.68, p = .008$ . The effect size for this finding, Cramer's V, was below small, .07 (Cohen, 1988). High schools were almost 10% more likely to have a written hostage scenario plan than were elementary schools. Both elementary and middle schools were less likely to have plans for hostage threat scenarios than were high schools. Table 2.3 contains the descriptive statistics for this analysis.



-----  
Insert Table 2.3 about here  
-----

For the 2017-2018 school year, the result was not statistically significant,  $\chi^2(2) = 3.66, p = .16$ . Though not statistically significant, more than 50% of elementary and middle schools did not have a written plan for hostage threat scenarios. Just over half of high schools had written hostage threat plans as compared to elementary and middle schools. Delineated in Table 2.4 are the descriptive statistics for this analysis.

-----  
Insert Table 2.4 about here  
-----

### **Written Plan for Bomb Threat Scenario by School Level**

With respect to the 2015-2016 school year, a statistically significant difference was present for written plans for bomb threat scenarios,  $\chi^2(2) = 23.21, p < .001$ . The effect size for this finding, Cramer's V, was small, .11 (Cohen, 1988). Three times as many elementary schools did not have a written bomb threat scenario plan than did high schools and more than two times as many elementary schools did not have such a plan in comparison to middle schools. Revealed in Table 2.5 are the descriptive statistics for this analysis.

-----  
Insert Table 2.5 about here  
-----

Concerning the 2017-2018 school year, a statistically significant difference was yielded,  $\chi^2(2) = 23.93, p < .001$ . The effect size for this finding, Cramer's V, was small, .10 (Cohen, 1988). As presented in Table 2.6, more than two times as many elementary schools did not have a bomb threat scenario written plan compared to high schools. More than a third as many elementary schools did not have an active shooter scenario written plan than did middle schools.

-----  
 Insert Table 2.6 about here  
 -----

### **Written Plan for Active Shooter Scenario by Urbanicity**

With respect to the 2015-16 school year, a statistically significant difference was not revealed,  $\chi^2(2) = 1.30, p = .73$ . Though not statistically significant, about a third more schools within townships had an active shooter plan than schools within cities. Active shooter plans were present in both suburb and rural school locations at approximately 95% of the time. Revealed in Table 2.7 are the descriptive statistics for this analysis.

-----  
 Insert Table 2.7 about here  
 -----

Concerning the 2017-2018 school year, the difference approached, but did not reach, the conventional level of statistical significance,  $\chi^2(3) = 6.96, p = .07$ . As delineated in Table 2.8, more than third of schools located within a city did not have a written active shooter threat plan as did schools within a suburb. Schools within a town

were almost a third less likely to have a written plan for active shooter than were schools located in a suburb.

-----  
Insert Table 2.8 about here  
-----

### **Written Plan for Hostage Threat Scenario by Urbanicity**

Regarding the 2015-2016 school year for written plans related to hostage scenarios, the result approached, but did not reach, the conventional level of statistical significance,  $\chi^2(3) = 6.29, p = .10$ . Both school locations, suburb and town, were less likely to have written plans for hostage threats than schools within a city or a rural location. Readers should note that all urbanicity categories school locations were below a 70% completion rate for written hostage threat plans. Table 2.9 contains the descriptive statistics for this analysis.

-----  
Insert Table 2.9 about here  
-----

With respect to the 2017-2018 school year, a statistically significant difference was yielded,  $\chi^2(3) = 12.60, p = .006$ . The effect size for this finding, Cramer's V, was below small, .07 (Cohen, 1988). Schools located within rural areas were more likely to have written hostage plans than were schools within a city, suburb, or town. Schools in all urbanicity reporting groups completed written hostage plans at a rate of less than 70%. Presented in Table 2.10 are the descriptive statistics for this analysis.

-----  
Insert Table 2.10 about here  
-----

### **Written Plan for Bomb Threat Scenario by Urbanicity**

Concerning the 2015-2016 school year, a statistically significant difference was not present,  $\chi^2(3) = 2.93, p = .40$ . Though not statistically significant, schools within rural areas were a third less likely to have a written plan for bomb threats than were schools located within a suburb. Schools for all urbanicity groups had written plans for bomb threats at a rate of 95% or greater. Revealed in Table 2.11 are the descriptive statistics for this analysis.

-----  
Insert Table 2.11 about here  
-----

Regarding the 2017-2018 school year, a statistically significant difference was revealed,  $\chi^2(3) = 7.80, p = .05$ . The effect size for this finding, Cramer's V, was below small, .05 (Cohen, 1988). Just over two thirds of schools within a city had no written plan for a bomb threat. Written bomb threat plans for schools located in towns occurred less often than written plans for schools in rural locations. Table 2.12 contains the descriptive statistics for this analysis.

-----  
Insert Table 2.12 about here  
-----

## Discussion

In this investigation, the degree to which differences were present in written plans for active shooter, hostage, and bomb threats by school level and urbanicity for the 2015-2016 and 2017-2018 school years was addressed. Statistically significant differences were revealed for active shooter, hostage, and bomb threat written plans by school level for each of the school years in question. In contrast, results for urbanicity differences for the three written safety plans were less consistent in nature.

Written plans for elementary schools in each of the three threat scenarios were present less often than at the middle and high school levels for both years of this investigation. At the high school level, active shooter written plans were two times more likely to be present than at the elementary school level for the 2015-2016 school year. Furthermore, written plans for hostage threats were present 10% more often at high schools than at elementary schools in the 2015-2016 school year. Elementary schools were three times less likely to have a written plan for bomb threats than high schools and more than two times as many elementary schools did not have a written plan in comparison to middle schools in 2015-2016. In the 2017-2018 school year, more than two times as many elementary schools did not have written plans for bomb threats than high schools. Middle schools were one third more likely to have a written plan for the same type of threat.

Urbanicity was a factor in the 2017-2018 school year for both hostage and bomb threat written plans. A statistically significant difference was determined in the area of hostage threats for schools in rural areas as compared to schools in a city, suburb, or town. In addition, schools within rural areas were two thirds more likely to have a

written plan for bomb threats than did schools located within a city. These results are depicted in Figures 2.1 through 2.6.

-----  
Insert Figures 2.1 through 2.6 about here  
-----

### **Connections to Existing Literature**

As documented in this empirical multiyear analysis, differences were present in written school safety plans by school level and urbanicity. These results were consistent with the conclusions from other researchers (Hull, 2011; Kano & Bourque, 2007; Kano et al., 2007; Lopez, et al., 2020; Steeves et al., 2017) who emphasized the value and importance of proactive, preventive, and applicable written safety plans for schools. Educational leaders are compelled to provide a safe and secure environment for members of the learning community. School safety plans by school and urbanicity level, if not thoroughly developed, can hinder overall school success and achievement.

### **Implications for Policy and for Practice**

Following the outcomes of this study, implications for policy and practice are present. The number of schools lacking written safety plans in the public school system is concerning. Initially, with respect to policy, school leaders need to incorporate prevention and mitigation techniques in the public school system. Policymakers are influential and could assist in the implementation of school safety accountability programs. By creating a systematic method of development, local adoption, and the reporting of emergency operations plans could be beneficial in preventing school disasters. Moreover, school safety policies could be managed by a centralized reporting

agency, preferably at state and/or regional levels, created to assist school officials in meeting their safety goals. Additionally, many of the school safety concerns are directly linked to mental and social health issues. Educational leaders should position themselves at the forefront of school safety by leading in the development of written plans for students, faculty, and staff. Funding and further education in the area of mental health for school personnel, parents/guardians, and students would be another proactive measure to aid in the prevention of school related safety breaches.

Regarding implications for practice, many schools failed to implement essential written plans as a proactive measure when experiencing a crisis. Regrettably, educational leaders must consider the effects of mental health issues on school safety concerns. Adding supplemental staff members and training practices are a possible approach. Additionally, social services could be used to assist school officials with safety vulnerabilities and intervene in situations that have the potential for violent outcomes. Furthermore, educational institutions governing bodies could adopt school safety plans and create an accountability system to ensure safety measures are incorporated into the school system as a common practice.

### **Recommendations for Future Research**

Based upon the findings of this study, several recommendations are possible for further research. The survey data analyzed herein pertained only to written plans for active shooter, hostage, and bomb threat scenarios. Additional research investigations could be conducted for other written safety plans (e.g., pandemic flu/disease), drilled safety plans (e.g., evacuation, lockdown, and shelter-in-place), safety drill frequencies, and other similar related scenarios. Correspondingly, qualitative interviews of a

sampling of school level principals could glean additional data to alleviate any concerns about extraneous variables. Future researchers could ask more specific questions about the community makeup, the physical design of school campuses, or access to public services (e.g., fire safety and rescue, police services, and emergency medical services). Similarly, a more focused study on elementary implementation of written safety plans could supplement the findings of this article.

### **Conclusion**

The purpose of this research study was to determine the extent to which differences were present in written safety plans by school level and urbanicity. Results discussed herein introduce valid concerns about the implementation of active shooter, hostage, and bomb threat written plans for elementary schools as compared to middle and high schools. In addition, written safety plans were present less than 70% of the time at all levels of school urbanicity for hostage threats. Two times the number of high schools had active shooter written plans as compared to elementary schools. Schools located in rural areas were more likely to have written hostage plans than did schools within a city, suburb, or town. More than a third of schools located within a city did not have a written active shooter threat plan as did schools within a suburb. School safety should be considered an important priority to school leaders, policymakers, and community stakeholders.



## References

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum.
- Council of State Governments Justice Center. (2014). *School safety plans: A snapshot of legislative action*. <https://csgjusticecenter.org/wp-content/uploads/2014/03/NCSL-School-Safety-Plans-Brief.pdf>
- Diliberti, M., Jackson, M., Correa, S., & Padgett, Z. (2019). *Crime, violence, discipline, and safety in U.S. public schools: Findings from The School Survey on Crime and Safety: 2017-18* (NCES 2019-061). U.S. Department of Education. National Center for Education Statistics. <http://nces.ed.gov/pubsearch>
- Dishman, M. L., Lewis, J. L., & Pepper, M. J. (2011). "A student [came] down and said 'There's a...guy in the...English classroom with a gun'": Recovering from violent invasion. *Journal of Cases in Educational Leadership*, 14(1), 48-58. <https://doi.org/10.1177/1555458911408792>
- Fallahi, C. R., Austad, C. S., & Fallon, M. (2009). A survey of perceptions of the Virginia Tech tragedy. *Journal of School Violence*, 8(2), 120-135. <https://doi.org/10.1080/15388220802074017>
- Fisher, B.W., Nation, M., Nixon, C. T., & McIlroy, S. (2017). Students' perceptions of safety at school after Sandy Hook. *Journal of School Violence*, 16(4), 349-360. <http://dx.doi.org/10.1080/15388220.2015.1133310>
- Hull, B. (2011). Changing realities in school safety and preparedness. *Journal of Business Continuity and Emergency Planning*, 5(1), 440-450. Electronic ISSN 1749-9227

- Johnson, B., & Christensen, L. B. (2020). *Educational research quantitative, qualitative, and mixed methods* (7th ed.). Sage.
- Kano, M., & Bourque, L. B. (2007). Experiences with preparedness for emergencies and disasters among public schools in California. *NASSP Bulletin*, *91*(3), 201-218.  
<https://doi.org/10.1177/0192636507305102>
- Kano, M., Ramirez, M., Ybarra, W. J., Frias, G., & Bourque, L. B. (2007). Are schools prepared for emergencies? A baseline assessment of emergency preparedness at school sites in three Los Angeles County school districts. *Education and Urban Society*, *39*(3), 399-422. <https://doi.org/10.1177/0013124506298130>
- Lopez, R., Swezey, J. A., & Claxton, R. (2020). A multiple case study of the interagency relationship between school administrators and law enforcement personnel in the creation, implementation, and sustaining of school emergency management plans. *Journal of School Leadership*, *30*(5), 465-488.  
<https://doi.org/10.177/1052684619896536>
- Lowe, J. A. (1987, April). *What we learned: Some generalizations in dealing with a traumatic event at Cokeville*. Paper presented at the Annual Meeting of the National School Boards Association, San Francisco, CA.
- McAlpin, D.S., & Slate, J. R. (2021). School level differences in school threat scenario written plans: A national analysis. *Journal of Leisure and Recreation Patterns*, *2*(1), 1-10. <https://jlrppatterns.com/index.php/jlrp/article/view/3/8>
- Office of Management and Budget. (2000). Standards for Defining Metropolitan and Micropolitan Statistical Areas; Notice. *Federal Register* (65) No. 249.

- Rooney, T. (2015). Higher stakes-the hidden risks of school security fences for children's learning environment. *Environmental Education Research*, 21(6), 885-898.  
<https://doi.org/10.1080/13504622.2014.936308>
- Slate, J. R., & Rojas-LeBouef, A. (2011). *Calculating basic statistical procedures in SPSS: A self-help and practical guide to preparing theses, dissertations, and manuscripts*. NCPEA Press.
- Steeves, R. M., Metallo, S. A., Byrd, S. M., Erickson, M. R., & Gresham, F. M. (2017). Crisis preparedness in schools: Evaluating staff perspectives and providing recommendations for best practices. *Psychology in the Schools*, 54(6), 563-580.  
<https://doi.org/10.1002/pits.22017>

**Table 2.1**

*Descriptive Statistics for Written Active Shooter Threat Scenario Plans by School Level for the 2015-2016 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 473) 91.70%	( <i>n</i> = 43) 8.30%
Middle Schools	( <i>n</i> = 680) 94.60%	( <i>n</i> = 39) 5.40%
High Schools	( <i>n</i> = 743) 96.00%	( <i>n</i> = 31) 4.00%

**Table 2.2**

*Descriptive Statistics for Written Active Shooter Threat Scenario Plans by School Level for the 2017-2018 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 624) 93.00%	( <i>n</i> = 47) 7.00%
Middle Schools	( <i>n</i> = 904) 92.70%	( <i>n</i> = 71) 7.30%
High Schools	( <i>n</i> = 938) 94.10%	( <i>n</i> = 59) 5.90%

**Table 2.3**

*Descriptive Statistics for Written Hostage Threat Scenario Plans by School Level for the 2015-2016 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 298) 57.80%	( <i>n</i> = 218) 42.20%
Middle Schools	( <i>n</i> = 448) 62.30%	( <i>n</i> = 271) 37.70%
High Schools	( <i>n</i> = 513) 66.30%	( <i>n</i> = 261) 33.70%

**Table 2.4**

*Descriptive Statistics for Written Hostage Threat Scenario Plans by School Level for the 2017-2018 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 316) 47.10%	( <i>n</i> = 355) 52.90%
Middle Schools	( <i>n</i> = 467) 47.90%	( <i>n</i> = 508) 52.10%
High Schools	( <i>n</i> = 512) 51.40%	( <i>n</i> = 485) 48.60%

**Table 2.5**

*Descriptive Statistics for Written Bomb Threat Scenario Plans by School Level for the 2015-2016 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 481) 93.20%	( <i>n</i> = 35) 6.80%
Middle Schools	( <i>n</i> = 697) 96.90%	( <i>n</i> = 22) 3.10%
High Schools	( <i>n</i> = 760) 98.20%	( <i>n</i> = 14) 1.80%



**Table 2.6**

*Descriptive Statistics for Written Bomb Threat Scenario Plans by School Level for the 2017-2018 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 599) 89.30%	( <i>n</i> = 72) 10.70%
Middle Schools	( <i>n</i> = 915) 93.80%	( <i>n</i> = 60) 6.20%
High Schools	( <i>n</i> = 950) 95.30%	( <i>n</i> = 47) 4.70%

**Table 2.7**

*Descriptive Statistics for Written Active Shooter Threat Scenario Plans by Urbanicity for the 2015-2016 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 523) 93.70%	<i>(n</i> = 35) 6.30%
Suburb	<i>(n</i> = 735) 94.10%	<i>(n</i> = 46) 5.90%
Town	<i>(n</i> = 282) 95.60%	<i>(n</i> = 13) 4.40%
Rural	<i>(n</i> = 431) 94.10%	<i>(n</i> = 27) 5.90%

**Table 2.8**

*Descriptive Statistics for Written Active Shooter Threat Scenario Plans by Urbanicity for the 2017-2018 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 662) 91.60%	<i>(n</i> = 61) 8.40%
Suburb	<i>(n</i> = 977) 94.50%	<i>(n</i> = 57) 5.50%
Town	<i>(n</i> = 352) 92.10%	<i>(n</i> = 30) 7.90%
Rural	<i>(n</i> = 585) 93.90%	<i>(n</i> = 38) 6.10%

**Table 2.9**

*Descriptive Statistics for Written Hostage Threat Scenario Plans by Urbanicity for the 2015-2016 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 355) 63.60%	<i>(n</i> = 203) 36.40%
Suburb	<i>(n</i> = 474) 60.70%	<i>(n</i> = 307) 39.30%
Town	<i>(n</i> = 178) 60.30%	<i>(n</i> = 117) 39.70%
Rural	<i>(n</i> = 308) 67.20%	<i>(n</i> = 150) 32.80%

**Table 2.10**

*Descriptive Statistics for Written Hostage Threat Scenario Plans by Urbanicity for the 2017-2018 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 334) 46.20%	<i>(n</i> = 389) 53.80%
Suburb	<i>(n</i> = 487) 47.10%	<i>(n</i> = 547) 52.90%
Town	<i>(n</i> = 195) 51.00%	<i>(n</i> = 187) 49.00%
Rural	<i>(n</i> = 341) 54.70%	<i>(n</i> = 282) 45.30%

**Table 2.11**

*Descriptive Statistics for Written Bomb Threat Scenario Plans by Urbanicity for the 2015-2016 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 538) 96.40%	<i>(n</i> = 20) 3.60%
Suburb	<i>(n</i> = 758) 97.10%	<i>(n</i> = 23) 2.90%
Town	<i>(n</i> = 285) 96.60%	<i>(n</i> = 10) 3.40%
Rural	<i>(n</i> = 436) 95.20%	<i>(n</i> = 22) 4.80%

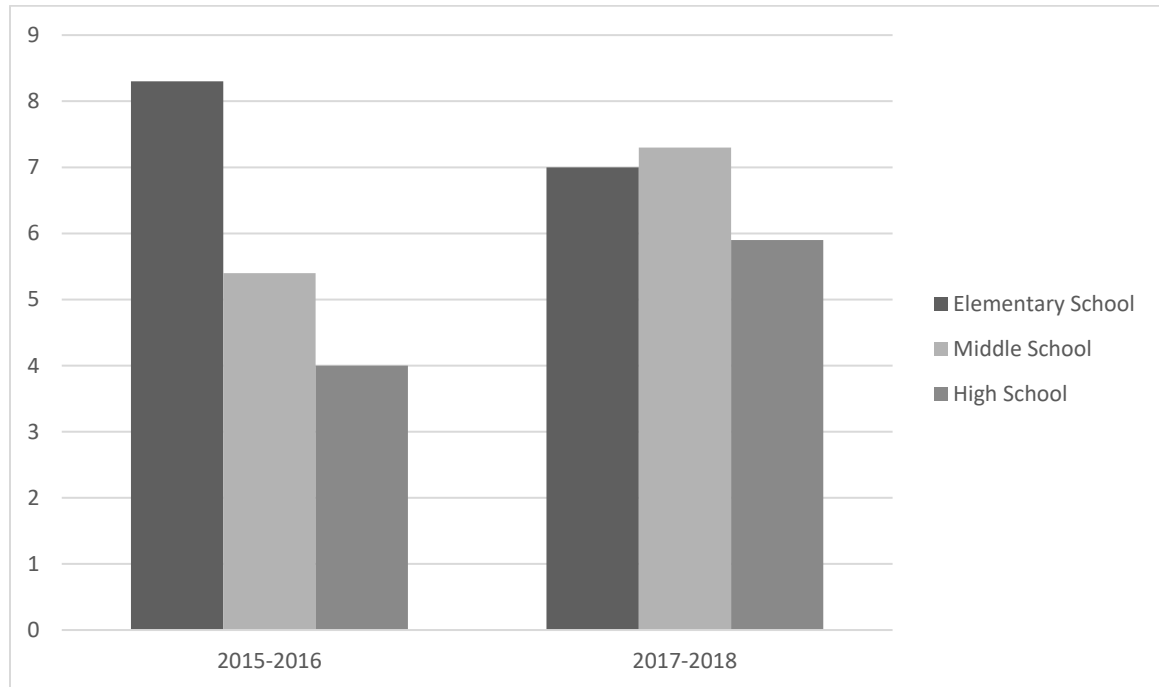
**Table 2.12**

*Descriptive Statistics for Written Bomb Threat Scenario Plans by Urbanicity for the 2017-2018 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 660) 91.30%	<i>(n</i> = 63) 8.70%
Suburb	<i>(n</i> = 968) 93.60%	<i>(n</i> = 66) 6.40%
Town	<i>(n</i> = 355) 92.90%	<i>(n</i> = 27) 7.10%
Rural	<i>(n</i> = 592) 95.00%	<i>(n</i> = 187) 6.80%

**Figure 2.1**

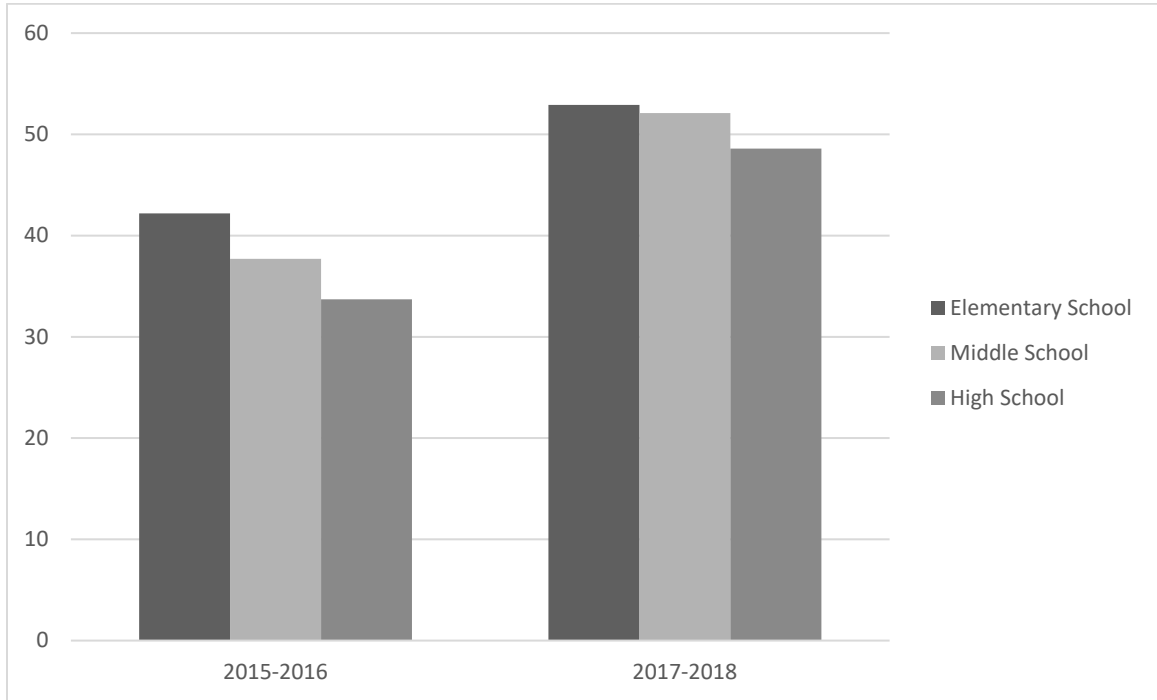
*Percent of Schools Without a Written Plan for an Active Shooter Threat by School Level for the 2015-2016 and 2017-2018 School Years*





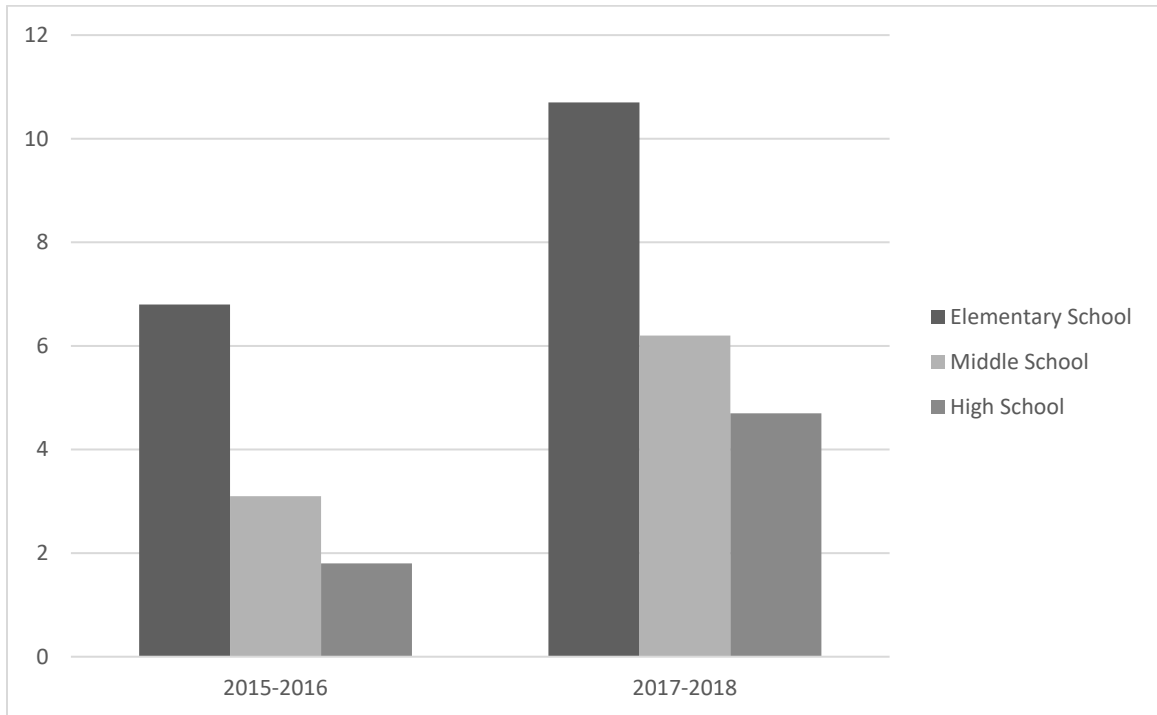
**Figure 2.2**

*Percent of Schools Without a Written Plan for a Hostage Threat by School Level for the 2015-2016 and 2017-2018 School Years*



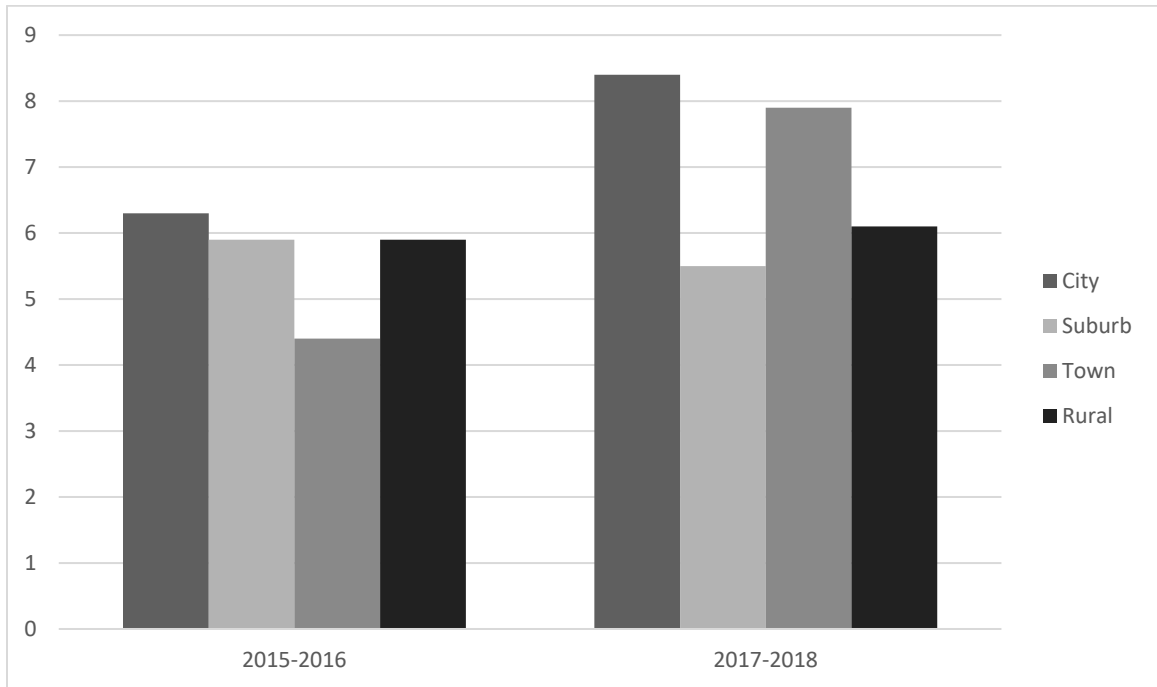
**Figure 2.3**

*Percent of Schools Without a Written Plan for a Bomb Threat by School Level for the 2015-2016 and 2017-2018 School Years*



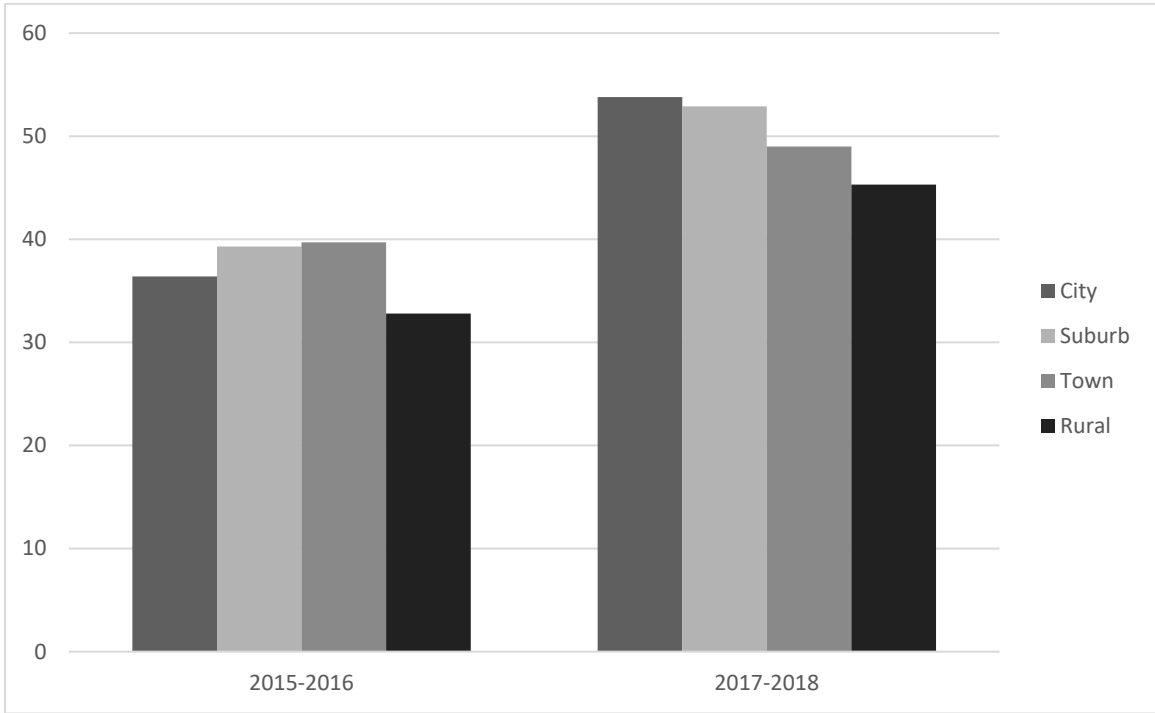
**Figure 2.4**

*Percent of Schools Without a Written Plan for an Active Shooter Threat by Urbanicity for the 2015-2016 and 2017-2018 School Years*



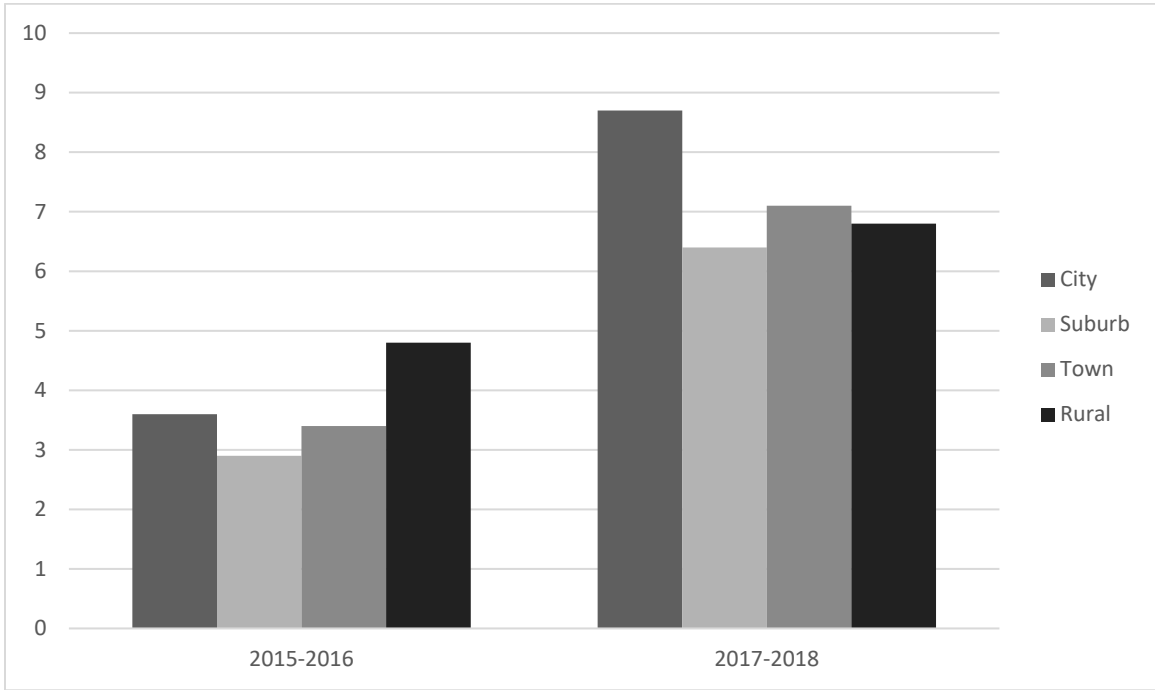
**Figure 2.5**

*Percent of Schools Without a Written Plan for a Hostage Threat by Urbanicity for the 2015-2016 and 2017-2018 School Years*



**Figure 2.6**

*Percent of Schools Without a Written Plan for a Bomb Threat by Urbanicity for the 2015-2016 and 2017-2018 School Years*



### CHAPTER III

## SCHOOL LEVEL AND URBANICITY DIFFERENCES IN DRILLED PLANS FOR EVACUATION, LOCKDOWN, AND SHELTER-IN-PLACE SCENARIOS: A NATIONAL ANALYSIS

---

This dissertation follows the style and format of *Research in the Schools (RITS)*.

### **Abstract**

In this investigation, the degree to which differences were present in drilled school safety plans by school level and urbanicity was addressed for the 2015-2016 and 2017-2018 school years. Data from a national survey were analyzed. Inferential statistical analyses of nationwide survey data revealed the presence of statistically significant differences in the incidence of drilled school safety plans. Elementary schools were fourth less likely to perform shelter-in-place drills than were high schools. More than three times as many schools located within a suburb performed lockdown drills at a more significant rate than schools in rural settings. Recommendations for future research and implications for policy and practice were discussed.

*Keywords:* Evacuation; Lockdown; Shelter-in-Place; Drilled plan; Elementary; Middle school; High school; School safety; Safety drills; Bomb threat; School shootings; Urbanicity

SCHOOL LEVEL AND URBANICITY DIFFERENCES IN DRILLED PLANS FOR  
EVACUATION, LOCKDOWN, AND SHELTER-IN-PLACE SCENARIOS: A  
NATIONAL ANALYSIS

Emergency operations plans that include drills are critical for school leaders when life threatening events occur in educational settings. Educational leaders need to prepare for catastrophic school safety events through the use of practiced safety drills.

Evacuation drills are recommended in schools when addressing certain dangerous situations, such as a bomb threat, even when a hoax is a possibility due to the enormous pressure to perform this drill as a discretionary practice (Newman, 2005). Since the mass school shooting at Columbine High School in Littleton, Colorado lockdown drills were introduced and considered practical for addressing active shooter situations (Schildkraut et al., 2020). Similarly, school officials must determine if shelter-in-place protocols are necessary to mitigate loss of life and property from disasters such as tornadoes, chemical leaks, and earthquakes (Stough et al., 2018). In a survey conducted by the National Center for Education Statistics, respondents from the 2017-2018 school year indicated that 93% of public school students were drilled in evacuation procedures, 96% of public school students were drilled on lockdown techniques, and 83% of public school students were drilled for shelter-in-place protocols (Wang et al., 2020).

According to Campbell (2020), from 2014-2018 approximately 3,200 school fires occurred in each of the years of study. These reported fires caused one death, 39 injuries, and an estimated \$37 million in U.S. dollars of property damage (Campbell, 2020). In the 2018-2019 school year, a total of 66 school shootings were reported in both private and public educational institutions with 29 deaths and 37 injuries related to the shootings



throughout the United States (Wang et al., 2020). In addition, administrators of the National Oceanic and Atmospheric Administration Centers for Environmental Information documented that an average of over 1,200 tornadoes develop annually in the United States. These types of disasters are cause for robust school safety programs. School leaders who prepare for emergencies using quality safety action plans with applicable drills can improve survival rates when unforeseen disasters occur.

In a recent investigation, Kingshott and McKenzie (2013) examined elements that comprised effective emergency operations plans for schools. In their investigation, they focused on the perceptions and attitudes of school personnel toward emergency operations plans and school district safety practices. Apathy was determined to play a substantial part in creating and using emergency operations plans. Unfortunately, because of the perceived low probability of incidents happening on their specific campuses, respondents did not recognize the importance of designing, training, and practicing school safety plans as a necessary requirement of their role as an educator (Kingshott & McKenzie, 2013). Educators must not become complacent in the adherence to and in the practice of safety procedures in school settings that could most importantly save lives. Educational leaders and elected officials are charged with providing a safe learning environment for students and the overall school community (McAlpin & Slate, 2021). School officials are held accountable in most states for performing frequent safety exercise (e.g., evacuations, lockdowns, and shelter-in-place drills) in efforts to improve response time and to apply the necessary skills to prepare for possible threats to their schools.

Through the implementation of school safety prevention practices and the regular incorporation of life-saving drills, school leaders could reduce student anxiety, stress, susceptibility to danger, and improve upon their abilities during a disaster. Students of all ages are reliant upon faculty, staff, and administrators to guide them through safety incidents that can take place in school settings (Stough et al., 2018). Incidents such as fires, bomb threats, active shooters, tornadoes, chemical leaks, or other natural disasters require a tremendous amount of training and observance of drill routines. School leaders need to establish and enforce the practice of safety drills such as evacuations, lockdowns, and shelter-in-place plans to improve student and staff responses and to curtail fears in relation to school emergencies. Stough et al. (2018) declared in their study of school-related disasters that six overarching factors existed: (a) application of safety protocols are essential when children are involved, (b) it is important to have knowledge of a variety of safety practices in multiple settings, (c) if students are at risk then school personnel are at risk, (d) school employees of all types should be highly trained enough in school-related safety techniques to make sound autonomous decisions in a crisis, (e) students should be well versed in safety practices to make decisions independently if necessary, (f) well-designed school facilities are essential to school safety, and (g) legislators play a role in guaranteeing a safe learning environment for students and members of the school community.

Implementing safety drills on a frequent basis could improve students and educators' responses to catastrophic events. Because of the complexity and enormity of school facilities and the challenges of student management it can be difficult to plan, mitigate, and respond to school safety concerns in a concise and practical manner (Stough

et al., 2018). Stough et al. (2018) affirmed the notion that educators should adhere to the practice of *in loco parentis*, in other words, in place of the parent. That is, they have a moral obligation to nurture and support students while under their care and supervision, especially during a crisis situation. Safety practices and drills should be used by school leaders to reduce apprehensions and diminish possible adverse reactions to school safety incidents.

Bomb threats are a common occurrence for schools in the United States and can disrupt the educational learning process for students. Newman (2005) reported that almost 5% of all bomb threats in the United States during 1999 were directed at schools. The United States Bureau of Alcohol, Tobacco, Firearms, and Explosives Department recorded approximately 1,055 incidents where bombs were found on school properties across the country during a 12-year period (Newman, 2005). Whereas, of the 1,055 aforementioned incidents, only 14 of those threats were accompanied with prior notifications or warnings (Newman, 2005). Further documented by Newman (2005) was the infrequency of actual bombs on school premises resulting in a majority of these emergencies declared as false alarms. Regardless, this type of threat may require an evacuation of an entire campus. Schools that are forced to evacuate are often later closed for a period of time leading to disruptions to the educational process, resulting in student learning and financial losses (Newman, 2005). Trump and Miller (2015) concluded in their study of 812 United States public schools that 30% of threats resulted in an evacuation and 10% of those threats closed these institutions for a period of time following the incident. High schools experienced 70% of the overall threats with middle

schools at 18%, and elementary schools received approximately 10% of these threats (Trump & Miller, 2015).

Perpetrators of school violence are using more unconventional techniques to cause harm and create fear in our school systems. Technological advances in recent years have contributed to increases in school related threats and have required evacuations in the United States. Trump and Miller (2015) established that 37% of school threats were conducted through the use of electronic means, with social media being used at a rate of 28%. Moreover, of the 812 school related threats, 359 were bomb threats that composed 44% of the total threats in the 2014-2015 school year (Trump & Miller, 2015). Safety events that require an evacuation of schools occur in the United States too frequently based on the aforesaid data. Evacuation drills should be practiced regularly and efficiently with school leader oversight. This method enables school health safety officials to enforce compliance with emergency plans and assist in ensuring members of the learning community remain safe and protected.

Active shooter situations are addressed by practicing lockdown drills as a measure to mitigate these types of threats. Wang et al. (2020) confirmed that educational settings were second only to private business settings as the most likely location of an active shooter threat. From 2000 to 2017, there were 52 total active shooters in elementary, secondary, and postsecondary schools. Of the aforementioned active shooter situations, 37 occurred at the elementary and secondary school levels, with 15 incidents reported in postsecondary institutions during the same 17-year time frame (Wang et al., 2020). Victims of these active shooter events included a total of 153 casualties in elementary and secondary schools, 67 killed and 86 wounded, from 2000-2017 (Wang et al., 2020).

Wang et al. (2020), in the same National Center for Education Statistics study of elementary and secondary settings, determined all 37 of the active shooters were male and a majority of the offenders were current or previously enrolled students.

Based on these data, it is imperative that lockdown drills be conducted in educational settings. Lockdown drills are performed by school safety officials through the use of a simulated threat such as an active shooter scenario. The active shooter scenario is presented to the campus administration and the lockdown drill is initiated. Next, a public service announcement is made by a campus official stating the campus is on lockdown or a similar statement is made following the emergency operations plan created specifically for that campus. Lastly, the occupants of the entire school are locked down in their classrooms or other designated areas and participants remain silent until the drill is concluded by school officials with a final public service announcement. Educational leaders need to instruct students and staff in the correct training methods of executing a lockdown procedure in preparation for an actual event (Dickson & Vargo, 2017). School district safety personnel may reproduce loud noises, screams, and knocking on classroom doors to create a semblance of reality to improve the success of the lockdown procedure (Stevens et al., 2020). Stevens et al. (2020) noted, however, that lockdown drills should never be performed without prior notification to prevent confusion and potential harm to all involved. Though lockdown drills are required to be conducted across many states, only a limited number of research studies have been published regarding this type of school safety training (Stevens et al., 2020).

Safety drills are an ideal way to mitigate the health and well-being of school community members in an effort to prevent and prepare for breaches in school security.

Shelter-in-place protocols are essential elements of a quality school safety plan. A shelter-in-place response is activated in situations such as an inclement weather event, a tornado, a hazardous liquid or gas leak, or to address an imminent threat risk that is slower moving (e.g., an acute viral disease). Practicing shelter-in-place protocols can help enhance the possibility of survival during a multitude of natural or man-made disasters. School leaders are expected to respond quickly to threats that involve sheltering-in-place by following best practices. The United States Department of Labor Occupational Safety and Health Administration recommends that during shelter-in-place events those individuals in leadership roles should (a) lock all exterior doors and close all windows; (b) gather essential resources such as flashlights, batteries, duct tape, and first aid supplies; (c) shelter in a large ground floor room that is in the interior of the building; and (d) have a hard-wired telephone for communication with authorities.

The most common of all the shelter-in-place events are tornadoes. These natural disasters are very violent and can cause serious loss of life and property damage increasing the importance of practicing shelter-in-place drills. Tornadoes develop into a vast array of sizes and speeds. They range from wind speeds of 40 miles per hour to over 300 miles per hour, traveling up to 50 miles, and have been recorded at over 2 miles wide according to Burgess et al. (2014). Regrettably, on March 1, 2007 in Enterprise, Alabama, was the location of a devastating tornado that struck Enterprise High School taking the lives of eight students (Gurspan, 2021). Additionally, on May 22, 2011 a tornado touched down in Joplin, Missouri that damaged almost half of the Joplin Independent School District's 20 structures (Banzet-Ellis, 2014). Fortunately, the event occurred on a Sunday while school was out of session leaving school officials to help

piece their communities and schools back together after the destruction from the wind storm. Similarly, in May of 2013 in Moore, Oklahoma a tornado touched down and traveled just over 50 miles at wind speeds over 200 miles per hour destroying over 4,250 structures, injuring 212 people, and killing 24 others (Brumfield, 2014). This tornado caused the walls and ceilings to collapse at the Plaza Towers Elementary School where more than 70 students were sheltered with nine students ultimately losing their lives from this tragic event (Brumfield, 2014). School leaders must practice proactiveness, preparedness, and prevention as it relates to any emergency or disaster such as a tornado requiring a shelter-in-place response that could befall their educational institutions.

### **Statement of the Problem**

Failure to implement school safety drills such as evacuations, lockdowns, and shelter-in-place procedures have been disastrous for school communities and have contributed to the loss of valuable life. Steeves et al. (2017) suggested that emergency operations plans should be proactively designed, implemented, and practiced for all potential school safety hazards not just for the standard and most widely broadcasted types of violations to school security. Prevention and preparation tactics are essential elements for responding appropriately to realistic crises that can occur in schools. Additionally, laws related to awareness, security training, and safety strategies have been enacted by the legislative and executive branches at the national, state, and local levels to address current issues affecting educational practices (McAlpin & Slate, 2021). Steeves et al. (2017) stated that school accountability, including safety practices, could be improved through lawmaking endeavors based on their examination of a variety of regulations pertaining to school safety. Furthermore, Diliberti et al. (2019) analyzed data

related to educational institutions techniques as it pertains to crisis planning and declared that the most frequently performed school safety drills were for (a) natural disasters at 94%, (b) active shooters at 92%, and (c) bomb threats or incidents at 91%. Educational leaders are challenged with the mission of creating a safe learning environment in which the mental, physical, and social well-being of students, staff, and all members of the learning community are advanced.

### **Purpose of the Study**

The purpose of this study was to examine the degree to which differences were present in evacuation drilled plans as a function of school level (i.e., elementary, middle, and high schools), and school urbanicity (i.e., city, suburb, town, and rural). National survey data were analyzed to determine the degree to which differences were present in lockdown drilled plans as a function of school level and school urbanicity.

Correspondingly, the degree to which differences were present in shelter-in-place drilled plans as a function of school level and school urbanicity was addressed. Through the analysis of a nationwide dataset, the degree to which school level and school urbanicity differences were present in evacuation, lockdown, and shelter-in-place drilled plans was determined.

### **Significance of the Study**

Educational administrators and school board of trustees are concerned about potential safety breaches in school settings. Through the formulation of safety practices that increase the prevalence of school safety awareness, practical safety training, and more methodical approaches to evacuation, lockdown, and shelter-in-place protocols, opportunities can be created for an improved safety culture that could proliferate across a



multitude of school systems. The true purpose of educational institutions can be distorted by media headlines that often dominate the airwaves as a constant reminder of an educational practitioner's inadequacies. Schools currently are not perceived as a setting that meets the mental, physical, and social well-being of learners. Research studies in the areas of school level implementation of campus safety drills could further expand the regularity of potentially vital life-saving drills and augment school district response times when encountering a crisis.

School district administrators and boards of trustees should deliberate all possibilities related to the safety of their students, faculty, and staff. Various factors contribute to the efficiency of evacuation, lockdown, and shelter-in-place drilled plans as it relates to school level and urbanicity. Therefore, an investigation into the areas of evacuation, lockdown, and shelter-in-place drill policies by school level and school urbanicity could be advantageous to educational leaders as a whole.

### **Research Questions**

The following research questions were addressed in this study: (a) What is the difference in drilled evacuation plans in public schools as a function of school level?; (b) What is the difference in drilled lockdown plans in public schools as a function of school level?; (c) What is the difference in drilled shelter-in-place plans in public schools as a function of school level?; (d) What is the difference in drilled evacuation plans in public schools by school urbanicity?; (e) What is the difference in drilled lockdown plans in public schools by school urbanicity?; and (f) What is the difference in drilled shelter-in-place plans in public schools by school urbanicity? These six research questions were examined separately for the 2015-2016 and the 2017-2018 school years.

## **Method**

### **Research Design**

In this multiyear analysis, a causal-comparative research design was present because of the use of pre-existing data. Already existing survey data for two different school years were obtained and analyzed to address the research questions previously delineated. In such a study, the independent variables and dependent variables were not altered nor manipulated. Moreover, any extraneous variables that might be present were unknown. Accordingly, Johnson and Christensen (2020) have cautioned against making cause-and-effect determinations from causal-comparative research investigations.

In this investigation, one independent variable, school level, was comprised of three groups: elementary schools, middle schools, and high schools. The second independent variable of interest was school urbanicity which consisted of four groups: city, suburb, town, and rural. Dependent variables were educational leaders' survey responses to questions regarding the presence of evacuation, lockdown, and shelter-in-place drilled plans.

### **Participants and Instrumentation**

Participants in this study were principals by school level and school urbanicity who participated in a safety survey that inventoried schools with or without drilled plans for evacuation, lockdown, and shelter-in-place scenarios along with other safety and security data from public schools. The School Survey on Crime and Safety gathers data from principals from primary and secondary public schools as mandated by the federal government. The survey questions focus on a variety of school related safety and security questions that could assist schools in implementing effective safety measures and

prevent or reduce loss of life, property, and incidence of crime in public schools documented by Diliberti et al. (2019). Respondents completed the survey by answering the questions with either a Yes or a No. For the purpose of this study, school level will be based on the standard school levels of elementary, middle, and high schools and school urbanicity. The National Center for Education Statistics in 2006 released new standards for determining urbanicity for the purposes of their research parameters. Based on these changes, 12 categories were derived from four specific locales (i.e., city, suburb, town, and rural) replacing the previous classification process of population density with a new standard utilizing proximity to urban centers across the U.S. In addition, drilled plans were those school administrators who practiced and documented the outcome of such drills for their schools.

### **Results**

The inferential statistical procedure used to address the research questions discussed above was the Pearson chi-square procedure. The Pearson chi-square method was the optimal statistical procedure because frequency data were present for the two independent variables and for the survey questions. Because both the independent and dependent variables were categorical, chi-squares were the statistical procedure of choice (Slate & Rojas-LeBouef, 2011). With large sample sizes from the national survey, the available sample size per cell was much more than the minimum requirement of five per cell. Accordingly, Pearson chi-square procedure assumptions were met.

### **Drilled Plan for Evacuation Scenario by School Level**

With respect to the 2015-2016 school year, a statistically significant difference was not yielded for school level,  $\chi^2(2) = 1.69, p = .43$ . As revealed in Table 3.1, elementary schools were least likely to perform drilled evacuations than middle and high schools. All school levels drilled for evacuations at a rate greater than 90%.

-----  
 Insert Table 3.1 about here  
 -----

With respect to the 2017-2018 school year, the result was not statistically significant,  $\chi^2(2) = 2.07, p = .36$ . Though not statistically significant, elementary and high schools were more likely to perform evacuation drills more frequently than were middle schools. Approximately one fifth of middle schools were less likely to perform evacuation drills than did elementary schools. Delineated in Table 3.2 are the descriptive statistics for this analysis.

-----  
 Insert Table 3.2 about here  
 -----

### **Drilled Plan for Lockdown Scenario by School Level**

Regarding drilled plans related to lockdown scenarios for the 2015-2016 school year by school level, the result was not statistically significant,  $\chi^2(2) = 1.01, p = .60$ . Though not statistically significant, middle schools were more likely to have a lockdown drill than did elementary and high schools. Each of the three school levels performed

drilled evacuations at a rate of 95% or greater for the 2015-2016 school year. Table 3.3 contains the descriptive statistics for this analysis.

-----  
 Insert Table 3.3 about here  
 -----

Concerning the 2017-2018 school year, a statistically significant difference was not yielded for school level,  $\chi^2(2) = 2.15, p = .34$ . Both elementary and high schools were almost a third less likely to practice a lockdown drill than did middle schools. Drill frequency for all school levels exceeded a rate of 96% or greater for lockdown performance. Revealed in Table 3.4 are the descriptive statistics for this analysis.

-----  
 Insert Table 3.4 about here  
 -----

### **Drilled Plan for Shelter-in-Place Scenario by School Level**

With respect to the 2015-2016 school year, a statistically significant difference was present for shelter-in-place drills,  $\chi^2(2) = 7.57, p = .02$ . The effect size for this finding, Cramer's V, was below small, .06 (Cohen, 1988). Elementary schools were one fourth less likely to perform shelter-in-place drills than were high schools. Middle schools were one fifth more likely to drill for shelter-in-place scenarios than were elementary schools. Table 3.5 contains the descriptive statistics for this analysis.

-----  
 Insert Table 3.5 about here  
 -----

Concerning the 2017-2018 school year, a statistically significant difference was not yielded,  $\chi^2(2) = 0.30, p = .86$ . As presented in Table 3.6, shelter-in-place drills were reported to occur at a rate less than 85% for all levels of schools. Elementary schools were least likely to perform shelter-in-place drills than were middle and high schools.

-----  
 Insert Table 3.6 about here  
 -----

### **Drilled Plan for Evacuation Scenario by Urbanicity**

With respect to the 2015-2016 school year, the result approached, but did not reach, the conventional level of statistical significance,  $\chi^2(2) = 7.15, p = .07$ . More than a third of schools within cities drilled for evacuations than did schools within rural settings. Schools within a town or rural setting were least likely to perform an evacuation drill than did city and suburb schools. Revealed in Table 3.7 are the descriptive statistics for this analysis.

-----  
 Insert Table 3.7 about here  
 -----

Concerning the 2017-2018 school year, a statistically significant difference was not revealed,  $\chi^2(3) = 5.24, p = .16$ . As delineated in Table 3.8, just over a third of schools located within a township did not perform an evacuation drill as did schools within a suburb. Schools located within towns and rural areas were a third less likely to have performed evacuation drills than did schools located in a city or suburb.

-----  
Insert Table 3.8 about here  
-----

### **Drilled Plan for Lockdown Scenario by Urbanicity**

Regarding the 2015-2016 school year for drilled plans related to lockdown scenarios, a statistically significant difference was revealed,  $\chi^2(3) = 28.05, p < .001$ . The effect size for this finding, Cramer's V, was small, .12 (Cohen, 1988). More than three times as many schools in cities performed drills for a lockdown scenario than schools in a rural setting. Rural schools were almost three times less likely to implement a lockdown drill than were schools in a suburb. Table 3.9 contains the descriptive statistics for this analysis.

-----  
Insert Table 3.9 about here  
-----

With respect to the 2017-2018 school year, a statistically significant difference was yielded,  $\chi^2(3) = 22.29, p < .001$ . The effect size for this finding, Cramer's V, was below small, .09 (Cohen, 1988). More than three times as many schools located in a suburb performed lockdown drills than schools in rural settings. Schools located within cities were almost twice as likely to have implemented a lockdown drill than schools within a township. Table 3.10 contains the descriptive statistics for this analysis.

-----  
Insert Table 3.10 about here  
-----

### **Drilled Plan for Shelter-in-Place Scenario by Urbanicity**

Concerning the 2015-2016 school year, a statistically significant difference was present for drilled plans for shelter-in-place scenarios by urbanicity,  $\chi^2(3) = 27.62, p < .001$ . The effect size for this finding, Cramer's V, was below small, .06 (Cohen, 1988). Almost twice as many schools located in a town did not implement drills for shelter-in-place than schools within a city. More than a fourth of schools in rural settings did not perform a shelter-in-place drill than schools located in a suburb. Revealed in Table 3.11 are the descriptive statistics for this analysis.

-----  
Insert Table 3.11 about here  
-----

Regarding the 2017-2018 school year, a statistically significant difference was revealed,  $\chi^2(3) = 27.71, p < .001$ . The effect size for this finding, Cramer's V, was small, .10 (Cohen, 1988). Almost twice as many schools in rural settings were less likely to perform a shelter-in-place drill than were suburb schools. Schools implemented shelter-in-place drills at a rate less than 90% for the urbanicity categories in question. Contained in Table 3.12 are the descriptive statistics for this analysis.

-----  
Insert Table 3.12 about here  
-----



## Discussion

In this multiyear analysis, the degree to which differences were present in drilled plans for evacuation, lockdown, and shelter-in-place by school level and urbanicity for the 2015-2016 and 2017-2018 school years was addressed. Statistically significant differences were revealed for shelter-in-place drilled plans by school level for 2015-2016 school year. Results for urbanicity differences for the two of the three drilled safety plans in this examination were less consistent for lockdown and shelter-in-place for the school years.

Drilled plans for all school levels in the study for evacuation and lockdown were performed at rates greater than 90% for each school year. During the 2015-2016 school year, elementary schools were least likely to perform drilled evacuations than were middle and high schools. In addition, middle schools for the 2017-2018 school completed drills for evacuation less often than elementary and high schools. All school levels performed shelter-in-place drills at a rate of less than 85% for both school years. Middle schools demonstrated a higher rate of drill completion for lockdowns during each of the school years in this examination. Both elementary and high schools were almost a third less likely to practice a lockdown drill than did middle schools. Moreover, elementary schools performed shelter-in-place drills less frequently than middle and high schools for both school years of study. For the 2017-2018 school year, all school levels completed shelter-in-place drills at a rate of less than 85%.

During the 2016-2017 school year, more than one third of schools within cities drilled for evacuations than did schools in rural settings. For 2017-2018, schools located within towns and rural areas were a third less likely to have performed evacuation drills

than did schools located in a city or suburb. For the same school year, just over a third of schools located within a township did not perform an evacuation drill in comparison to schools within a suburb. Lockdown drills were completed more than three times as often for cities than schools in rural locations in 2015-2016. Additionally, rural schools were almost three times less likely to implement a lockdown drill than were schools in a suburb. More than a fourth of schools in rural settings did not perform a shelter-in-place drill than schools located in a suburb in 2015-2016. Moreover, almost twice as many schools in rural settings were less likely to perform a shelter-in-place drill than were suburb schools. Schools implemented drills for shelter-in-place at a rate of less than 90% for all urbanicity categories. Represented in Figures 3.1 through 3.6 are the results for this study.

-----  
Insert Figures 3.1 through 3.6 about here  
-----

### **Connections to Existing Literature**

As documented in this study, differences in drilled school safety plans by school level and urbanicity were present. These findings were commensurate with the results reported by other researchers (Kingshott & McKenzie, 2013; Newman, 2005; Schildkraut et al., 2020; Stough et al., 2018; Trump & Miller, 2015; Wang et al., 2020) who have established similar deficiencies in the implementation of drilled safety plans for schools and other entities. School leaders must actively engage in the adherence to and performance of drilled safety plans for the prevention of loss of life and property.

## **Implications for Policy and for Practice**

Based upon the results discussed herein, the following implications for policy and practice can be recommended. Educational leaders who do not perform safety drills on a consistent basis could create substantial risks for their students, faculty, and staff. Concerning policy, school officials should utilize proactive measures to minimize the effects of a disaster that could affect school systems. Policymakers could assist in the implementation of school safety accountability programs that incorporate drills as a critical component. Through the possible development of a unified safety drill implementation plan conducted regionally or at a state level, improved school safety accountability could be established. In addition, elected school boards or school officials could adopt, locally, drill enactment plans with periodic reviews to improve response and success during a crisis. School safety can be correlated to mental and social health concerns that produce additional complications for educational leaders. Moreover, additional practical methods to aid in refining school safety are improved educational programs and allocation of funds for mental health issues to assist school personnel, parents/guardians, and students in the deterrence of school related safety matters.

With respect to practice, drilled safety plans for schools were not administered consistently across all school or urbanicity levels. More accountability is needed in the area of drill implementation for the safety of students and staff members within our school systems. Educational leaders should consider factors such as time constraints, apathy, lack of accountability, funding, and the effects of mental health issues when developing a plan of action for school safety practice improvement. With additional staff members and more practical training sessions for students and staff members, enhancing

school safety practices can be possible. Due to the potential for violence and unpredictability for a natural disaster, social and emergency management services could support educational leaders with the detection of a variety of security susceptibilities and assist with the mediation techniques, if necessary. Educational institutions that unsuccessfully develop, implement, and effectually sustain emergency practices through consistency eventually succumb to the perils of both preventable and mitigatable events that lead to unintentional outcomes for their constituencies.

### **Recommendations for Future Research**

Several recommendations are possible for further research based on the results of this national, multiyear investigation. The survey data analyzed herein pertained only to drilled plans for evacuation, lockdown, and shelter-in-place scenarios. Research investigations are encouraged for other drilled safety plans (e.g., reverse evacuation and duck-cover-hold), written safety plans (e.g., pandemic flu/disease, active shooter, hostage, and bomb threats), safety drill frequencies, and other similar related scenarios. Similarly, qualitative interviews of a sampling of school level principals from various urbanicity groupings could garner additional data to minimize concerns about extraneous variables. Researchers could ask more detailed questions about the community makeup, the physical design of school campuses, or access to public services (e.g., fire safety and rescue, police services, and emergency medical services). Similarly, a more focused study on the implementation of elementary drilled safety plans and rural school safety practices could complement the findings of this article.

## Conclusion

The purpose of this research investigation was to determine the degree to which differences were present in drilled safety plans by school level and urbanicity. Inferential statistical analyses of the 2015-2016 and 2017-2018 school years of nationwide school safety data yielded the presence of statistically significant differences between drilled safety plans for schools by school level and urbanicity. Drilled safety plans were more likely to occur at middle and high schools as compared to elementary schools.

Elementary schools were least likely to perform evacuations as compared to middle and high schools. Middle schools had more frequent lockdown drills than both elementary and high schools by almost a third more frequently. Elementary schools were a fourth less likely to perform shelter-in-place drills than were high schools for school year 2015-2016. In addition, for both school years of study schools located in rural areas performed drills less often than the other urbanicity categories. More than a third of schools within cities drilled for evacuations than did schools in rural areas. Similarly, more than three times as many schools in cities completed drills for a lockdown scenario than schools in a rural setting. Almost twice as many schools in rural settings were less likely to conduct a shelter-in-place drill than were suburb schools. Safety for schools should be prioritized by educational leaders along with other key stakeholders such as parents, teachers, policymakers, and community members.

## References

- Banzet-Ellis, G. (2014, June 2). 2011 Joplin tornado serves as wake up call for school officials. *KGOU News and Corporation for Public Broadcasting*.  
<https://www.kgou.org/post/2011-joplin-tornado-served-wake-call-school-officials>
- Brumfield, B. (2014, May 20). Moore, Oklahoma, looks back on tornado that killed 24 one year ago. *Cable News Network*.  
<https://www.cnn.com/2014/05/20/us/oklahoma-moore-tornado-anniversary>
- Burgess, D., Ortega, K., Stumpf, G., Garfield, G., Karstens, C., Meyer, T.,...Marshall, T. (2014). 20 May 2013 Moore, Oklahoma, tornado: Damage survey and analysis. *Weather and Forecasting*, 29(5), 1229-1237. <https://doi.org/10.1175/WAF-D-14-00039.1>
- Campbell, R. (2020, September). *Structure fires in schools*. National Fire Protection Association. <https://www.nfpa.org/News-and-Research/Data-research-and-tools/Building-and-Life-Safety/Structure-fires-in-schools#:~:text=In%202014%E2%80%932018%2C%20U.S.%20fire,illion%20in%20direct%20property%20damage>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum.
- Diliberti, M., Jackson, M., Correa, S., & Padgett, Z. (2019). *Crime, violence, discipline, and safety in U.S. public schools: Findings from The School Survey on Crime and Safety: 2017-18* (NCES 2019-061). U.S. Department of Education. National Center for Education Statistics. <http://nces.ed.gov/pubsearch>

- Dickson, M. J., & Vargo, K. K. (2017). Training kindergarten students lockdown drill procedures using behavioral skills training. *Journal of Applied Behavior Analysis*, 50(2), 407-412. <https://doi.org/10.1002/jaba.369>
- Gurspan, M. (2021, March 1). The fourteenth anniversary of the killer tornado which struck Enterprise High School and the city. *Nexstar, Inc.*  
<https://www.wdhn.com/news/local-news/the-fourteenth-anniversary-of-the-killer-tornado-which-struck-enterprise-high-school-and-the-city/>
- Johnson, B., & Christensen, L. B. (2020). *Educational research quantitative, qualitative, and mixed methods* (7th ed.). Sage.
- Kingshott, B. F., & McKenzie, D. G. (2013). Developing crisis management protocols in the context of school safety. *Journal of Applied Security Research*, 8(2), 222-245. <https://doi.org/10.1080/191610.2013.765339>
- McAlpin, D. S., & Slate, J. R. (2021). School level differences in school threat scenario written plans: A national analysis. *Journal of Leisure and Recreation Patterns*, 2(1), 1-10. <https://jlrppatterns.com/index.php/jlrp/article/view/3/8>
- Office of Management and Budget. (2000). Standards for Defining Metropolitan and Micropolitan Statistical Areas; Notice. *Federal Register* (65) No. 249.
- Newman, G. R. (2005). *Bomb threats in schools*. Office of Community Oriented Policing Services, U.S. Department of Justice. <https://cops.usdoj.gov>
- National Oceanic and Atmospheric Administration National Centers for Environmental Information. (n.d.). *U.S. Tornado Climatology*.  
<https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology>

- Schildkraut, J., Grogan, K., & Nabors, A. (2020). *Should schools be conducting lockdown drills?* <https://www.wested.org/resources/schools-lockdown-drills/>
- Slate, J. R., & Rojas-LeBouef, A. (2011). *Calculating basic statistical procedures in SPSS: A self-help and practical guide to preparing theses, dissertations, and manuscripts*. NCPEA Press.
- Steeves, R. M., Metallo, S. A., Byrd, S. M., Erickson, M. R., & Gresham, F. M. (2017). Crisis preparedness in schools: Evaluating staff perspectives and providing recommendations for best practices. *Psychology in the Schools, 54*(6), 563-580. <https://doi.org/10.1002/pits.22017>
- Stevens, T., Barnard-Brak, L., Brook, R., Acosta, R., & Wilburn, S. (2019). Aggression toward teachers, interaction with school shooting media, and secondary trauma: Lockdown drills as moderator. *Psychology in Schools, 57*(4), 583-605. <https://doi.org/10.1002/pits.22329>
- Stough, L. M., Kang, D., & Lee, S. (2018). Seven school-related disasters: Lessons for policymakers and school personnel. *Education Policy Analysis Archives, 26*(100), 1-27. <https://dx.doi.org/10.14507/epaa.26.3698>
- Trump, K., & Miller, E. (2015). *Study finds rapid escalation of violent school threats*. *National School Safety and Security Services*. <https://www.schoolsecurity.org/2015/02/study-finds-rapid-escalation-violent-school-threats/>
- United States Department of Labor Occupational Safety and Health Administration. (n.d.). *Evacuation and shelter-in-place*.



[https://www.osha.gov/SLTC/emergencypreparedness/gettingstarted\\_evacuation.html](https://www.osha.gov/SLTC/emergencypreparedness/gettingstarted_evacuation.html)

Wang, K., Chen, Y., Zhang, J., & Oudekerk, B. A. (2020). *Indicators of School Crime and Safety: 2019* (NCES 2020-063/NCJ 254485). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice.

**Table 3.1**

*Descriptive Statistics for Drilled Evacuation Scenario Plans by School Level for the 2015-2016 School Year*

School Level	Drilled Plan <i>n</i> and %age of Total	No Drilled Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 473) 91.70%	( <i>n</i> = 43) 8.30%
Middle Schools	( <i>n</i> = 673) 93.60%	( <i>n</i> = 46) 6.40%
High Schools	( <i>n</i> = 717) 92.60%	( <i>n</i> = 57) 7.40%

**Table 3.2**

*Descriptive Statistics for Drilled Evacuation Scenario Plans by School Level for the 2017-2018 School Year*

School Level	Drilled Plan <i>n</i> and %age of Total	No Drilled Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 624) 93.00%	( <i>n</i> = 47) 7.00%
Middle Schools	( <i>n</i> = 903) 92.60%	( <i>n</i> = 72) 7.40%
High Schools	( <i>n</i> = 939) 94.20%	( <i>n</i> = 58) 5.80%

**Table 3.3**

*Descriptive Statistics for Drilled Lockdown Scenario Plans by School Level for the 2015-2016 School Year*

School Level	Drilled Plan <i>n</i> and %age of Total	No Drilled Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 494) 95.70%	( <i>n</i> = 22) 4.30%
Middle Schools	( <i>n</i> = 693) 96.40%	( <i>n</i> = 26) 3.60%
High Schools	( <i>n</i> = 738) 95.30%	( <i>n</i> = 36) 4.70%

**Table 3.4**

*Descriptive Statistics for Drilled Lockdown Scenario Plans by School Level for the 2017-2018 School Year*

School Level	Drilled Plan <i>n</i> and %age of Total	No Drilled Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 647) 96.40%	( <i>n</i> = 24) 3.60%
Middle Schools	( <i>n</i> = 951) 97.50%	( <i>n</i> = 24) 2.50%
High Schools	( <i>n</i> = 963) 96.60%	( <i>n</i> = 34) 3.40%

**Table 3.5**

*Descriptive Statistics for Drilled Shelter-in-Place Scenario Plans by School Level for the 2015-2016 School Year*

School Level	Drilled Plan <i>n</i> and %age of Total	No Drilled Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 391) 75.80%	( <i>n</i> = 125) 24.20%
Middle Schools	( <i>n</i> = 575) 80.00%	( <i>n</i> = 144) 20.00%
High Schools	( <i>n</i> = 635) 82.00%	( <i>n</i> = 139) 18.00%

**Table 3.6**

*Descriptive Statistics for Drilled Shelter-in-Place Scenario Plans by School Level for the 2017-2018 School Year*

School Level	Drilled Plan <i>n</i> and %age of Total	No Drilled Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 560) 83.50%	( <i>n</i> = 111) 16.50%
Middle Schools	( <i>n</i> = 820) 84.10%	( <i>n</i> = 155) 15.90%
High Schools	( <i>n</i> = 842) 84.50%	( <i>n</i> = 155) 15.50%

**Table 3.7**

*Descriptive Statistics for Drilled Evacuation Scenario Plans by Urbanicity for the 2015-2016 School Year*

Urbanicity	Drilled Plan	No Drilled Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 527) 94.40%	<i>(n</i> = 31) 5.60%
Suburb	<i>(n</i> = 727) 93.10%	<i>(n</i> = 54) 6.90%
Town	<i>(n</i> = 269) 91.20%	<i>(n</i> = 26) 8.80%
Rural	<i>(n</i> = 414) 90.40%	<i>(n</i> = 44) 9.60%



**Table 3.8**

*Descriptive Statistics for Drilled Evacuation Scenario Plans by Urbanicity for the 2017-2018 School Year*

Urbanicity	Drilled Plan	No Drilled Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>n</i> = 674) 93.20%	<i>n</i> = 49) 6.80%
Suburb	<i>n</i> = 977) 94.50%	<i>n</i> = 57) 5.50%
Town	<i>n</i> = 351) 91.90%	<i>n</i> = 31) 8.10%
Rural	<i>n</i> = 573) 92.00%	<i>n</i> = 50) 8.00%

**Table 3.9**

*Descriptive Statistics for Drilled Lockdown Scenario Plans by Urbanicity for the 2015-2016 School Year*

Urbanicity	Drilled Plan	No Drilled Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 543) 97.30%	<i>(n</i> = 15) 2.70%
Suburb	<i>(n</i> = 755) 96.70%	<i>(n</i> = 26) 3.30%
Town	<i>(n</i> = 283) 95.90%	<i>(n</i> = 12) 4.10%
Rural	<i>(n</i> = 417) 91.00%	<i>(n</i> = 41) 9.00%

**Table 3.10**

*Descriptive Statistics for Drilled Lockdown Scenario Plans by Urbanicity for the 2017-2018 School Year*

Urbanicity	Drilled Plan	No Drilled Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>n</i> = 704) 97.40%	<i>n</i> = 19) 2.60%
Suburb	<i>n</i> = 1014) 98.10%	<i>n</i> = 20) 1.90%
Town	<i>n</i> = 364) 95.30%	<i>n</i> = 18) 4.70%
Rural	<i>n</i> = 586) 94.10%	<i>n</i> = 37) 5.90%

**Table 3.11**

*Descriptive Statistics for Drilled Shelter-in-Place Scenario Plans by Urbanicity for the 2015-2016 School Year*

Urbanicity	Drilled Plan	No Drilled Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>n</i> = 468) 83.90%	<i>n</i> = 90) 16.10%
Suburb	<i>n</i> = 635) 81.30%	<i>n</i> = 146) 18.70%
Town	<i>n</i> = 210) 71.20%	<i>n</i> = 85) 28.80%
Rural	<i>n</i> = 340) 74.20%	<i>n</i> = 118) 25.80%

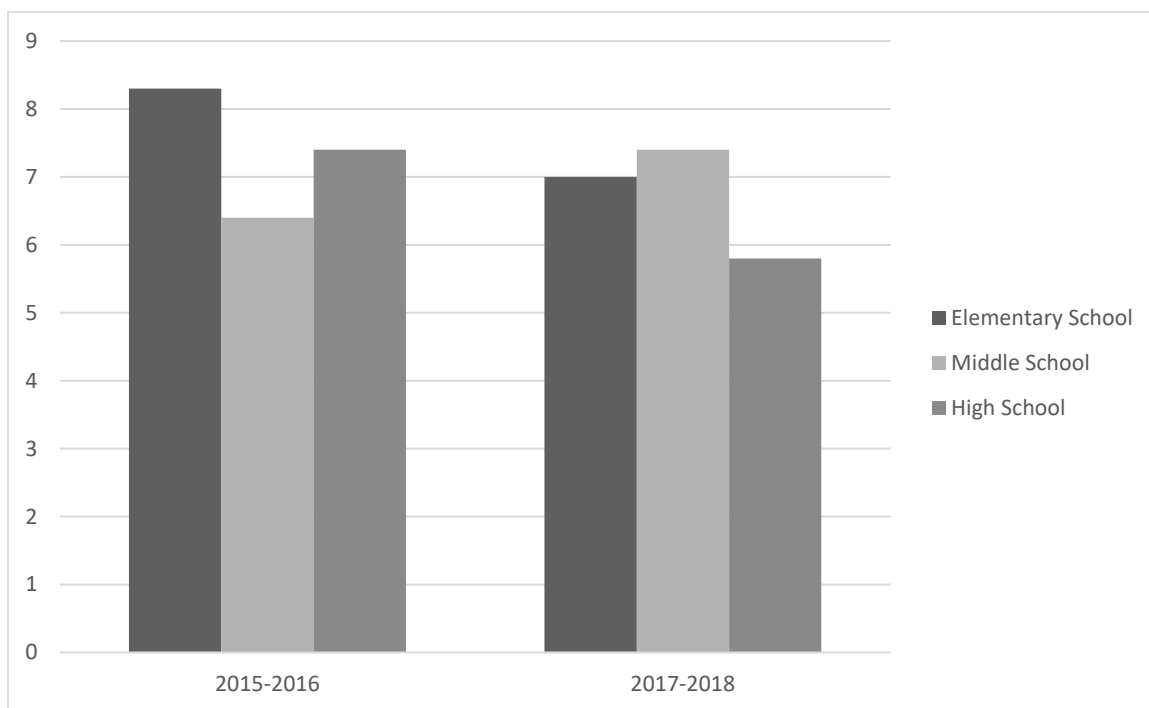
**Table 3.12**

*Descriptive Statistics for Drilled Shelter-in-Place Scenario Plans by Urbanicity for the 2017-2018 School Year*

Urbanicity	Drilled Plan	No Drilled Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>n</i> = 605) 83.70%	<i>n</i> = 118) 16.30%
Suburb	<i>n</i> = 910) 88.00%	<i>n</i> = 124) 12.00%
Town	<i>n</i> = 308) 80.60%	<i>n</i> = 74) 19.40%
Rural	<i>n</i> = 491) 78.80%	<i>n</i> = 132) 21.20%

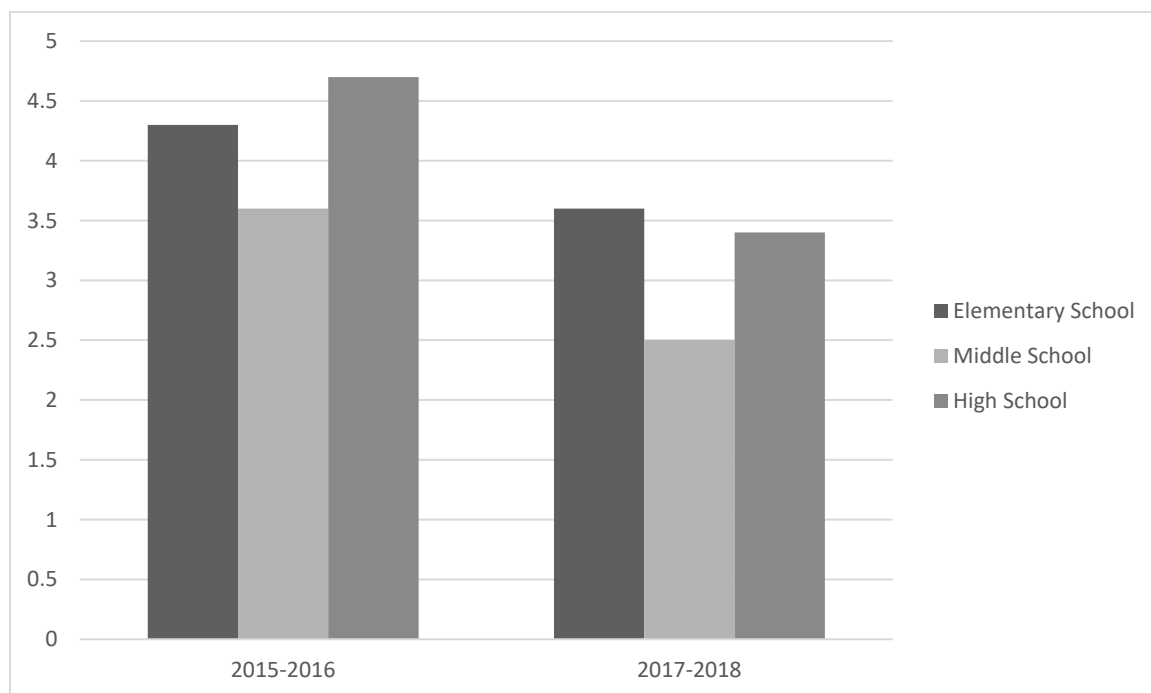
**Figure 3.1**

*Percent of Schools Without a Drilled Plan for an Evacuation by School Level for the 2015-2016 and 2017-2018 School Years*



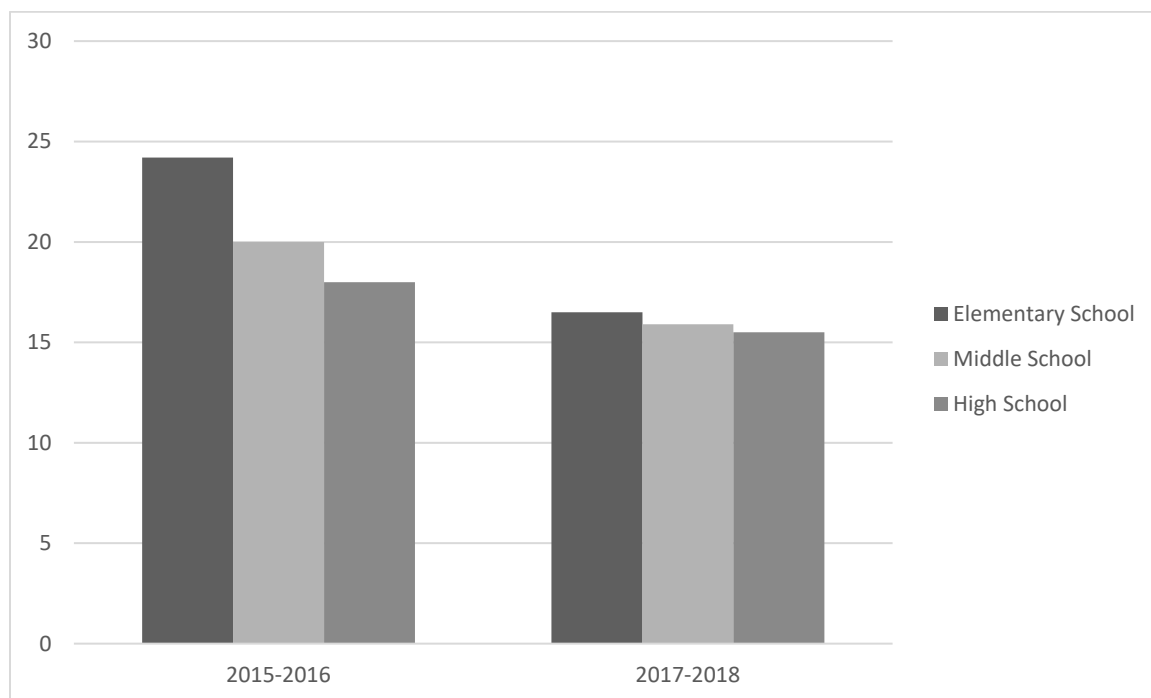
**Figure 3.2**

*Percent of Schools Without a Drilled Plan for a Lockdown by School Level for the 2015-2016 and 2017-2018 School Years*



**Figure 3.3**

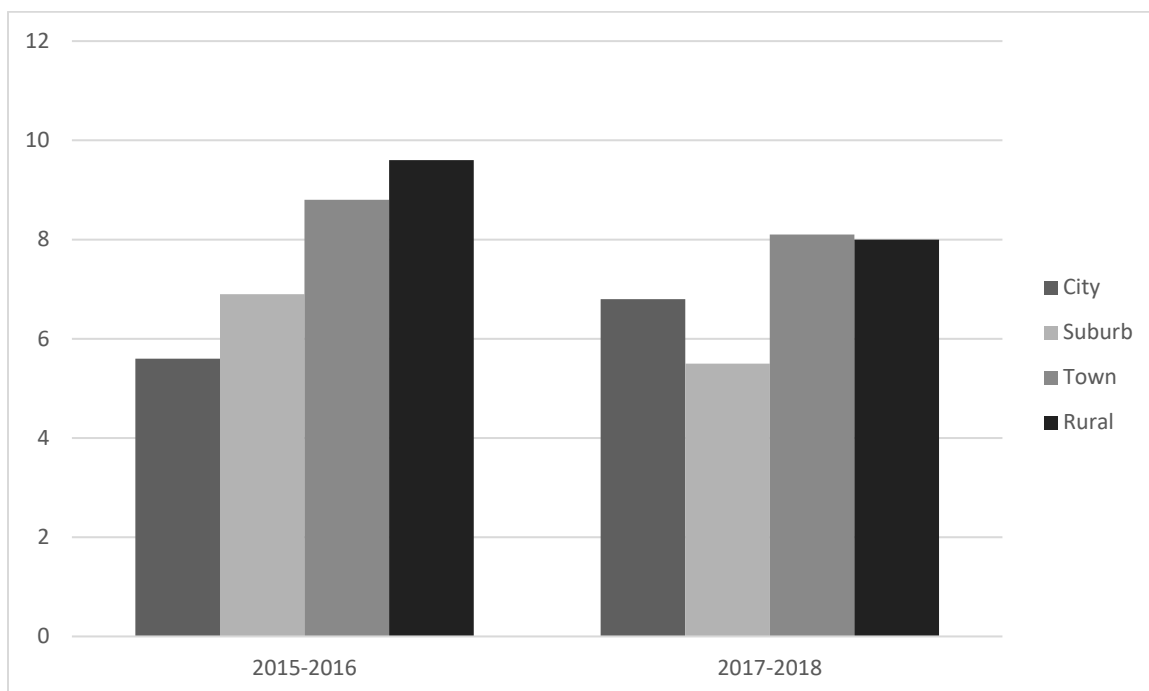
*Percent of Schools Without a Drilled Plan for a Shelter-in-Place by School Level for the 2015-2016 and 2017-2018 School Years*





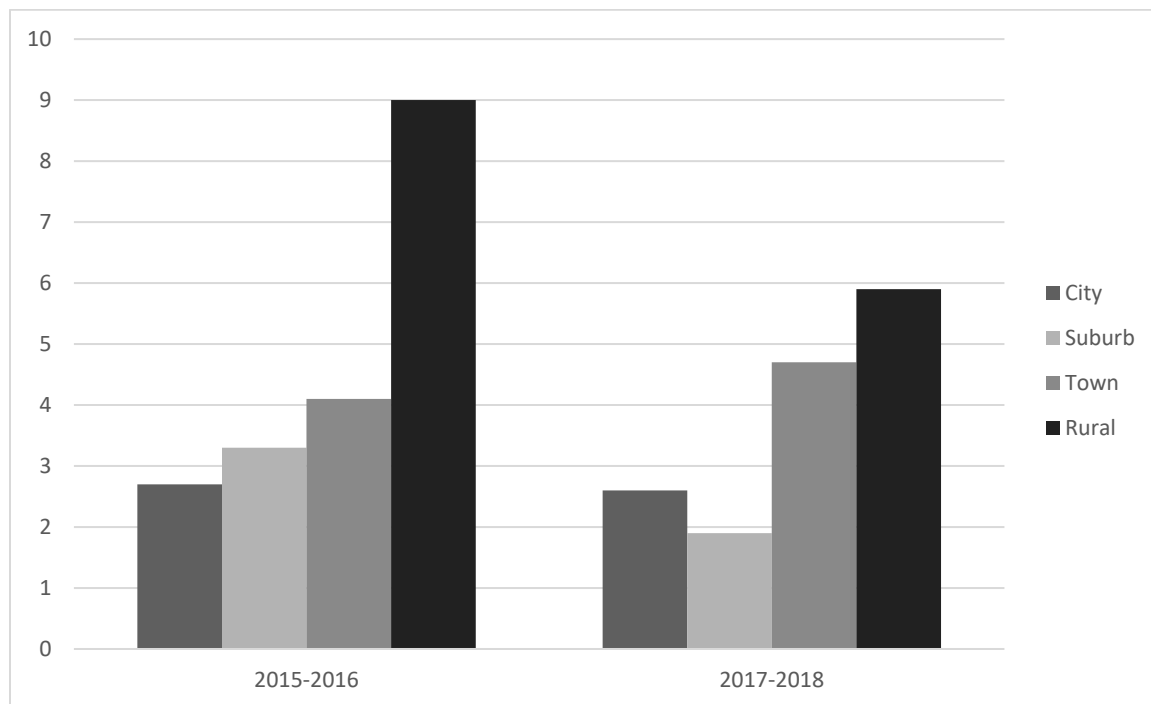
**Figure 3.4**

*Percent of Schools Without a Drilled Plan for an Evacuation by Urbanicity for the 2015-2016 and 2017-2018 School Years*



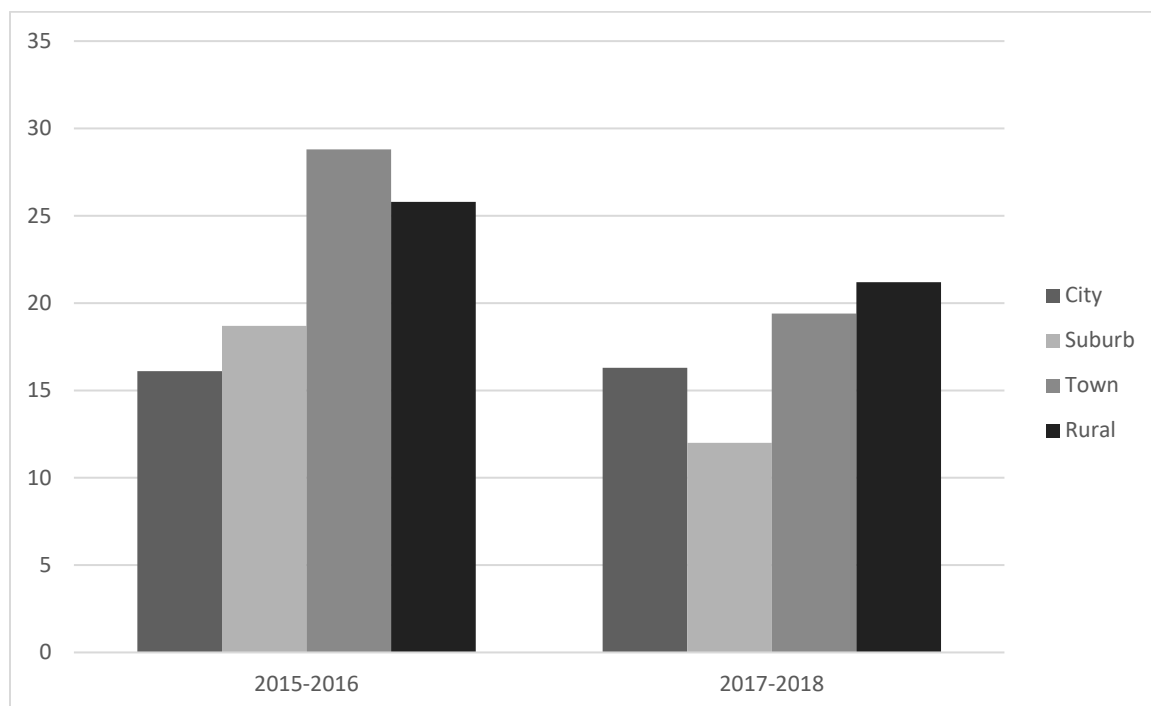
**Figure 3.5**

*Percent of Schools Without a Drilled Plan for a Lockdown by Urbanicity for the 2015-2016 and 2017-2018 School Years*



**Figure 3.6**

*Percent of Schools Without a Drilled Plan for a Shelter-in-Place by Urbanicity for the 2015-2016 and 2017-2018 School Years*



**CHAPTER IV**  
SCHOOL LEVEL DIFFERENCES IN WRITTEN PLANS FOR PANDEMIC  
FLU/DISEASE SCENARIOS: A NATIONAL ANALYSIS

---

This dissertation follows the style and format of *Research in the Schools (RITS)*.

### **Abstract**

This study was conducted to examine the effect of school level and urbanicity on written school safety plans in the area of pandemic flu/disease threat scenarios. Data from a national survey for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years were analyzed. Inferential statistical analyses of nationwide survey data revealed the presence of statistically significant differences in the incidence of written plans for pandemic flu/disease threat scenarios by school level and by urbanicity. All school levels represented in the study did not have a written plan 60% or more of the time. About 60% of schools within the urbanicity groupings did not have a written plan. Implications and recommendations for future research were discussed.

*Keywords:* Pandemic; Virus; COVID-19; Written plan; Elementary; Middle school; High school; School safety; Urbanicity

## SCHOOL LEVEL DIFFERENCES IN WRITTEN PLANS FOR PANDEMIC FLU/DISEASE SCENARIOS: A NATIONAL ANALYSIS

Designers of school emergency operations plans consider a multitude of possible circumstances that could pose a threat to school safety. Educational leaders must consistently review, modify, implement, and practice safety strategies in efforts to prevent disasters from occurring. One such area, that of pandemic flu/disease preparation, should be included in school district safety plans. Dietz and Black (2012) stated that communicable diseases, those transmitted during a pandemic, can cause harm to everyone associated with the illness not only to those suffering from the sickness. Social and economic circumstances from the disease can have worldwide ramifications (Dietz & Black, 2012). Vessy et al. (2007) stated that communicable diseases account for approximately 70 to 164 million school days of absenteeism. Understanding the risks of pandemics has increased awareness for prevention and preparedness as a proactive measure (Mossad, 2009). Mossad (2009) stated that non-pharmaceutical methods such as personal hygiene and social distancing have been emphasized as potential control measures. Through the development and implementation of pandemic flu/disease written plans, educational leaders could help to ensure that their schools remain secure and operative during such events.

As would be expected, predicting a global disease outbreak can be futile even for the most experienced epidemiologist. This delay, in most situations, leads to diminished reaction time and a possible basis for the unique chain of events that could be the early stages of a pandemic. A pandemic could potentially affect all sectors of our civilization, placing extreme importance on planning for such an event (United States Health and

Human Services, 2006). According to the publication produced by the United States Health and Human Services, *Pandemic Influenza Planning: A Guide for Individuals and Families*, cancelation of school related activities and school closures may occur rapidly and without prior notice increasing the necessity for a pandemic plan. A relatively new viral disease, the novel coronavirus of COVID-19, was officially documented and reported by the World Health Organization in December 2019. Coronaviruses are common to animals (e.g., pangolins and bats) whose immune systems are resistant to such diseases and often remain dormant within these types of creatures (Maital & Barzani, 2020). Correspondingly, with this type of virus the probability exists of transferring this disease to human hosts potentially causing severe lung and respiratory complications that could affect other organs and body systems of the infected individual (Maital & Barzani, 2020). Viruses replicate and modify their genetic makeup in a remarkably expeditious rate spreading from host to host through bodily fluids and close contact like most communicable diseases (Maital & Barzani, 2020).

The aforementioned viral outbreak caused educational institutions worldwide to cease operations in response to this deadly illness. The coronavirus was and remains a global event exacerbated by lack of communication, preparedness, and most of all fear. As the disease permeated across the globe, death and devastation were left in its wake. Much of the initial response to this virus was reactionary thus creating vast amounts of confusion on how to minimize the circulation of this deadly respiratory disease. Unfortunately, the World Health Organization assisted by various disease control centers globally were unable, in a timely fashion, to provide world leaders with the vital

information for dissemination among their countries population in an effort to reduce the propagation of COVID-19.

The educational community was affected by the viral outbreak once the disease reached a critical level. Responses to COVID-19 caused world financial markets to be suppressed along with commerce related services, nationally and internationally, which subsided drastically through the duration of the health-related catastrophe. The collapse of the global economy due to the effects of COVID-19 in relation to the economies of the Group of Seven countries along with China who together create 60% of the international supply and demand, 65% of worldwide manufacturing, and 41% of global exports were devastated (Weder di Mauro et al., 2020). Weder di Mauro et al. (2020) asserted that during the COVID-19 health crisis employees were not able to work for various reasons according to (a) they contracted the disease, (b) caring for others who were ill, (c) staying home with children due to school closures, and (d) factory shutdowns. Additional prolonged factors of the pandemic were (a) minimal travel, (b) the rigors of the quarantine process, and (c) the mental exhaustion due to varying factors (Weder di Mauro et al., 2020). Proactive measures must be employed by countries around the world to address the possibility of global pandemics through cooperation in the areas of public health and economic progression prior to the onslaught of a virus like COVID-19 (Weder di Mauro et al., 2020). Similarly, educational leaders must communicate with local, state, and when possible, at the federal level through legislators and policymakers to ensure the needs of students, faculty, staff, and their local communities are prepared for pandemic events in the future.



Regrettably, school officials were forced to close the doors of their educational institutions affecting millions of students around the world due to lockdowns and quarantine practices associated with COVID-19. Similarly, as with most health crises, the unpredictability of the disease generated confusion among health officials and health care providers in relation to the appropriate response to this type of sickness. As the contagion infected individuals across the world, mainly the elderly and immune compromised, the death rates for these sectors of the population increased rapidly during the peak of the pandemic. Much of the global school age student population, who were not as susceptible to this tragic disease, were without the necessary supports that schools provide in the areas of mental, physical, and social well-being. School settings are often the most ideal locale to meet student needs, especially during an event such as the COVID-19 health emergency. Educational leaders who did not prepare in advance and who did not have a quality written pandemic plan present were at a substantial disadvantage as they attempted to respond to such an unyielding virus.

The United States Department of Health and Human Services Centers for Disease Control and Prevention provides an array of documents related to pandemic flu outbreaks for schools. Published in April 2017, the *Get Your School Ready for Pandemic Flu* document was designed to be used by educational leaders nationally as a baseline tool for pandemic plan design, implementation, and practice. Although this document could be modified based on the current COVID-19 pandemic, it includes practical disease prevention protocols that could be a first defense for the spread of many types of viruses not only the coronavirus. In addition, because flu vaccines require an enormous amount of time and resources to develop and distribute it may be necessary to utilize

nonpharmaceutical interventions to prevent the spread of deadly diseases such as (a) not reporting to work or school when ill, (b) cover your nose and mouth when coughing, and (c) washing hands regularly with soap and water (United States Department of Health and Human Services Centers for Disease Control and Prevention, 2017). As implemented globally for schools during COVID-19, the United States Department of Health and Human Services Centers for Disease Control and Prevention suggested community nonpharmaceutical interventions such as (a) limited close contact, (b) creating distance between students at tables and desks, (c) modifying leave and attendance policies, (d) postponing or canceling large events, and (e) the possibility of school dismissal or closing. Additionally, school officials should establish quality cleaning protocols to prevent surface contact and cross contamination measures throughout their educational institutions if a disease manifestation is suspected (United States Department of Health and Human Services Centers for Disease Control and Prevention, 2017). Elementary school age children are targeted groups for the implementation of prevention methods such as hand washing programs and alcohol-free hand sanitizer effectiveness to decrease the incidence and spread of communicable diseases (Cauchemez, et al., 2008). Educational leaders should plan and be prepared to engage in practices suggested by the United States Department of Health and Human Services Centers for Disease Control and Prevention to ensure the overall mental, physical, and social well-being of students, faculty, and staff during a pandemic flu/disease type of occurrence.

Historically, the 20th century experienced three known pandemics, the Spanish Influenza of 1918, the Asian Flu (H2N2) of 1957, and the Hong Kong Flu (H3N2) of

1968 (Weder di Mauro et al., 2020). Similarly, five pandemics have plagued the 21st century: the Severe Acute Respiratory Syndrome (SARS) in 2002, Avian Flu (N1H1) of 2009, Swine Flu (H1N1) of 2009, Middle East Respiratory Syndrome (MERS) of 2012, Ebola Virus Disease (EVD) of 2012-2014 in regions of Africa, and the Coronavirus (COVID-19) of 2019 (Weder di Mauro et al., 2020). The increased incidence of known global pandemics in the last two centuries are cause for concern along with the possibility of additional outbreaks on the horizon. Educational leaders must coordinate, collaborate, and create effective pandemic flu/disease plans to ease health concerns, minimize the spread of disease, and mitigate student, faculty, staff, and their communities' concerns in relation to fears associated with these types of events.

### **Statement of the Problem**

Dangerous diseases plague sectors of the global population on an annual basis causing increases in mortality rates, hospitalizations, and widespread fear. Scientists and epidemiologist serving at various health organizations worldwide proactively develop plans, strategize contingencies, and formulate educational materials for their communities in relation to the dangers of these potentially deadly illnesses that can lead to pandemics. December of 2019 the first recorded COVID-19 case was detected with seemingly inconsequential concern from general observers. Because scientist and global leaders' deficiencies in understanding this new virus was finite, the impending effects on the global populace would not be realized in adequate time. People of the world continued functioning unaware of the chaos slowly infusing across the earth. By March 2020 the first of many lockdowns were being enforced along with the implementation of nonpharmaceutical interventions such as face coverings, self-screen practices, and

surface cleanings. Educational leaders, federal, and state officials reluctantly closed schools throughout the United States to flatten the curve in relation to minimizing the number of COVID-19 viral cases over a specific time period. The educational landscape was changing each day and school officials were challenged with the responsibility of mitigating disastrous events one after the other.

Steeves et al. (2017) asserted that safety planning should occur not only for the obvious and common types of threats to school safety, but educators should include a multitude of prevention and preparation practices for a variety of circumstances. Prevention and preparation are crucial elements when addressing real-life crises in school settings. Moreover, legislators have voted in favor of laws at the national, state, and local levels to enhance awareness, develop security training, and produce security frameworks for schools to follow in relation to the most substantive safety issues affecting the field of education today. Unfortunately, current research in the area of school pandemic planning is insufficient and further investigations in this subject matter could provide school leaders with the necessary data to prepare for the continued threat of global pandemics. Correspondingly, educational leaders are challenged with the mission of creating a safe learning environment where the mental, physical, and social well-being of students, staff, and members of the learning community are safeguarded from deadly diseases that could lead to pandemic events.

### **Purpose of the Study**

The purpose of this study was to examine the degree to which differences were present in pandemic flu/disease written plans as a function of school level (i.e., elementary, middle, and high schools), and school urbanicity (i.e., city, suburb, town, and

rural). Through the analysis of a nationwide dataset, the degree to which school level and school urbanicity differences were present in pandemic flu/disease scenario written plans was determined.

### **Significance of the Study**

Creating an ethos of safety in schools that increases awareness, provides practical safety training, and improves the implementation of learned skills in the area of pandemic flu/disease plans is a leading concern for educational administrators and school board of trustees since the beginning of the COVID-19 pandemic. School safety is commonplace in media headlines and ultimately influences the perception of educational institutions positively or negatively. Schools are infrequently viewed as safe environments that were designed to augment the mental, physical, and social well-being of learners and educators alike. Safety training programs for schools have been developed to promote the importance of frequent, practical, and applicable written and drilled plans. Furthermore, plans that improve the response to unpredictable occurrences of diseases that could lead to pandemics could further enhance school officials' response times and overall success when encountering such threats to students and staff members' lives.

Information collected in relation to school safety and pandemic flu/disease occurrences may contribute to prevention or possible survival if an outbreak was to occur. School district board of trustees and administrators should consider all options related to the safety of their students, faculty, and staff. Many factors contribute to the effectiveness of pandemic flu/disease written plans as it relates to school level and urbanicity. Therefore, a study in the area of pandemic flu/disease written policies by

school level and school urbanicity for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years may perhaps be beneficial to current and future educational leaders.

### **Research Questions**

The following research questions were addressed in this study: (a) What is the difference in pandemic scenario written plans in public schools as a function of school level?; (b) What is the difference in pandemic scenario written plans in public schools by school urbanicity?; (c) What is the degree to which trends are present in pandemic scenario written plans by school level?; and (d) What is the degree to which trends are present in pandemic scenario written plans by urbanicity? These four research questions were examined separately for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years.

## **Method**

### **Research Design**

The research design for this empirical investigation was non-experimental, causal comparative in nature. As such, this article constitutes a relationship study between independent variables and dependent variables where the independent variable is not influenced or manipulated (Johnson & Christensen, 2020). With this form of research extraneous variables must be considered as possible factors that influenced the dependent variables. Archival data were used in this study. In this investigation, the independent variables were school level (i.e., elementary, middle, and high schools), and school urbanicity (i.e., city, suburb, town, and rural). The dependent variables were pandemic flu/disease threat scenario written plans by school year.

## **Participants and Instrumentation**

Participants in this study were principals by school level and school urbanicity who participated in a safety survey that inventoried schools with or without written plans for pandemic flu/disease threat scenarios along with other safety and security data from public schools. The School Survey on Crime and Safety gathers data from principals from primary and secondary public schools as mandated by the federal government. Focused upon in the survey questions were a variety of school related safety and security questions that could assist school leaders in implementing effective safety measures and prevent or reduce loss of life, property, and incidence of crime in public schools documented by Diliberti et al. (2019). Respondents completed the survey by answering the questions with either a Yes or a No. For the purpose of this study, school level will be based on the standard school levels of elementary, middle, and high schools and school urbanicity. The National Center for Education Statistics in 2006 released new standards for determining urbanicity for the purposes of their research parameters. Based on these changes, 12 categories were derived from four specific locales (i.e., city, suburb, town, and rural) replacing the previous classification process of population density with a new standard utilizing proximity to urban centers across the U.S. The data that was analyzed herein were from the survey administrations in the 2007-2008, 2009-2010, 2015-2016, and the 2017-2018 school years. In addition, written plans were those school plans that were tangible and in a usable form that was not verbal or word of mouth.

## Results

Pearson chi-square procedures were used to answer the research questions previously discussed. Because both of the independent variables and the survey questions were categorical in nature, chi-squares were the statistical procedure of choice (Slate & Rojas-LeBouef, 2011). The sample size was more than the minimal number of five per cell. As such, the assumptions for using Pearson chi-square procedures were met.

### Written Plan for Pandemic/Flu Disease by School Level

With respect to the 2007-2008 school year, a statistically significant difference was not revealed for school level,  $\chi^2(2) = 4.09, p = .13$ . Though not statistically significant, elementary schools were least likely to develop a plan for pandemic flu/disease just over one tenth of time than did middle schools. Readers should note that 60% or more of all school levels represented in the study did not have a written pandemic flu/disease plan. Descriptive statistics for this analysis are contained in Table 4.1.

-----  
 Insert Table 4.1 about here  
 -----

With respect to the 2009-2010 school year, the result was statistically significant,  $\chi^2(2) = 12.31, p = .002$ . The effect size for this finding, Cramer's V, was below small, .07 (Cohen, 1988). Elementary schools were one fourth less likely to have a written plan for pandemic flu/disease than were high schools. Both middle and high schools completed plans for pandemic flu/disease at a greater rate than did elementary schools. Delineated in Table 4.2 are the descriptive statistics for this analysis.



-----  
Insert Table 4.2 about here  
-----

Regarding written plans related to pandemic flu/disease for the 2015-2016 school year by school level, the result was not statistically significant,  $\chi^2(2) = 0.94, p = .60$ .

Though not statistically significant, high schools were more likely to have a written plan for pandemic/flu disease than did elementary and middles schools. Each of the three school levels developed written pandemic flu/disease plans at a rate of just over 50%.

Table 4.3 contains the descriptive statistics for this analysis.

-----  
Insert Table 4.3 about here  
-----

Concerning the 2017-2018 school year, a statistically significant difference was yielded for school level,  $\chi^2(2) = 7.37, p = .03$ . The effect size for this finding, Cramer's V, was below small, .05 (Cohen, 1988). Both elementary and middle schools were less likely to have a written plan for pandemic flu/disease than were high schools. Written plans for all school levels were at 51% or below for pandemic flu/disease. Revealed in Table 4.4 are the descriptive statistics for this analysis.

-----  
Insert Table 4.4 about here  
-----

### Written Plan for Pandemic Flu/Disease by Urbanicity

With respect to the 2007-2008 school year, a statistically significant difference was present for pandemic flu/disease plans,  $\chi^2(3) = 15.43, p < .001$ . The effect size for this finding, Cramer's V, was below small, .08 (Cohen, 1988). Almost one seventh of schools located in a city did not have a written plan for pandemic flu/disease.

Approximately 60% of schools within the select urbanicity groups did not have written pandemic flu/disease plans. Table 4.5 contains the descriptive statistics for this analysis.

-----  
 Insert Table 4.5 about here  
 -----

Concerning the 2009-2010 school year, a statistically significant difference was not yielded,  $\chi^2(3) = 2.83, p = .42$ . Though not statistically significant, schools in rural settings were one tenth less likely to have written plans for pandemic flu/disease than were suburb schools. Three fourths of the urbanicity groups in the study completed written plans at a rate of 70% or greater. Delineated in Table 4.6 are the descriptive statistics for this analysis.

-----  
 Insert Table 4.6 about here  
 -----

With respect to the 2015-2016 school year, a statistically significant difference was not yielded,  $\chi^2(3) = 3.72, p = .29$ . Schools within a city were one tenth less likely to have a written plan for pandemic flu/disease than did suburb schools. Three fourths of

the urbanicity groups developed written pandemic flu/disease plans at a rate of at least 50% or more. Revealed in Table 4.7 are the descriptive statistics for this analysis.

-----  
 Insert Table 4.7 about here  
 -----

Concerning the 2017-2018 school year, a statistically significant difference was not revealed,  $\chi^2(3) = 4.89, p = .18$ . Though not statistically significant, schools located within cities and towns were less likely to have written plans for pandemic flu/disease than were suburb and rural school settings. Readers should note that all schools in each of the urbanicity categories had a written plan at a rate of less than a 50%. Table 4.8 contains the descriptive statistics for this analysis.

-----  
 Insert Table 4.8 about here  
 -----

### **Trends for Pandemic Flu/Disease by Year and School Level**

In analyzing the presence or absence of written pandemic flu/disease plans by school level for four school years of a national survey from the United States Department of Education that were examined, trends existed by school level. Development of written pandemic flu/disease plans for the 2007-2008 occurred on average less than 38% of the time for all school levels. Each school level in the study for 2009-2010 school year more than doubled in the incidence of written plans for pandemic flu/disease as compared to the 2007-2008 survey data. Written plans for all school levels were produced at an average rate of 72% for the 2009-2010 school year. For the 2015-2016 school year the

average rate of written pandemic flu/disease plans by school level decreased just over 20% as compared to the 2009-2010 survey year. By the 2017-2018 school year an average of 52% of all school levels had no written plan for pandemic flu/disease. When comparing the 2007-2008 school year to the 2017-2018 school year the occurrence of written pandemic flu/disease plans increased by school level an average of 12%. These trends are revealed in Figure 4.1.

-----  
Insert Figure 4.1 about here  
-----

### **Trends for Pandemic Flu/Disease by Year and Urbanicity**

By examining the presence or absence of written pandemic flu/disease plans using data from a national survey for four school years, trends were present by urbanicity. During 2007-2008, schools by all urbanicity levels had no written plan for pandemic flu/disease an average of 62% of the time. In the 2008-2009 school year written pandemic flu/disease plans for schools located in all urbanicity categories increased by an average of more than half as compared to the 2007-2008 year of study. Schools located within all urbanicity levels during the 2009-2010 school year produced written plans for pandemic flu/disease at an average rate of 72%. Written plans for pandemic flu/disease decreased in occurrence by an average of 21% for school settings in all urbanicity groups for the 2015-2016 school year as compared to 2008-2009. In comparison of the two survey years of 2007-2008 and 2017-2018, schools situated in each of the levels of urbanicity for this study had an increase of written plans for pandemic flu/disease by an average of 9%. Depicted in Figure 4.2 are the trends for this examination.

-----  
Insert Figure 4.2 about here  
-----

### **Discussion**

In this article, the extent to which differences were present regarding the presence of written safety plans for pandemic flu/disease among elementary, middle, and high schools and urbanicity in the United States was addressed. Using a nationwide dataset obtained from the United States Department of Education School Survey on Crime and Safety, data for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years were analyzed. Upon completion of inferential statistical analyses, the extent to which trends were present for the written threat scenario school safety plans for pandemic flu/disease was determined. Statistically significant differences were revealed for pandemic flu/disease written plans by school level for the 2009-2010 and 2017-2018 school years. Differences for written pandemic flu/disease plans by urbanicity had fewer substantive results.

Written plans for elementary schools occurred less often than at the middle and high school levels for 2007-2008 and 2009-2010 school years. Middle schools were least likely to have a written plan for pandemic flu/disease during the 2015-2016 and 2017-2018 school years respectively. For the 2007-2008 school year, 60% or more of all school levels in the study had no written plan for pandemic flu/disease. High schools were more likely to have implemented written plans for pandemic flu/disease than were elementary and middle schools for the 2015-2016 year of study. During the same school year, all school levels in question developed written plans at a rate of just over 50%. In

the 2017-2018 school year, on average elementary and middle schools were one tenth less likely to be prepared for pandemic flu/disease threats as were high schools. All schools represented in this analysis completed plans at a rate of 51% or less for a pandemic threat.

Urbanicity was a factor in the 2007-2008 school year for pandemic flu/disease written plans. A statistically significant difference in written plans was determined for schools within cities as compared to schools located in a suburb, town, or rural setting. Rural settings for schools were one tenth less likely to have a written plan than did schools within a suburb for the 2009-2010 year of study. Three fourths of the urbanicity groups developed written pandemic flu/disease plans at a rate of at least 50% or more for the 2015-2016 school year. Additionally, schools located within cities and towns were less likely to have a written plan than were suburb and rural school settings for 2017-2018.

### **Connections to Existing Literature**

As documented in this empirical multiyear analysis, differences were present in written school safety plans by school level and urbanicity. Unfortunately, published research studies about written plans for pandemic flu/disease for the aforementioned variables were limited and this investigation was seminal in nature. Other researchers and leaders of global organizations (Cauchemez, et al., 2008; Dietz & Black, 2012; Maital & Barzani, 2020; Mossad, 2009; Weder di Mauro et al., 2020; United States Department of Health and Human Services Centers for Disease Control and Prevention, 2017) who emphasized the unpredictable and dangerous elements of a worldwide pandemic have documented the importance of understanding and being proactive in

relation to such events. Educational leaders are challenged with preparing and mitigating for a plethora of school related disasters that affect the mental, physical, and social well-being of school communities.

### **Implications for Policy and for Practice**

Based on the findings of this multiyear study, several implications for policy and practice are suggested. With respect to policy, the incorporation of prevention and mitigation techniques by school leaders in the form of written safety plans can be influential in reducing loss of life and property. Individuals and groups of influential policymakers are important role players who bring critical issues to the forefront for deliberation and legislation. School safety and security are issues of great importance and merit much attention. Through the creation of an organized method of safety plan development, local adoption, and reporting protocols to agencies of higher authority schools could become more proactive and prepared for disasters. In addition, a centralized management organization for school safety documents and procedures, preferably at state and/or regional levels, could be created to assist school leaders in realizing their collaborative safety goals. By initiating the development of written plans for students, faculty, and staff, school officials can take the lead in protecting schools. Securing additional funding and furthering efforts to educate all members of the learning community in research-based health and hygiene practices are practical measures to assist in the prevention and response to school crises.

Regarding implications for practice, school leaders' shortcomings in the area of implementation of vital written plans in preparation for a possible crisis must be bolstered. Adding additional well-trained staff members are possible approaches in

improving safety concerns for schools. Correspondingly, social services agencies could be used to assist school officials with more challenging security susceptibilities and could intercede in situations that have the potential for more adverse consequences.

Additionally, governing bodies could approve school safety plans for educational institutions to improve accountability.

### **Recommendations for Future Research**

Several recommendations for future studies can be made based on the findings of this empirical, multiyear nationwide study. The survey data analyzed herein pertained only to written plans for pandemic flu/disease threat scenarios. Further research studies are encouraged for other written safety plans (e.g., active shooter, hostage, and bomb threats), drilled safety plans (e.g., evacuation, lockdown, and shelter-in-place), safety drill frequencies, and other similar related scenarios. Moreover, interviews using a qualitative approach through the use of sampling techniques for principals at each school or urbanicity level could provide useful information. Similarly, researchers could ask more specific questions of school leaders about community demography, proximity of health departments and hospitals, non-pharmaceutical interventions, or access to public services (e.g., fire safety and rescue, police services, and emergency medical services). Consequently, due to the inadequate development of pandemic flu/disease plans, a more focused study related to school safety planning legal requirements and accountability practices could complement this article.



## **Conclusion**

The purpose of this research investigation was to determine the extent to which differences were present in written safety plans a function of school level and urbanicity. Analysis of four school years of nationwide survey data yielded statistically significant differences in pandemic flu/disease written plans by school level and urbanicity. Results discussed herein were interpreted that valid concerns exist related to the development of pandemic flu/disease written plans for elementary schools as compared to middle and high schools, and the overall development of such plans for all school levels for this analysis. About 60% of schools within all urbanicity groups did not have written pandemic written plans. Elementary schools were least likely to have a written plan for pandemic flu/disease, just over one tenth of time than did middle schools. Both elementary and middle schools were less likely to have a written plan for pandemic flu/disease than were high schools. Schools in rural settings were one tenth less likely to have written plans than were suburb schools. City and township schools were less likely to have written plans than were suburb and rural school settings. Regrettably like most threats to schools, health related concerns such as pandemics must be considered as a serious danger by educational leaders and greater efforts should be taken to ensure that schools are prepared in advance for such calamities.

## References

- Cauchemez, S., Valleron, A. J., Boelle, P. Y., Flahault, A., & N. M. Ferguson. (2008). Estimating the impact of school closure on influenza transmission from sentinel data. *Nature* 452(7188), 750-755. <https://doi.org/10.1038/nature06732>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum.
- Dietz, J. E., & Black, D. R. (2012). *Pandemic planning*. <https://doi.org/10.1201/b11779>
- Diliberti, M., Jackson, M., Correa, S., & Padgett, Z. (2019). *Crime, violence, discipline, and safety in U.S. public schools: Findings from The School Survey on Crime and Safety: 2017-18* (NCES 2019-061). U.S. Department of Education. National Center for Education Statistics. <http://nces.ed.gov/pubsearch>
- Johnson, B., & Christensen, L. B. (2020). *Educational research quantitative, qualitative, and mixed methods* (7th ed.). Sage.
- Maital, S., & Barzani, E. (2020). *The global economic impact of COVID-19: A summary of research*. Samuel Neaman Institute of National Policy Research. <https://www.neaman.org.il/EN/The-Global-Economic-Impact-of-COVID-19-A-Summary-of-Research>
- Mossad, S.F. (2009). The resurgence of swine-origin influenza A. *Cleveland Clinic Journal of Medicine* 76(6) 337-343. <https://doi.org/10.3949/ccjm.76a.09047>
- Office of Management and Budget. (2000). Standards for Defining Metropolitan and Micropolitan Statistical Areas; Notice. *Federal Register* (65) No. 249.

- Slate, J. R., & Rojas-LeBouef, A. (2011). *Calculating basic statistical procedures in SPSS: A self-help and practical guide to preparing theses, dissertations, and manuscripts*. NCPEA Press.
- Steeves, R. M., Metallo, S. A., Byrd, S. M., Erickson, M. R., & Gresham, F. M. (2017). Crisis preparedness in schools: Evaluating staff perspectives and providing recommendations for best practices. *Psychology in the Schools*, 54(6), 563-580.  
<https://doi.org/10.1002/pits.22017>
- United States Department of Health and Human Services, January 2006. *Pandemic influenza planning: A guide for individuals and families*.  
<http://www.pandemicflu.gov/plan/pdf/guide.pdf>
- United States Department of Health and Human Services Centers for Disease Control and Prevention, April 2017. *Get Your School Ready for Pandemic Flu*. Community Interventions for Infection Control Unit, Division of Global Migration and Quarantine, National Center for Emerging and Zoonotic Infectious Diseases.  
<https://www.cdc.gov>
- Vessey, J. A., Sherwood, J. J., Warner, D., and Clark, D. (2007). Comparing handwashing to hand sanitizers in reducing elementary school students' absenteeism. *Pediatric Nursing* 33(4) 368-372.  
<https://pubmed.ncbi.nlm.nih.gov/17907739/>
- Weder di Mauro, B., Boone, L., McKibbin, W., Fernando, R., Arezki, R., Nguyen, H.,...Wyplosz, C. (2020). *Economics in the time of COVID-19*. CEPR Press.
- World Health Organization. (2020). *Coronavirus disease (COVID-19) outbreak*.  
<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

**Table 4.1**

*Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by School Level for the 2007-2008 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 215) 34.80%	( <i>n</i> = 403) 65.20%
Middle Schools	( <i>n</i> = 355) 39.60%	( <i>n</i> = 542) 60.40%
High Schools	( <i>n</i> = 366) 39.10%	( <i>n</i> = 570) 60.90%

**Table 4.2**

*Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by School Level for the 2009-2010 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 460) 67.30%	( <i>n</i> = 224) 32.70%
Middle Schools	( <i>n</i> = 659) 72.50%	( <i>n</i> = 250) 27.50%
High Schools	( <i>n</i> = 712) 75.10%	( <i>n</i> = 236) 24.90%

**Table 4.3**

*Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by School Level for the 2015-2016 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 265) 51.40%	( <i>n</i> = 251) 48.60%
Middle Schools	( <i>n</i> = 360) 50.10%	( <i>n</i> = 359) 49.90%
High Schools	( <i>n</i> = 407) 52.60%	( <i>n</i> = 367) 47.40%

**Table 4.4**

*Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by School Level for the 2017-2018 School Year*

School Level	Written Plan <i>n</i> and %age of Total	No Written Plan <i>n</i> and %age of Total
Elementary Schools	( <i>n</i> = 311) 46.30%	( <i>n</i> = 360) 53.70%
Middle Schools	( <i>n</i> = 441) 45.20%	( <i>n</i> = 534) 54.80%
High Schools	( <i>n</i> = 509) 51.10%	( <i>n</i> = 488) 48.90%

**Table 4.5**

*Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by Urbanicity for the 2007-2008 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>n</i> = 216) 31.80%	<i>n</i> = 463) 68.20%
Suburb	<i>n</i> = 332) 40.80%	<i>n</i> = 482) 59.20%
Town	<i>n</i> = 152) 39.00%	<i>n</i> = 238) 61.00%
Rural	<i>n</i> = 273) 40.30%	<i>n</i> = 404) 59.70%



**Table 4.6**

*Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by Urbanicity for the 2009-2010 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 505) 71.80%	<i>(n</i> = 198) 28.20%
Suburb	<i>(n</i> = 649) 73.70%	<i>(n</i> = 232) 26.30%
Town	<i>(n</i> = 279) 71.40%	<i>(n</i> = 112) 28.60%
Rural	<i>(n</i> = 470) 69.80%	<i>(n</i> = 203) 30.20%

**Table 4.7**

*Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by Urbanicity for the 2015-2016 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>(n</i> = 270) 48.40%	<i>(n</i> = 288) 51.60%
Suburb	<i>(n</i> = 418) 53.50%	<i>(n</i> = 363) 46.50%
Town	<i>(n</i> = 150) 50.80%	<i>(n</i> = 145) 49.20%
Rural	<i>(n</i> = 241) 52.60%	<i>(n</i> = 217) 47.40%

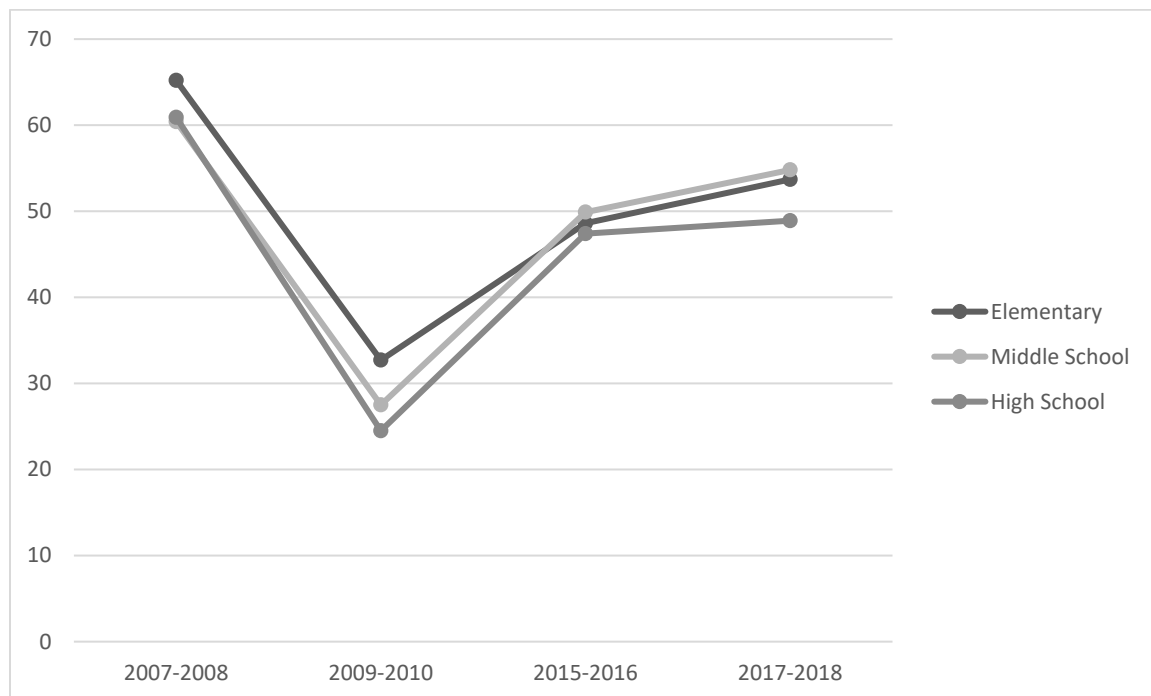
**Table 4.8**

*Descriptive Statistics for Written Pandemic Flu/Disease Scenario Plans by Urbanicity for the 2017-2018 School Year*

Urbanicity	Written Plan	No Written Plan
	<i>n</i> and %age of Total	<i>n</i> and %age of Total
City	<i>n</i> = 321) 44.40%	<i>n</i> = 402) 55.60%
Suburb	<i>n</i> = 508) 49.10%	<i>n</i> = 526) 50.90%
Town	<i>n</i> = 177) 46.30%	<i>n</i> = 205) 53.70%
Rural	<i>n</i> = 307) 49.30%	<i>n</i> = 316) 50.70%

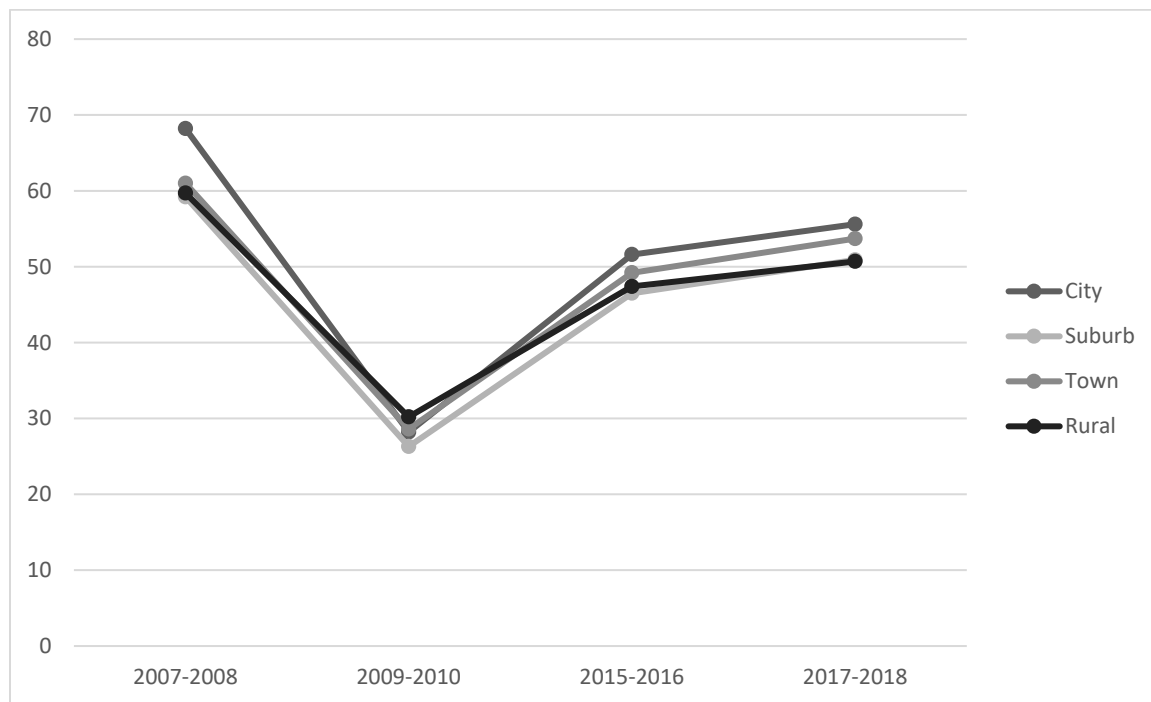
**Figure 4.1**

*Percent of Schools Without a Written Plan for Pandemic Flu/Disease by School Level for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 School Years*



**Figure 4.2**

*Percent of Schools Without a Written Plan for Pandemic Flu/Disease by Urbanicity for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 School Years*



## CHAPTER V

### DISCUSSION

The overall purpose of this journal-ready dissertation was to determine the degree to which school level (i.e., elementary, middle, and high schools) and school urbanicity (i.e., city, suburb, town, and rural) were related to written safety plans (i.e., active shooter, hostage, bomb, and pandemic flu/disease threats) and drilled safety plans (i.e., evacuation, lockdown, and shelter-in-place) based on school administrator responses to a nationwide school safety survey. The first specific purpose was to ascertain the extent to which the frequencies of written school safety plans for active shooter, hostage, and bomb threats differ by school level and urbanicity. The second specific purpose was to establish the extent to which the frequencies of drilled school safety plans for evacuation, lockdown, and shelter-in-place practices differ by school level and urbanicity. The third specific purpose was to examine the extent to which written pandemic flu/disease safety plans differ by school level and urbanicity. In the third study, analyses were performed to determine if trends were present for school safety written pandemic flu/disease plans by school level and urbanicity.

For each of the studies in this journal-ready dissertation, the results are discussed and summarized in this chapter. Then, implications for policy and practice will be provided, followed by recommendations for future research. A summary will conclude this chapter.

## Discussion of Article One Results

The statistical analyses of the results for written safety threat plans by school level for 2015-2016 and 2017-2018 school years are summarized in Table 5.1. During this investigation for the 2015-2016 school year, elementary schools had statistically significantly lower incidences of written plans for active shooter, hostage, and bomb threats than did the other school levels. For the 2015-2016 and 2017-2018 school years, bomb threat plans were written at a statistically significantly lower rate for elementary schools than for the other two school levels. Two effect sizes were small and two effect sizes were below small (Cohen, 1988).

**Table 5.1**

*Summary of Results for Written School Safety Plans by School Level for the 2015-2016 and 2017-2018 School Years*

School Year and Written Plan Type	Statistically Significant	Effect Size	Lowest Performing School Level
2015-2016			
Active Shooter Threat	Yes	Below Small	Elementary Schools
Hostage Threat	Yes	Below Small	Elementary Schools
Bomb Threat	Yes	Small	Elementary Schools
2017-2018			
Active Shooter Threat	No	-	-
Hostage Threat	No	-	-
Bomb Threat	Yes	Small	Elementary Schools

In relation to the 2015-2016 and 2017-2018 school years for school safety written plans by urbanicity, a study was conducted to determine the presence of written or no written plans using a national survey. These analyses produced very few statistically significant results. Delineated in Table 5.2 are the results of these analyses. For 2017-2018, schools located in cities were statistically significantly less likely to have written

plans for hostage threats than did the other urbanicity levels. Lower percentages of schools located in cities had no written plans for bomb threats during the 2017-2018 school year than did the other school locales.

**Table 5.2**

*Summary of Results for Written School Safety Plans by Urbanicity for the 2015-2016 and 2017-2018 School Years*

School Year and Written Plan Type	Statistically Significant	Effect Size	Lowest Performing Urbanicity Level
2015-2016			
Active Shooter Threat	No	-	-
Hostage Threat	No	-	-
Bomb Threat	No	-	-
2017-2018			
Active Shooter Threat	No	-	-
Hostage Threat	Yes	Below Small	City
Bomb Threat	Yes	Below Small	City

### **Discussion of Article Two Results**

Results for the statistical analyses for drilled safety threat plans by school level for 2015-2016 and 2017-2018 school years are presented in Table 5.3. Through these investigations only one statistically significant result was determined. For the 2015-2016 school year, elementary schools had statistically significantly lower occurrences of shelter-in-place drills than did the middle and high school levels for this study.



**Table 5.3**

*Summary of Results for Drilled School Safety Plans by School Level for the 2015-2016 and 2017-2018 School Years*

School Year and Drilled Plan Type	Statistically Significant	Effect Size	Lowest Performing School Level
2015-2016			
Evacuation	No	-	-
Lockdown	No	-	-
Shelter-in-Place	Yes	Below Small	Elementary Schools
2017-2018			
Evacuation	No	-	-
Lockdown	No	-	-
Shelter-in-Place	No	-	-

For the 2015-2016 and 2017-2018 school years, a study was conducted by urbanicity for school safety drills to determine if schools drilled or did not drill for certain safety concerns. Results from these analyses are delineated in Table 5.4. School years 2015-2016 and 2017-2018 for this examination lockdown drills were statistically significantly less likely to have occurred in schools within a rural setting than other schools located within the other three urbanicity levels. Schools located in townships had lower percentages of shelter-in-place drill incidences for the 2015-2016 school year than the other urbanicity groupings for this study. Rural schools drilled less often for shelter-in-place during the 2017-2018 school year than did the other urbanicity levels for this investigation.

**Table 5.4**

*Summary of Results for Drilled School Safety Plans by Urbanicity for the 2015-2016 and 2017-2018 School Years*

School Year and Drilled Plan Type	Statistically Significant	Effect Size	Lowest Performing Urbanicity Level
2015-2016			
Evacuation	No	-	-
Lockdown	Yes	Small	Rural
Shelter-in-Place	Yes	Below Small	Town
2017-2018			
Evacuation	No	-	-
Lockdown	Yes	Below Small	Rural
Shelter-in-Place	Yes	Below Small	Rural

### **Discussion of Article Three Results**

A summary of the findings of the statistical analyses of written pandemic flu/disease plans by school level for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years is revealed in Table 5.5. In analyzing pandemic flu/disease written plans with data from a nationwide school safety survey, few statistically significant results existed. Results for the 2009-2010 school year were that elementary schools had statistically significantly lower incidences of written plans for pandemic flu/disease than did middle and high schools for this study. For the 2017-2018 school year pandemic flu/disease plans were written at a statistically significantly lower rate for middle schools than were for elementary and high schools.

**Table 5.5**

*Summary of Results for Written School Safety Pandemic Flu/Disease Plans by School*

*Level for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 School Years*

School Year and Written Plan	Statistically Significant	Effect Size	Lowest Performing School Level
2007-2008 Pandemic Flu/Disease	No	-	-
2009-2010 Pandemic Flu/Disease	Yes	Below Small	Elementary Schools
2015-2016 Pandemic Flu/Disease	No	-	-
2017-2018 Pandemic Flu/Disease	Yes	Below Small	Middle Schools

For the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 school years for school safety pandemic flu/disease written plans by urbanicity, an examination was conducted using a national school safety survey to determine if schools had written or no written plans. Only one result existed that was statistically significant for this investigation. Revealed in Table 5.6 are the results of these analyses. For 2007-2008, schools located in a city were statistically significantly less likely to have written plans for pandemic flu/disease threats than did the other urbanicity levels for this study.

**Table 5.6**

*Summary of Results for Written School Safety Pandemic Flu/Disease Plans by Urbanicity for the 2007-2008, 2009-2010, 2015-2016, and 2017-2018 School Years*

School Year and Written Plan	Statistically Significant	Effect Size	Lowest Performing Urbanicity Level
2007-2008 Pandemic Flu/Disease	Yes	Below Small	City
2009-2010 Pandemic Flu/Disease	No	-	-
2015-2016 Pandemic Flu/Disease	No	-	-
2017-2018 Pandemic Flu/Disease	No	-	-

### **Connections with Existing Literature**

The findings in all three articles were related through previous research articles discussed in this journal-ready investigation through emphasis on the development and implementation of school safety protocols to improve the overall well-being of the school community and protection of property. As presented in the first investigation, statistically significant results were yielded for elementary schools that had no written school safety plans for active shooter, hostage, and bomb threats for 2015-2016 as compared to the remaining school levels. Likewise, elementary schools were less likely to have a written plan for bomb threats during the 2017-2018 school year than did other school levels. In addition, both written hostage and bomb threats for city urbanicity level generated less statistically significant results for school year 2017-2018. These results were consistent with the conclusions from other researchers (Hull, 2011; Kano & Bourque, 2007; Kano et al., 2007; Lopez et al., 2020; Steeves et al., 2017) who

documented the value and importance of proactive, preventive, and applicable written safety plans for schools.

As established in the second investigation, differences in drilled school safety plans by school level and urbanicity were present. For school year 2015-2016 elementary schools drilled for shelter-in-place at a statistically significantly lower rate than did middle and high schools. Additionally, for school year 2015-2016 statistically significant results for urbanicity revealed rural school settings drilled less often for lockdowns and schools within townships drilled less frequently for shelter-in-place. These findings were commensurate with the results reported by other researchers (Kingshott & McKenzie, 2013; Newman, 2005; Schildkraut et al., 2020; Stough et al., 2018; Trump & Miller, 2015; Wang et al., 2020) who have established similar deficiencies in the implementation of drilled safety plans for schools and other entities.

The findings discussed in the third study were reflective of only a few statistically significant results for pandemic flu/disease written plans by school level and urbanicity. Unfortunately, published research articles about written plans for pandemic flu/disease for the aforementioned variables were limited. As such, this investigation was seminal in nature. Pandemic flu/disease written plans for the 2009-2010 and 2017-2018 school years revealed that school levels, elementary and middle schools, were significantly less likely to have written plans. For the urbanicity category, city, schools within these locations were statistically significantly less likely to have written pandemic flu/disease plans for the 2007-2008 school year. Other researchers and leaders of global organizations (Cauchemez et al., 2008; Dietz & Black, 2012; Maital & Barzani, 2020; Mossad, 2009; Weder di Mauro et al., 2020; United States Department of Health and

Human Services Centers for Disease Control and Prevention, 2017) who emphasized the unpredictable and dangerous elements of a worldwide pandemic have documented the importance of understanding and being proactive in relation to such events.

### **Implications for Policy and Practice**

Based on the findings of the three articles in this journal-ready dissertation, several implications for policy and practice can be generated. Educational leaders who do not develop written safety plans or perform safety drills on a consistent basis could create substantial risks for their students, faculty, and staff. Initially, with respect to policy, school leaders need to incorporate prevention and mitigation techniques in the public school system. Individuals and politicians are important role players who bring critical issues to the forefront for deliberation and legislation. Similarly, policymakers wield substantial influence and could assist in the implementation of school safety accountability programs. By creating a systematic method of development, local adoption, and the reporting of emergency operations plans could be beneficial in preventing school disasters. Educational leaders should consider factors such as time constraints, apathy, lack of accountability, budget appropriations, and the effects of mental health issues when developing a plan of action for school safety practice improvement. Moreover, school safety policies could be managed by a centralized reporting agency, preferably at state and/or regional levels, created to assist school leaders in meeting their safety goals. Additionally, many of the school safety concerns are directly linked to mental and social health issues. Educational leaders should position themselves at the forefront of school safety by leading in the development of written plans and drill procedures for students, faculty, and staff. Securing additional funding

and furthering efforts to educate all members of the learning community in research-based health and hygiene practices are practical measures to assist in the prevention and response to school crises.

Regarding implications for practice, many schools failed to implement essential written plans as a proactive measure when experiencing a crisis. Regrettably, educational leaders must consider the effects of mental health issues on school safety concerns. Adding additional well-trained staff members are possible approaches in improving safety concerns for schools. Social services could be used to assist school officials with safety vulnerabilities, intervene in situations that have the potential for violent outcomes, and securing non-pharmaceutical materials in response to certain emergencies. Furthermore, educational institutions governing bodies could adopt school safety plans and create an accountability system to ensure safety measures are incorporated into the school system as a common practice. School officials who do not develop, implement, and sustain emergency practices through consistency eventually succumb to the perils of both preventable and mitigatable events that lead to unintentional outcomes for their communities.

### **Recommendations for Future Research**

Numerous recommendations for future investigations can be made based on the findings of this empirical, multiyear journal-ready dissertation. Additional research could be conducted for other written safety plans (e.g., bullying, sexual violence, and behavioral threats), drilled safety plans (e.g., reverse evacuation and duck-cover-hold), safety drill frequencies, and other similar related scenarios. Correspondingly, qualitative interviews of a sampling of school level principals could glean additional data to alleviate

any concerns about extraneous variables. Future researchers could ask more specific questions about the community demography, the physical design of school campuses, or access to public services (e.g., fire safety and rescue, police services, and emergency medical services). Similarly, a more focused study on elementary schools and schools in rural settings implementation of written and drilled safety plans could supplement the findings of this investigation.

### **Conclusion**

In this journal-ready dissertation, the degree to which differences were revealed for written and drilled safety plans by school level and urbanicity based on national school safety survey. Elementary schools were determined to have the greatest deficiencies in the implementation of written and drilled school safety plans. In 2015-2016 statistically significant results existed for elementary schools with no written plans for active shooter, hostage, and bomb threats. In addition, elementary schools in 2015-2016 were less likely to have a written plan for drilled shelter-in-place. For 2009-2010, statistically significant results were present for no written plan in relation to pandemic flu/disease. Regrettably, elementary schools consistently trended for no written plans across several school years and for written plans and drilled plans for this investigation.

Regarding urbanicity, statistically significant differences were present for written and drilled plans for schools located in cities and rural settings. City schools during the 2017-2018 school year were outperformed by the other urbanicity groups for hostage and bomb threats. Similarly, statistically significant results were revealed for schools located within cities that had no written plans associated with pandemic/flu disease preparation for the 2007-2008 school year. Rural schools for drilled safety plans during the 2015-



2016 and 2017-2018 school years revealed statistically significant results for not having a drill for lockdowns. Furthermore, schools in rural settings during 2017-2018 performed shelter-in-place drills at a significantly lower incidence than did the other urbanicity levels for this examination. Safety for schools should be prioritized by educational leaders along with other key stakeholders such as parents, teachers, policymakers, and community members.

## REFERENCES

- Alathari, L., Drysdale, D., Driscoll, S., Blair, A., Mauldin, D., Carlock, A.,...Bullwinkel, J. (2019). *Protecting America's schools: A U.S. Secret Service analysis of targeted school violence*. United States Department of Homeland Security United States Secret Service National Threat Assessment Center.  
<https://www.secretservice.gov/protection/ntac>
- Alathari, L., Drysdale, D., Driscoll, S., Blair, A., Mauldin, D., Carlock, A.,...Vineyard, N. (2021). *Averting targeted school violence: A U.S. Secret Service analysis of plots against schools*. United States Department of Homeland Security United States Secret Service National Threat Assessment Center  
<https://www.secretservice.gov/protection/ntac>
- Banzet-Ellis, G. (2014, June 2). 2011 Joplin tornado serves as wake up call for school officials. *KGOU News and Corporation for Public Broadcasting*.  
<https://www.kgou.org/post/2011-joplin-tornado-served-wake-call-school-officials>
- Bayerl, P.S., Akhgar, B., Brewster, B., Domdouzis, K., & Gibson, H. (2014). *Cyber crime and cyber terrorism investigator's handbook*. <https://doi.org/10.1016/B978-0-12-800743-3.00016-5>
- Brumfield, B. (2014, May 20). Moore, Oklahoma, looks back on tornado that killed 24 one year ago. *Cable News Network*.  
<https://www.cnn.com/2014/05/20/us/oklahoma-moore-tornado-anniversary>
- Burgess, D., Ortega, K., Stumpf, G., Garfield, G., Karstens, C., Meyer, T.,...Marshall, T. (2014). 20 May 2013 Moore, Oklahoma, tornado: Damage survey and analysis.

*Weather and Forecasting*, 29(5), 1229-1237. <https://doi.org/10.1175/WAF-D-14-00039.1>

Business and Learning Resources. (n.d.). *Safety plans*.

<https://www.blr.com/safetytips/safety-plans#:~:text=A%20Safety%20Plan%20is%20a,to%20take%20when%20accidents%20occur.&text=The%20written%20safety%20plan%20is%20your%20blueprint%20for%20keeping%20workers%20safe>

Campbell, R. (2020, September). *Structure fires in schools*. National Fire Protection Association. <https://www.nfpa.org/News-and-Research/Data-research-and-tools/Building-and-Life-Safety/Structure-fires-in-schools#:~:text=In%202014%E2%80%932018%2C%20U.S.%20fire,illion%20in%20direct%20property%20damage>

Cauchemez, S., Valleron, A. J., Boelle, P. Y., Flahault, A., & N. M. Ferguson. (2008). Estimating the impact of school closure on influenza transmission from sentinel data. *Nature* 452(7188), 750-755. <https://doi.org/10.1038/nature06732>

City of San Francisco Department of Emergency Management. (n.d.). *Department of emergency management drill*. <https://sfdem.org/drill>

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum.

Council of State Governments Justice Center. (2014). *School safety plans: A snapshot of legislative action*. <https://csgjusticecenter.org/wp-content/uploads/2014/03/NCSL-School-Safety-Plans-Brief.pdf>

- Dickson, M. J., & Vargo, K. K. (2017). Training kindergarten students lockdown drill procedures using behavioral skills training. *Journal of Applied Behavior Analysis, 50*(2), 407-412. <https://doi.org/10.1002/jaba.369>
- Dietz, J. E., & Black, D. R. (2012). *Pandemic planning*. <https://doi.org/10.1201/b11779>
- Diliberti, M., Jackson, M., Correa, S., & Padgett, Z. (2019). *Crime, violence, discipline, and safety in U.S. public schools: Findings from The School Survey on Crime and Safety: 2017-18* (NCES 2019-061). U.S. Department of Education. National Center for Education Statistics. <http://nces.ed.gov/pubsearch>
- Dishman, M. L., Lewis, J. L., & Pepper, M. J. (2011). "A student [came] down and said 'There's a...guy in the...English classroom with a gun'": Recovering from violent invasion. *Journal of Cases in Educational Leadership, 14*(1), 48-58. <https://doi.org/10.1177/1555458911408792>
- Fallahi, C. R., Austad, C. S., & Fallon, M. (2009). A survey of perceptions of the Virginia Tech tragedy. *Journal of School Violence, 8*(2), 120-135. <https://doi.org/10.1080/15388220802074017>
- Fisher, B.W., Nation, M., Nixon, C. T., & McIlroy, S. (2017). Students' perceptions of safety at school after Sandy Hook. *Journal of School Violence, 16*(4), 349-360. <http://dx.doi.org/10.1080/15388220.2015.1133310>
- Gurspan, M. (2021, March 1). The fourteenth anniversary of the killer tornado which struck Enterprise High School and the city. *Nexstar, Inc.* <https://www.wdhn.com/news/local-news/the-fourteenth-anniversary-of-the-killer-tornado-which-struck-enterprise-high-school-and-the-city/>

- Hull, B. (2011). Changing realities in school safety and preparedness. *Journal of Business Continuity and Emergency Planning*, 5(1), 440-450. Electronic ISSN 1749-9227
- Johnson, B., & Christensen, L. B. (2020). *Educational research quantitative, qualitative, and mixed methods* (7th ed.). Sage.
- Kano, M., & Bourque, L. B. (2007). Experiences with preparedness for emergencies and disasters among public schools in California. *NASSP Bulletin*, 91(3), 201-218.  
<https://doi.org/10.1177/0192636507305102>
- Kano, M., Ramirez, M., Ybarra, W. J., Frias, G., & Bourque, L. B. (2007). Are schools prepared for emergencies? A baseline assessment of emergency preparedness at school sites in three Los Angeles County school districts. *Education and Urban Society*, 39(3), 399-422. <https://doi.org/10.1177/0013124506298130>
- Kingshott, B. F., & McKenzie, D. G. (2013). Developing crisis management protocols in the context of school safety. *Journal of Applied Security Research*, 8(2), 222-245.  
<https://doi.org/10.1080/191610.2013.765339>
- Lopez, R., Swezey, J. A., & Claxton, R. (2020). A multiple case study of the interagency relationship between school administrators and law enforcement personnel in the creation, implementation, and sustaining of school emergency management plans. *Journal of School Leadership*, 30(5), 465-488.  
<https://doi.org/10.177/1052684619896536>
- Lowe, J. A. (1987, April). *What we learned: Some generalizations in dealing with a traumatic event at Cokeville*. Paper presented at the Annual Meeting of the National School Boards Association, San Francisco, CA.

- Maital, S., & Barzani, E. (2020). *The global economic impact of COVID-19: A summary of research*. Samuel Neaman Institute of National Policy Research.  
<https://www.neaman.org.il/EN/The-Global-Economic-Impact-of-COVID-19-A-Summary-of-Research>
- McAlpin, D. S., & Slate, J. R. (2021). School level differences in school threat scenario written plans: A national analysis. *Journal of Leisure and Recreation Patterns*, 2(1), 1-10. <https://jlrppatterns.com/index.php/jlrp/article/view/3/8>
- Mossad, S.F. (2009). The resurgence of swine-origin influenza A. *Cleveland Clinic Journal of Medicine* 76(6) 337-343. <https://doi.org/10.3949/ccjm.76a.09047>
- Newman, G. R. (2005). *Bomb threats in schools*. Office of Community Oriented Policing Services, U.S. Department of Justice. <https://cops.usdoj.gov>
- National Oceanic and Atmospheric Administration National Centers for Environmental Information. (n.d.). *U.S. Tornado Climatology*.  
<https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology>
- Office of Management and Budget. (2000). Standards for Defining Metropolitan and Micropolitan Statistical Areas; Notice. *Federal Register* (65) No. 249.
- Padgett, Z., Jackson, M., Correa, S., Kemp, J., Gilary, A., Meier, A., Gbondo-Tugbawa, K., & McClure, T. (2020). *School Survey on Crime and Safety: 2017–18 Public-Use Data File User’s Manual* (NCES 2020-054). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.  
<http://nces.ed.gov/pubsearch>

- Robers, S., Zhang, J., Truman, J., & Snyder, T. D. (2010). *Indicators of school crime and safety: 2010* (NCES 2011-002). U.S. Department of Education. U.S. Department of Justice Office of Justice Programs. <http://nces.ed.gov/pubsearch>
- Rooney, T. (2015). Higher stakes-the hidden risks of school security fences for children's learning environment. *Environmental Education Research, 21*(6), 885-898. <https://doi.org/10.1080/13504622.2014.936308>
- Schildkraut, J., Grogan, K., & Nabors, A. (2020). *Should schools be conducting lockdown drills?* <https://www.wested.org/resources/schools-lockdown-drills/>
- Slate, J. R., & Rojas-LeBouef, A. (2011). *Calculating basic statistical procedures in SPSS: A self-help and practical guide to preparing theses, dissertations, and manuscripts*. NCPEA Press.
- Steeves, R. M., Metallo, S. A., Byrd, S. M., Erickson, M. R., & Gresham, F. M. (2017). Crisis preparedness in schools: Evaluating staff perspectives and providing recommendations for best practices. *Psychology in the Schools, 54*(6), 563-580. <https://doi.org/10.1002/pits.22017>
- Stevens, T., Barnard-Brak, L., Brook, R., Acosta, R., & Wilburn, S. (2019). Aggression toward teachers, interaction with school shooting media, and secondary trauma: Lockdown drills as moderator. *Psychology in Schools, 57*(4), 583-605. <https://doi.org/10.1002/pits.22329>
- Stough, L. M., Kang, D., & Lee, S. (2018). Seven school-related disasters: Lessons for policymakers and school personnel. *Education Policy Analysis Archives, 26*(100), 1-27. <https://dx.doi.org/10.14507/epaa.26.3698>

Trump, K., & Miller, E. (2015). *Study finds rapid escalation of violent school threats. National School Safety and Security Services.*

<https://www.schoolsecurity.org/2015/02/study-finds-rapid-escalation-violent-school-threats/>

United States Department of Health and Human Services, January 2006. *Pandemic influenza planning: A guide for individuals and families.*

<http://www.pandemicflu.gov/plan/pdf/guide.pdf>

United States Department of Health and Human Services Centers for Disease Control and Prevention. (n.d.). *Pandemic influenza.* <https://www.cdc.gov/flu/pandemic-resources/index.htm>

United States Department of Health and Human Services Centers for Disease Control and Prevention, April 2017. *Get Your School Ready for Pandemic Flu.* Community Interventions for Infection Control Unit, Division of Global Migration and Quarantine, National Center for Emerging and Zoonotic Infectious Diseases. <https://www.cdc.gov>

United States Department of Labor Occupational Safety and Health Administration. (n.d.). *Evacuation and shelter-in-place.*

[https://www.osha.gov/SLTC/emergencypreparedness/gettingstarted\\_evacuation.html](https://www.osha.gov/SLTC/emergencypreparedness/gettingstarted_evacuation.html)

University of South Florida Emergency Management. (2021, February 26) *Hazards.*

<https://www.usf.edu/administrative-services/emergencymanagement/hazards/bomb-threat.aspx>



- Vessey, J. A., Sherwood, J. J., Warner, D., and Clark, D. (2007). Comparing handwashing to hand sanitizers in reducing elementary school students' absenteeism. *Pediatric Nursing* 33(4) 368-372.  
<https://pubmed.ncbi.nlm.nih.gov/17907739/>
- Vlahov, D., & Galea, S. (2002). Urbanization, urbanicity, and health. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 79(4), S1-S12.  
[https://doi.org/10.1093/jurban/79.suppl\\_1.S1](https://doi.org/10.1093/jurban/79.suppl_1.S1)
- Wang, K., Chen, Y., Zhang, J., & Oudekerk, B. A. (2020). *Indicators of School Crime and Safety: 2019* (NCES 2020-063/NCJ 254485). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice.
- Weder di Mauro, B., Boone, L., McKibbin, W., Fernando, R., Arezki, R., Nguyen, H.,... Wyplosz, C. (2020). *Economics in the time of COVID-19*. CEPR Press.
- World Health Organization. (2020). *Coronavirus disease (COVID-19) outbreak*.  
<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- Yale University Emergency Management. (n.d.). *Shelter-in-place*. Emergency Management. <https://emergency.yale.edu/be-prepared/shelter-place>

## APPENDIX



Date: Jun 28, 2021 5:29:46 PM CDT

TO: David McAlpin Frederick Lunenburg

FROM: SHSU IRB

PROJECT TITLE: School Level and Urbanicity Differences in School Threat Scenario Plans: A National Analysis

PROTOCOL #: IRB-2021-132

SUBMISSION TYPE: Initial

ACTION: Exempt

DECISION DATE: June 28, 2021

EXEMPT REVIEW CATEGORY: Category 4. Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable biospecimens, if at least one of the following criteria is met:

(i) The identifiable private information or identifiable biospecimens are publicly available;

(ii) Information, which may include information about biospecimens, is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify subjects;

(iii) The research involves only information collection and analysis involving the investigator's use of identifiable health information when that use is regulated under 45 CFR parts 160 and 164, subparts A and E, for the purposes of "health care operations" or "research" as those terms are defined at 45 CFR 164.501 or for "public health activities and purposes" as described under 45 CFR 164.512(b); or

(iv) The research is conducted by, or on behalf of, a Federal department or agency using government-generated or government-collected information obtained for nonresearch activities, if the research generates identifiable private information that is or will be maintained on information technology that is subject to and in compliance with section 208(b) of the E-Government Act of 2002, 44 U.S.C. 3501 note, if all of the identifiable private information collected, used, or generated as part of the activity will be maintained in systems of records subject to the Privacy Act of 1974, 5 U.S.C. 552a, and, if applicable, the information used in the research was collected subject to the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 et seq.

**OPPORTUNITY TO PROVIDE FEEDBACK:** To access the survey, click [here](#). It only

takes 10 minutes of your time and is voluntary. The results will be used internally to make improvements to the IRB application and/or process. Thank you for your time.

Greetings,

Thank you for your submission of Initial Review materials for this project. The Sam Houston State University (SHSU) IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

**\* What should investigators do when considering changes to an exempt study that could make it nonexempt?**

It is the PI's responsibility to consult with the IRB whenever questions arise about whether planned changes to an exempt study might make that study nonexempt human subjects research.

In this case, please make available sufficient information to the IRB so it can make a correct determination.

If you have any questions, please contact the IRB Office at 936-294-4875 or [irb@shsu.edu](mailto:irb@shsu.edu). Please include your project title and protocol number in all correspondence with this committee.

Sincerely,

Chase Young, Ph.D.  
Chair, IRB  
Hannah R. Gerber, Ph.D.  
Co-Chair, IRB

## VITA

**David S. McAlpin**

### Education/Certifications

<b>Master's Degree</b>	Education Administration, Lamar University, Beaumont, TX, 2003
<b>Bachelor's Degree</b>	Science, Lamar University, Beaumont, TX, 2000
<b>Superintendent Certificate</b>	Lamar University, Beaumont, TX, 2011
<b>Registered Texas School Business Administrator</b>	Texas Association of School Business Officials (TASBO), Austin, TX, 2018
<b>Principal Certificate</b>	PK-12 Principal, Texas
<b>Educator Certificate</b>	9-12 Health, Texas

### Administrative and Leadership Experience

**Superintendent, Orangefield Independent School District,  
Orangefield, TX, 2020-present**

**Assistant Superintendent/Chief Financial Officer,  
Orangefield Independent School District,  
Orangefield, TX, 2012-2020**

**UIL District 12/22-4A Chairperson  
Orangefield, TX 2015-2018**

**High School Principal, Orangefield High School,  
Orangefield Independent School District,  
Orangefield, TX, 2007-2012**

**Assistant High School Principal/Career and Technical Education Director,  
Orangefield High School,  
Orangefield Independent School District,  
Orangefield, TX, 2005-2007**

**Assistant Elementary Principal/District Child Nutrition Director,  
Orangefield Elementary,  
Orangefield Independent School District,  
Orangefield, TX, 2003-2005**

**District Sports Medicine/Athletic Trainer,  
Orangefield Independent School District,  
Orangefield, TX, 2000-2003**

**Campus Site-Based Decision-Making Committee Member,  
Orangefield High School,  
Orangefield Independent School District,  
Orangefield, TX, 2002-2003**

### **Teaching Experience**

**High School Health Teacher,  
Orangefield High School, Orangefield, TX 2000-2003**

**High School Character Education Teacher,  
Orangefield High School, Orangefield, TX 2002-2003**

### **Additional Training/Professional Development**

“Thompson Executive Leadership Institute”, Region VIII, Austin, TX present.  
 “TASA Superintendent Study”, Region V ESC, Beaumont, TX 2020-present.  
 “TASA First Time Superintendent Training”, Virtual Event, 2020.  
 “T-PESS Training”, Beaumont, TX May, 2021.  
 “Investment Officer Training,” Beaumont, TX, 2012-19.  
 “TASA Mid-Winter Conference,” Austin, TX, January 2013-20.  
 “TASBO Conference and Educational Courses,” (TASBO certification), Houston, Austin, San Antonio, Dallas, Rockwall, TX, 2012-2018.  
 “TASSP, Summer Conference,” Austin, TX, July 2012  
 “Leadership Southeast Texas (LSET),” (various locations throughout the Golden Triangle), Beaumont, TX, 2008.  
 “TASSP, New Principals Academy,” TASSP, San Antonio, TX, July 2007  
 “FEMA, Emergency Management Institute,” Region V, Beaumont, TX, May 2006.  
 “Principal Assessment Center,” Region V, Beaumont, TX, August 2004.  
 “The Educator’s Guide to Inclusion through Differentiated Instruction,” Orangefield, TX, August 2004.  
 “TASSP Assistant Principal Workshop,” TASSP, Austin, TX, 2004-2007.  
 “Chapter 37 and PEIMS Training for Administrators,” Region V, Beaumont, TX, September 2005.  
 “School Emergency Management Planning,” Region V, Beaumont, TX, May 2005.  
 “Induction/Mentoring (RE5PASS) Academy Meeting,” Region V, Beaumont, TX, October 2003.  
 “How to Handle the Hard to Handle Student,” Appelbaum Training Institute, Houston, TX, September 2003.  
 “Golden Triangle Annual Law Conference for Educators,” Region V, Beaumont, TX, 2003-2010.  
 “TASB Policy Foundations of District Governance and Management”, Orangefield ISD, Orangefield, TX, August 2003.  
 “Handle With Care,” Orangefield ISD, Orangefield, TX, 2003-2010.  
 “Capturing Kids Hearts,” M.B. Flippen and Associates, Houston, TX, May 2002.

### **Presentations**

- McAlpin, D. S. (2020, October). *School level differences in school threat scenario written plans: A national analysis*. Presented to Texas Council of Professors of Educational Administration, Virtual Event.
- McAlpin, D. S. (2012-19, August). *Annual District Finance Report*. Presented to board of trustees, faculty, and staff of Orangefield ISD, Orangefield, TX.
- McAlpin, D. S. (2017, March). *Working with the Millennial Generation* Presented to the Bridge City/Orangefield Rotary Club, Bridge City, TX.
- McAlpin, D. S. (2016, March). *School Finance Q&A*. Presented to the Bridge City/Orangefield Rotary Club, Bridge City, TX.
- McAlpin, D. S. (2012, March). *Education Today*. Presented to the Orange Kiwanis Club, Orange, TX.
- McAlpin, D. S. (2011, August). *Dropout Prevention*. Presentation at Orangefield ISD, Orangefield, TX.
- McAlpin, D. S. (2011, August). *Crisis Management for Educators*. Presentation at Orangefield ISD, Orangefield, TX.
- McAlpin, D. S. (2010, August). *Best Practices for Educators*. Presentation at Orangefield ISD, Orangefield, TX.
- McAlpin, D. S. (2009, August). *Complex Instruction*. Presentation at Orangefield ISD, Orangefield, TX.
- McAlpin, D. S. (2009, August). *Time Management and Student Motivation*. Presentation at Orangefield High School, Orangefield, TX.
- McAlpin, D. S. (2008, August). *Inclusion Plan and RTI*. Presentation at Orangefield High School, Orangefield, TX.
- McAlpin, D. S. (2008, August). *Capturing Kids Hearts Refresher*. Presentation at Orangefield High School, Orangefield, TX.
- McAlpin, D. S., Goldsmith, S., Jost, J., Kyle, J. (2009, August). *Understanding Poverty*. Presentation at Orangefield ISD, Orangefield, TX.
- McAlpin, D. S. (2008, October). *District FTA Leadership Meeting*. Presentation at the Drive Center, Orange, TX.
- McAlpin, D. S. (2006, March). *Child Nutrition Today*. Presented to the Bridge City/Orangefield Rotary Club, Bridge City TX.

### **Publications**

- McAlpin, D. S., & Slate, J. R. (2021). School level differences in school threat scenario written plans: A national analysis. *Journal of Education and Recreation Patterns*, 2(1), 1-10. <https://jlrppatterns.com/index.php/jerp/article/view/3/8>

### **Professional Affiliations**

- Texas Association of School Administrators (TASA), 2019-present  
 Texas Association of School Business Officials (TASBO), 2012-present  
 Texas Association of Secondary School Principals (TASSP), 2005-2012

National Association of Secondary School Principals (NASSP), 2005-2012  
Texas Elementary Principals and Supervisors Association (TEPSA), 2003-2005

### **Awards**

Bridge City Chamber of Commerce Employee of the Month, February 2012  
Region V ESC TASSP Principal of the Year, 2011  
BRAVO Award presented by Orangefield ISD Board of Trustees, 2007  
The Orangefield High School Golden Apple Teacher of the Year Award, 2003  
Lamar University Beaumont, Texas Student Faculty Award, 2001