ABSTRACT

Title of Thesis:	AN EVALUATION OF CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED): HOW CAN WE POSSIBLY KEEP OUR SCHOOLS SAFE?
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Since 2020, school shootings have increased by 163%, and since 2010 school shootings have risen by 1,900% (Riedman 2022). The prevalence of school shootings has resulted in several responses to prevent future events, many of which call upon changes to the structural features of the schools. Early approaches used Harsh-Target Hardening techniques. This led to the rise of the use of other techniques such as Crime Prevention Through Environmental Design (CPTED). Despite increases in the use of different strategies, we know little about how these approaches impact perceptions of feeling safe. This research aims to bridge the gap between the understanding of the effectiveness of CPTED and Harsh Target Hardening, through the scope of perceptions or feelings of safety. This research investigates the differences of the use of CPTED versus Harsh Target Hardening. A qualitative study was created in the State of Maryland in Montgomery County Public Schools. Semi-structured interviews were conducted with K-5 elementary school teachers to gain insight into feelings of safety and input toward CPTED and Harsh Target Hardening practices. It was found that teachers appreciate tenets of both practices

and that a quasi-approach that incorporates aspects of Crime Prevention Through Environmental

Design (CPTED) and Harsh Target Hardening is appropriate.

AN EVALUATION OF CIRME PREVENTION THROUGH ENVIRONMENTAL DESIGN

(CPTED): HOW CAN WE POSSIBLY KEEP OUR SCHOOL SAFE?

By

Luke Senftle

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I specifically dedicate this thesis to my mother who I lost suddenly the week before finals week. My mother, Catherine Senftle, gave me endless support during my time in the honors program and always had brilliant ideas and suggestions for my thesis. Growing up my mom always drove me to work hard and kept my head up when challenges became tough (whether that be on the baseball field or academically), I took this mindset into my undergraduate studies at Maryland and into the Criminology and Criminal Justice Honors Program. I credit my mother for giving me the academic drive to complete this thesis.

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<u>Chapter 1: Introduction</u>

School Shootings and other violent crimes have plagued headlines in America. In 2020-2021 there were a total of 93 school shootings at public and private schools, which is more than any previous year (Woodrow 2022). Overall, school shootings have increased by 1,900% since 2010 (Riedman 2022). Most recently the travesty of Uvalde has placed more pressure on policymakers to be stricter on gun-carrying laws (Despart 2023). This has re-introduced the question--how can we possibly keep our schools safe? After Columbine in 2004, policymakers responded by turning to the use of Harsh Target-Hardening techniques, which include the use of metal detectors, in-door cameras, armed SRO officers, and other intense precautions (Addington 2009). However, Harsh Target Hardening approaches were criticized due to questionable effectiveness, expense, and the belief that it may take away from the positive learning environment (Addington 2009). Policymakers, given the ineffectiveness of Harsh Target Hardening, turned to a different approach to address school safety— Crime Prevention Through Environmental Design (CPTED). Prior research has posited that CPTED is more effective at creating a safe environment than Harsh Target Hardening. Sandy Hook Elementary, among other schools, implemented CPTED throughout its school design, and evidence indicates these design changes improved perceptions of safety (Campisi 2018).

Harsh Target Hardening is characterized by harsher and more visible measures of security than CPTED. CPTED and Harsh Target Hardening have overlapping goals such as surveillance and prevention, however Harsh Target Hardening uses more intense means ((i.e., metal detectors, SRO officers, and security cameras). Current research on Harsh Target Hardening indicates students perceive these practices badly, specifically that the environment feels "prison-like" (Lindstrom Johnson et al. 2018). Research has indicated that less intrusive forms of Harsh Target Hardening, specifically, security cameras are viewed as more acceptable (Lindstrom Johnson et al. 2018).

In turn, CPTED has been perceived as much better at creating a school environment (Mowen and Freng 2019). CPTED focuses on elements that are structurally built into the environment (such as windows that allow for more surveillance) and literature indicates that CPTED may be more effective

than intense target hardening because simply perceiving that crime is less likely to occur can eq to less crime in the environment. Cozens and Love (2014:4) state "Elements that make legitimate users of a space feel safe can discourage illegitimate users from committing undesirable acts" (p.4). CPTED has proven to show overall effectiveness in places other than schools. One review of 16 studies found that among retail and restaurant facilities, once CPTED was implemented these facilities experienced fewer overall robberies (Casteel and Peek-Asa 2000).

There are seven basic tenets of CPTED that are used in the school environment: territorial reinforcement, surveillance, image, access control, and legitimate activity support (Cozens and Love 2014). In the school setting these tenants are split into four groups across the literature: natural surveillance, access control, territoriality/maintenance, and activity support (Lamoreaux and Sulkowski 2020). We will discuss these further in the literature review.

The primary gap this research will address is the relationship between CPTED, Harsh Target Hardening and perceptions of safety. Specifically, this research will investigate how teachers perceive CPTED and Harsh Target Hardening practices in the school setting. This research investigates teachers' perceptions of safety in the school setting. This project will investigate which aspects of CPTED and Harsh Target Hardening make teachers feel the safest or least safe. It will aim to narrow the unknown about perceptions of CPTED and Harsh Target Hardening being used in schools. In all, this research will reveal teachers' feelings about CPTED and Harsh Target Hardening elements and help direct policymakers in the realm of school safety.

This literature review will begin by reviewing the use of Harsh Target Hardening as a technique. Second, the theoretical underpinning of CPTED. Third, it will discuss the application of CPTED in the school setting. Fourth, it will look at past research on the perception of CPTED in School environments. Lastly, it will look at the value of measuring perceived crime. Lastly, it will introduce the current research question.

Chapter 2: Literature Review

The Red Flags of Harsh Target Hardening:

As a response to Columbine Harsh Target Hardening (i.e., armed SRO officers, metal detectors, heavy use of cameras, and random book bag checks) was seen as the solution to crime in the school setting. However, research over the years has been mixed and mainly indicated that Harsh Target Hardening is not successful.

Early review of this technique occurred in the aftermath of Columbine High school by Addington (2009) and evaluated the use of "visible security measures", which included physical devices (i.e., metal detectors and security cameras) and trained personnel (i.e. law enforcement officers) (see also Hyman and Perone, 1998). This review notes that physical searches can make students resent teachers, which can lead to malice and perhaps more crime (Hyman and Perone, 1998). Second, ample use of metal detectors and law enforcement can make a school feel like a prison (Noguerra, 1995). Before research has even been conducted on Harsh Target Hardening, there have been doubts about its intense physical nature.

One study by Crawford and Burns (2009) sampled 3,318 students in grades 9-12 asking specifically if the increase in law enforcement and physical security measures decreased the amount of violence. This study found that the use of Harsh Target Hardening elements led to an increase in students in fearing that violent crime was occurring, or going to occur (Crawford and Burns 2015). Another study from Mowen and Freng (2018) used a 2002 educational longitudinal study and investigated the use of security measures in schools and how students assessed their safety.
Mowen and Freng (2018) found "Student perception of safety within the school revealed that schools with greater counts of security measures have students who report significantly lower levels of perceived safety" (p.386).

Some studies have found mixed findings on the use of Harsh Target Hardening. One study (Lindsrom et al. 2018) surveyed 54,350 students from 98 middle and high schools across Maryland. This research found that security cameras inside were related to lower perceptions of safety and security cameras outside were related to higher perceptions of safety (Lindstrom et al. 2018). This would lead

some to believe that Harsh Target Hardening may be useful for increasing safety perceptions.

While some research may indicate that Harsh Target Hardening can be partially successful in terms of

perceptions, the red flags found in Crawford and Burns (2018) and Addington (2009) should lead

policymakers to question these techniques. Since Harsh Target Hardening has in ways, proven ineffective,

there should be further evaluation of CPTED. Now the theoretical approach of CPTED will be discussed.

The Theoretical Approach to Crime Prevention Through Environmental Design (CPTED):

The technique of Crime Prevention Through Environmental Design (CPTED), which manipulates

the environment to decrease the likelihood of crime draws from several key criminological frameworks.

This section will evaluate Social Disorganization Theory, Broken Windows Theory, Routine Activities

Theory, and Defensible Space Theory. The environmental perspective of these theories has informed

CPTED and the current study.

Social Disorganization Theory:

Social Disorganization Theory (SDT), postulated by Shaw and McKay manifests the importance

of stable common values in maintaining control of the community (Shaw and Mckay 1972). In one

dominant study, Shaw and McKay found that neighborhoods that were in a constant state of transition

experienced higher crime rates, inferring that not having stable values led to more crime (Shaw and

Mckay 1972). One extension of SDT is the Systemic theory, which posits the ability of a community to

supervise and control teenage peer groups through interactional family networks (i.e., groups in the

neighborhood who are assigned to watch teenage peer groups) (Groff 2015). For example, if a community

cannot control a group of kids on the street, they will experience higher rates of crime (Sampson and

Groves 1989). Another extension of Systemic theory is collective efficacy, which is when neighbors have

a sense of togetherness and shared expectations about reporting crime (Sampson, Raudenbush,& Earls,

1997). The third extension of SDT and collective efficacy is the component of local participation in

formal and voluntary organizations (Raudenbush & Earls,1997). Like friendship networks, connection to

an organization strengthens an individual's bond to the community and deters crime.

These three aspects: supervising peer groups, individual connection to friendship networks, and

individual connection to organizations are related to CPTED. The environment is responsible for how peer groups and friendship networks form and according to SDT these relationships are crucial for crime deterrence.

Broken Windows Theory:

The Broken Windows Theory (BWT) introduced by Wilson and Kelling (1982), states that when a given area is dirty or in disarray this will encourage crime. In other words, problems in the environment not quickly attended to can lead to more problems (Piscitelli and Doherty 2018). BWT states that disorder in a community indicates to offenders that they can commit crimes without being caught (Piscitelli and Doherty 2018). BWT also states that more physical disorder in a community leads to more fear of crime (Weisenburd et al. 2008). Piscitelli and Doherty (2018) state that "there is a negative feedback loop: disorder leads to fear of crime which also leads to more disorder" (p.592).

Broken Windows Theory informs CPTED, that a disordered environment can lead to more crime. Specifically, the Maintenance aspect of CPTED, emphasizes the importance of proper decorum of the environment to avoid crime, which is directly related to BWT. For example, broken windows, trash, and graffiti will contribute to norm-setting and increase the risk of antisocial behavior (Lamoreaux and Sulkowski 2019).

Routine Activities Theory:

Routine Activity theory posits that changes in the structural environment have an effect on crime rates (Cohen and Felson, 1979). The theory states there are three elements that converge in time and space to create the opportunity for a crime: (1) motivated offenders, (2) suitable targets, and (3) the absence of capable guardians (Cohen and Felson, 1979). The theory states that if one of these elements is missing the likelihood of the occurrence of crime decreases (Cohen and Felson, 1979).

The first element is a motivated offender, which is defined as someone with both criminal inclinations and the ability to carry out those inclinations (Cohen and Felson, 1979, 590). The second element is a suitable target, which is someone with value, access to the offender, and does not present a challenge to the offender (Cohen and Felson, 1979). Lastly, the absence of a capable guardian is when

there is no individual who can prevent the crime (Cohen and Felson, 1979).

CPTED was directly influenced by the three core principles of Routine Activities theory. The environment is responsible for forming motivated offenders, suitable targets, and the absence of capable guardians. The tenant from CPTED, natural surveillance was clearly influenced by the suitable target and capable guardian aspects of Routine Activities theory.

Defensible Space Theory:

The final and most influential theory of CPTED is the theory of Defensible Space, which posits that architectural and environmental design play a role in increasing or reducing criminality (Newman 1996). Defensible Space is defined as A residential environment whose physical characteristics--building layout and site plan function to allow inhabitants themselves to become key agents in ensuring their security (Newman 1996, 50)

There are four elements that make up a defensible space: Territoriality, Surveillance, Image and Milieu, and Geographical juxtaposition (Cozens and Love 2015).Territoriality makes it clear that a structure is owned by using symbolic and real barriers (Cozens and Love 2015). Surveillance is the ability of a structure to use its built forms to investigate individuals in the building (Cozens and Love 2015). Image and Milieu is the ability of a structure to create the perception of a well-ordered and clean space (Cozens and Love 2015). Lastly, Geographical Juxtaposition is how much the surrounding areas of the structure influence the security of adjacent areas and vice versa. The Defensible Space Theory's four elements are almost completely analogous to the CPTED tenets of Maintenance, Natural Surveillance, and Territoriality.

These four theories: Social Disorganization Theory, Broken Windows Theory, Routine Activities Theory, and Defensible Space Theory are the foundation of CPTED. Now how CPTED is used in the school context will be discussed.

Crime Prevention Through Environmental Design in the School Context:

Crime Prevention Through Environmental Design (CPTED) in the school has been adapted into four tenets: Natural Surveillance, Access Control, Territoriality/Maintenance, and Activity Support.

(Cozens and Love 2015 and Shariati 2021). Natural Surveillance in the school is the ability of school officials to inspect dangers by manipulating campus layouts, which allows continual monitoring (Lamoreaux and Sulkowski 2019). Examples of this include installing open areas, placing windows on solid walls, replacing solid walls with iron fencing, and removing access from hidden areas (Schneider 2010).). The idea is that individuals are turned away from committing crimes if they perceive they are being watched (Lamoreaux and Sulkowski 2019).

Access control regulates who is entering and leaving the school (Lamoreaux and Sulkowski 2019). This involves reducing the number of entry and exit points and monitoring visitors in secure locations as they come in (Lamoreaux and Sulkowski 2019). Techniques for enhancing access control include making entry and exit doors automatically lock once they are closed, manipulating windows so they cannot be used for entry (i.e., using grates), and implementing the ability of remote locking for staff members (Schnieder 2010).

According to Shariate (2021:571) territoriality is "an element that allows owners to define their property and to restrict intruders; access using physical barriers (e.g., fences and hedges) or symbolic barriers (e.g., signage and landscaping). Defining the school space creates an environment in which school bond is enhanced and allows those who pose risks to stand out (Lamoreaux and Sulkowshi 2019).

Further, maintenance in the school defines whether a school will be run down or well organized, generally, schools that are more run down will see more bad behavior (Lamoreux and Sulkowski 2019). Schneider (2010:2) states "if the area is generally neglected, it will also seem ideal for misbehavior". Activity support works to increase community unity and uses physical and non- physical techniques (Shariati 2021). Like territoriality, activity support uses physical attributes of the environment to create a sense of belonging such as gathering areas like pavilions (Lamoreaux and Sulkowski 2019). Further, activity support also utilizes active techniques like holding cultural events or fundraisers, which enhance the community and desists possible offenders (Sharati 2021). Now the current research will be discussed, which will evaluate the effectiveness of CPTED in the school setting in terms of perception of safety.

Current Research on Crime Prevention Through Environmental Design (CPTED) in School

Environments:

CPTED has proven to be effective in other settings such as in retail stores and other public areas (Casteel and Peek-Asa 2000). The bulk of research evaluating the impact of CPTED in schools has examined if these strategies influence student perceptions of safety. Studies can be grouped by the quantity of CPTED approaches used. Early studies indicate that small changes to the environment (such as more lighting or more hiding places) can increase the feeling of safety. Second, more recent studies focus on the number of CPTED-specific features (Access Control, Natural Surveillance, and Maintenance) and found that more features is associated with greater feelings of safety.

Early research focused on the use of simple CPTED attributes. Specifically, three aspects of CPTED were evaluated early on to be significant: prospect, refuge, and escapability (Fisher & May 2009; Fisher & Nasar, 1992; Nasar & Fisher, 1993). Later findings indicated that on school campuses higher levels of fear were associated with poor visibility and less escapability (Shariati and Guerette 2019). These early studies point to design elements that are decreased or eliminated in facilities using CPTED (Shariati and Guerette 2019). One early study from Fernandez (2005) finds that students on the LSU campus perceive areas that are clean areas with good visibility as safe.

Further, more studies have continued to look at less significant uses of CPTED attributes. For example, Tseng, Duane, and Hadipriono (2004) tested the perception of safety at two parking garages on the Ohio State campus, which have been implementing CPTED techniques for two years. They found that the modifications (increasing lighting, more visibility, color, location of entrances, etc.) to the parking garages have a positive effect on the student's view of safety in the area.

Further, more recent research focuses instances when more CPTED attributes are used. Cozens and Sun (2018) conducted research on an Australian Campus and discovered through surveys that when more CPTED design elements are used there is less fear of crime. Another study conducted by Sharuati and Guerette (2019) tested students' perceptions of two housing facilities on a school campus. One of the residential facilities incorporated multiple CPTED attributes and the other used very little CPTED.

Sharauti and Guerette (2019) found that the high-use CPTED housing complex had higher perceptions of safety than the low-use CPTED housing facility. Other studies have looked at the use of CPTED directly in the school classroom. Lamoreaux and Sulkowski (2020) surveyed 900 middle and high school students and tested specific CPTED design strategies (access control, territoriality/maintenance, and surveillance). The study found that more CPTED strategies mitigate fear in students in the school setting.

Lastly, studies have also quantitatively assessed the relationship between CPTED implementation and feelings of safety. Vagi et al. (2018) evaluated 4717 students in the school setting of 50 middle schools. They used the CPTED School Assessment (CSA) tool, which measures how the physical design elements of each school mimic CPTED characteristics. This research found that a higher CSA score was associated with a perception of safety, in other words, the more CPTED design elements that are used the safer students feel (Vagi et al. 2018).

These studies show the scope of research has first focused on the idea that simple changes to the environment can positively affect the perception of safety. Second, it has transitioned to focusing more on the idea that more CPTED use equates to higher perceptions of safety. Before introducing the current research perceptions of safety as a measuring tool for safety will be discussed.

Why Perception Can Determine Safety in Schools

There is a lack of data on incidence of violence in schools and violence is rare in general. Thus, most studies look at how students perceive safety in CPTED environments. Most of these studies equate perceiving safety as actual safety. Research indicates that using perception is a viable way of measuring safety.

Schreck and Miller (2003) find that when schools are viewed as unsafe students avoid places within the school, such as bathrooms or stairwells. Following the criminological theory, this will make areas in the school less populated and therefore lead to more chances of crime in certain parts of the school. Further, Perumean-Chaney and Sutton (2013) found that when students perceive that their school is not safe, they may carry weapons to school for their protection. Clearly, if students are bringing in more weapons (even if it is out of their own safety) this can lead to more victimization. Thus, perceptions can

be used as an acceptable way of measuring safety.

Gaps in Prior Research on CPTED and Harsh Target Hardening in Schools

Prior research supports CPTED as more effective, but some studies still do suggest Harsh Target Hardening may be effective. Thus, the current study seeks to understand the differential effects of these two strategies. Current CPTED and Harsh Target Hardening research gaps that this study will attempt to solve include the use of students' perceptions only, the primary use of quantitative studies, and a broad focus on CPTED as a whole rather than focusing on specific aspects.

Many of these studies (Cozens and Sun 2019; Vagi Et Al. 2018; Shaurati and Guerette 2019) focus primarily on students' perceptions of their safety. While these studies are beneficial the data is mainly coming from students' responses to surveys. These surveys could be susceptible to bias such as immaturity. The use of teacher perceptions will introduce another more mature lens for measuring CPTED and another important voice on the issue in general. Teachers provide an important vantage point. Unlike students' teachers tend to stay in schools for longer periods of time and may be able to better speak to changes in safety and risk over time Also, their age compared with students gives them a different perspective.

Further, most current studies on CPTED in schools use only quantitative data. While quantitative data is stoked as being more reliable, utilizing qualitative data is valuable. In the case of CPTED, it would be informative to have qualitative data which explains why CPTED creates a positive perception of safety not that it simply does create a positive perception of safety.

Lastly, most studies focusing on the use of CPTED have looked at the effectiveness of CPTED as a whole and have not focused on the particular aspects of CPTED. For example, studies have not determined which aspects (natural surveillance, access control, territoriality, and activity support) contribute the most to the success of CPTED.

Current Research

This study will investigate which tenets are of the most importance. Now the importance of teacher perspectives will be further discussed. As mentioned prior, no research was found that specifically

focuses on teachers in the school environment; most research focuses on students rather than teachers. Teachers are more mature stakeholders than students. Also, teachers have more experience than students (primarily younger students) for the most part in the classroom and education setting. It is extremely important to gain information from teachers on the topic of school safety.

This study will focus only on Elementary schools, due to constraints. But, this is a valid population since 18.1% of school violence occurs in the Elementary school setting (Riedman 2022). Only looking at the elementary school setting is appropriate.

The primary question that will be investigated is how safe do teachers feel in the context of CPTED and Harsh Target Hardening. This research will differentiate between feelings of safety in respect to Harsh Target Hardening and CPTED. It will explore which tenets of each of the different approaches are effective.

Chapter 3: Data Source and Methods

II. Data Source and Methods

Data Source

This research analyzes Crime Prevention Through Environmental Design (CPTED) in the elementary school setting. 18.1% of school violence occurs in the Elementary school setting (Riedman 2022). To better understand the different attributes of CPTED and school design safety measures, this study focuses on K-5 grade teachers' perceptions of safety in the school setting. The study uses a convenience sampling approach, which was needed to the time constraint of this study (Fleetwood 2018). Interviews are conducted with teachers from K-5 schools who do not necessarily follow the CPTED protocols but have specific security measures in place. If CPTED elements are not present, interview questions will still attempt to determine the teacher's thoughts on elements (i.e., would this make you feel safer if it was there). The approach of qualitative interviews is useful because there is little specific insight from teachers on their safety and elements of CPTED.

This study utilized semi-structured interviews to collect data on teacher perceptions of safety. A semi-structured interview focuses on different themes and asks specific questions but gives the interviewer and the interviewee space to discuss more than the asked questions (Drever 1995). The interviews are recorded via Zoom. The audio recordings are stored on Box, an encrypted storage website that is password protected. Within this research article, all materials associated with the project, and participants' identities will be protected to ensure confidentiality.

Collection Method:

The current study utilizes a convenience snowball sampling method. A snowball sample is one in which the researcher identifies one possible interviewee and asks that interviewee to identify other suitable candidates (Hancock and Gile 2011). In this case, a connection between the researcher who is a

teacher referred the researcher to multiple colleagues who she currently works with and who they worked with in the past. All the interviewees are from different schools in Montgomery County, Maryland. Interview inquiry was sent in the form of emails, along with a consent form that explained the goal of the research.

Sample Selection

The sample included teachers from schools in Montgomery County, Maryland. Inclusion criteria required participants to be over eighteen years old, have at least one year of working experience, and be actively teaching. From the initial list of twelve teachers, 4 teachers agreed to participate in the study.

The goal of the research is not generalizability, but instead to get an in-depth understanding of factors that impact teacher perceptions of safety, while keeping the CPTED and Harsh Target Hardening framework in mind. A small sample for this study allows for a more in-depth understanding of factors that impact teachers' perceptions of safety.

Interview Questions

The questions in the qualitative interviews aim to evaluate teachers' perceptions of safety and how these perceptions relate to aspects of CPTED and Harsh Target Hardening. The questions are concise but open-ended (see Appendix 1). Questions are designed to investigate teachers' general safety within their schools, and this is related to aspects of CPTED and Harsh Target Hardening.

Measures

In this study, there are multiple themes assessed. The primary domains that were assessed were the tenets of CPTED: Access Control, Territoriality, Surveillance, Maintenance, and the tenets of Harsh Target Hardening: Security Cameras, SRO Officers, and Metal Detectors. Throughout these domains, teachers' feelings about the different tenets are assessed (see Appendix 1)

Analytical Strategy

After four interviews, the method of thematic analysis was used. This entailed reading through the transcripts and identifying common themes. These themes were broken into three main domains that fell within the tenets of CPTED and Harsh Target Hardening. The three primary categories that findings

were placed into were: safe feelings for CPTED and Harsh Target Hardening, unsafe feelings for CPTED and Harsh Target Hardening, and the effect of the environment on student behavior.

For the sake of the confidentiality of the interviewee, each of the interviewees will be given false names: Robert, Sandy, Laura, and Christina.

Chapter 4: Results

The results can be categorized into three domains: feelings of safety regarding, feelings of unsafety, and the Impact of the environment on student behavior.

Feelings of Safety

First, results show that aspects of CPTED actively make teachers feel safer. Beginning with the CPTED tenet of access control teachers revealed feelings of safety when their school practiced more access control procedures. All the teachers they generally agree that corridors leading to offices led to more feelings of safety. Laura stated, "visitors come through a mini glass layer corridor, so they need to go through the office first, and this makes me feel safer." Complementary to the idea of the corridor to the office, all the teachers generally agreed that background checks of visitors were a good thing that made them feel safer. Sandy stated, "there is a tall robot thing at the front of the school that scans your license and prints it out and does a background check, this makes me feel very safe". Lastly, every teacher believed that self-locking doors made them feel safer.

Attributes of the CPTED tenet territoriality also made teachers feel safer. One commonality among all the teachers was the idea that having the school within a neighborhood and not near a busy road made them feel safer. Sandy stated (within the conversation of being within a neighborhood):

"I feel totally safe, I feel like I am inside my house, and I know

that if anything suspicious were to happen parents who live within

the neighborhood would act. "

Also, two teachers specifically stated that having a fence increases their feelings of safety for themselves and their students. Christina stated, "we have a fence that is not high enough or long enough, a higher fence would help a lot and make me feel safer". In terms of territoriality actively creating a feeling of safety, the teachers emphasized the importance of the placement of the school geographically and the fence.

The CPTED tenet of surveillance includes attributes that made some teachers feel actively safer. Christina emphasized the importance of windows in her classroom. She stated:

"I have a door that opens to the playground, other people have access to the

playground, I also have windows in the classroom facing the playground,

the windows make me feel safer because I can see my students and what is

going on."

Sandy emphasized the importance of having more administrators at her new school, she stated, "There are more administrators in comparison to my past schools, more eyes make me feel safer". The concepts of having more surveillance made teachers feel safer.

The results also showed that some attributes of Harsh Target Hardening made teachers feel actively safer. Security cameras overwhelmingly made every teacher feel safer. Christina stated, "The cameras are very good and make me feel safer, they are good because they help us see more". Only one teacher emphasized that metal detectors would make them feel safer and are a good idea. Christina stated, "We do not have them, but yes, there should be metal detectors, I would love that! They would be a solution (...) having metal detectors outweigh the aesthetics of it". Lastly, one teacher emphasized the importance of SRO officers and that they make them feel safer. Security cameras among all teachers actively promoted safety. Thus, although to a less universal degree compared to CPTED elements, there were some aspects of HTH that teachers endorsed as improving feelings of safety. Now the attributes of CPTED that created feelings of unsafety will be discussed.

Feelings of Unsafety

Respondents also exhibited active feelings of unsafety regarding the tenets of CPTED. First, teachers repeatedly brought up the problem of access control, the consensus among teachers was that too many doors are a bad thing. Sandy stated:

"Our school has lots of points of entry, which makes

me feel unsafe (...) more doors make me feel unsafe because

some people leave them propped open, and that is a way

unwanted people enter."

Other teachers had different comments. Robert mentioned issues of special days regarding access control.

Robert stated:

> "on special days like field days, birthdays, and parent-teacher
>
> conferences there is more of a presence of outsiders or random adults
>
> you have never seen in your life, and this can be worrisome."

Another teacher voiced worries about their visitor entry system. Christina stated, "when people come in, they have stickers, but the stickers are just not clear and that makes me very uncomfortable." Teachers also voiced worries corresponding to the surveillance of their school. Three of the four teachers mentioned problems with leaving the school at night because it was too dark. Laura stated, "the only time I have not felt safe in my school is when I am walking out at night from my portable, so I always leave before it gets dark." One teacher voiced their worries about having too many people in the school at one time or losing sight of their students making them worry. Another teacher stated worries about students hiding in crevices and little corridors. While teachers actively feel safer due to some practices of access control, some aspects lead to active feelings of unsafety.

Surprisingly different from past literature, teachers stated few worries about the implementation of Harsh Target Hardening strategies. One teacher commented on the design of a fence. Robert stated, "the fence would be a good thing, but it should not have barbed wire on the top or be threatening in any way". Another teacher commented on the use of SRO officers. Christina stated, "While SRO officers would do good things, students (and teachers) sometimes can get scared of seeing officers with guns, tiny kids". Overall, from the results, there was very little active fear of Harsh Target-Hardening techniques.

Impacts of the Environment on Student Behavior

The teachers also discussed tenets of CPTED that can be seen as affecting students' behavior. CPTED tenets that specifically affect a student's behavior include surveillance, territoriality, maintenance, and community cultivation (or 2nd generation CPTED)

First, in regard to surveillance, every teacher stated that anywhere there are fewer adults, there are more instances of misbehavior. Sandy said, "students misbehave where they are not supervised (...) where there are the most kids and the least adults". Every teacher commenting on the signage aspect of

Territoriality stated that signs were pointless. Laura said, "From my experience, nobody reads signs, especially students, and they would be ineffective in stopping mischief". One teacher mentioned the importance of maintenance in schools. Laura stated:

"Yes, all of the above every day our maintenance is a problem here. I feel

if things are in nice order, students treat things nicer. If a teacher does not

tell a student to stop writing on desks, that desk stays dirty. This leads to

rooms being disordered and kid's behavior being disordered also."

Lastly, every teacher commented on community cultivation (2nd Generation CPTED) at their school. Three of the four teachers emphasized the importance of these events creating more of a bond between students. Laura stated, "I find those who come to the events (kids, families, and teachers) tend to have a better bond with each other and the community as a whole". Overall, the surveillance, territoriality, and maintenance of a school all impact students' behavior.

Emergent Issues:

Teachers had differing opinions on the use of metal Detectors and SRO officers, which can be regarded as universal problems. Every teacher except one felt metal detectors were not necessarily important (at least in the K-5 setting). Sandy stated, "I do not think metal detectors are necessary, maybe for older kids though". One teacher (Kristina) thought metal detectors were essential for the regulation of the students and staff. The necessity of SRO officers was a split opinion between teachers. Sandy and Robert believed that SRO officers were not necessary and even harmful to students. Robert stated, "It is a toss-up for me, having a military presence around children I am not super fond of". But Laura and Kristina thought SRO officers were necessary one form or another. Laura stated, "I used to have one come to my school (...) I think having a community member shown in a positive light is a good thing for students, and for a police officer, safety in general". Overall there is more contention over the use of metal detectors and SRO officers.

Chapter 5: Discussion

This research further informs the nuances of CPTED and Harsh Target Hardening in the school setting. There has been little research on the relationships between perceptions of safety regarding CPTED and Harsh Target Hardening. Considering the results of this qualitative study, it is supported that operational and policy need to be made. This research can be used as a foundational blueprint for further research on CPTED and Target Hardening in schools. The primary question that was posited was how safe teachers feel in the context of CPTED and Harsh Target Hardening practices and which aspects are of the most importance. The results promulgated by this research are mixed.

Findings and Implications

After 4 interviews with teachers from K-5 Elementary schools in Montgomery County Maryland, it was shown that teachers' opinions on CPTED and Target Hardening tenets are similar and different with respect to different tenets of each practice.

Interviews revealed the CPTED tenet of access control emerged as a key contributor to feelings of safety. Teachers felt that when their buildings had proper visitor entry systems, this led to an increased feeling of safety. On the contrary, teachers linked feelings of unsafety to their schools having a number of open entrances, as well as to days where schools events make it so that access control is less strict. The tenet of territoriality also indicated feelings of safety. In all, teachers felt safer when their schools were located within neighborhoods and emphasized the importance of fencing.

Overwhelmingly, teachers exclaimed about the irrelevance of signage within schools. The tenet of surveillance also directed feelings of safety. Teachers felt that having windows and more administration watching the school was a safe practice. But teachers felt unsafe when they had to leave their school at night when they were not aware of their surroundings. One implication that arises from the results regarding these CPTED tenets is that schools must have proper visitor entry systems, consider the location and outside barriers of the school and ensure that teachers and other administrators have a proper vision of their surroundings.

The Harsh Target Hardening practices of security cameras, SRO officers, and metal detectors

made teachers feel safer to an extent. Security cameras overwhelmingly were agreed upon to make teachers feel safer. SRO officers and metal detectors are shown to foster mixed feelings. Some teachers believed that SRO officers made them feel safer but others felt like the military presence was not appropriate. Findings were similar for metal detectors, three of the four teachers found metal detectors rather unnecessary, but one overwhelmingly believed they are crucial for safety. The most surprising finding was that there was little feeling of unsafety in regard to Harsh Target Hardening techniques. One teacher felt that intense fencing (which moves from classical CPTED territoriality to harsh target hardening) could trigger feelings of discomfort, and another felt SRO Officers being a military presence also could trigger feelings of discomfort. However, there were no significant feelings of unsafety toward Harsh Target Hardening practices. The primary implication from this is that security cameras, SRO officers, and metal detectors may be useful in a less physically intense form.

The teachers also revealed how the environment affects students' behavior, which did not indicate either active feelings of safety or unsafety. Most notably these informative statements reinforced the ideas of Maintenance and Activity Cultivation (or second- generation CPTED). Specifically, one teacher affirmed the idea that the order and look of the school matter greatly and is related to student behavior. Also, almost all the teachers stated that their school's community events fostered higher bonds among students, teachers, and parents. In reference to these findings schools should actively keep the school grounds clean and hold community events that create a stronger bond among members of the school.

Limitations:

The largest limitation of this study was the size of the sample. Due to the time constraints of the study and the general sensitivity of the topic only four interviews were conducted. With a larger sample, it would have enabled more generalizability and the ability to find more nuanced explanations. The small sample and three of the teachers coming from the same school narrowed the demographics. Three of the interviewees were women and one was a man. Two of the women were middle-aged, one male was younger, and the last woman was older than 50. All but one was Caucasian. In the future research needs to come from a wider age range and a more diverse sample. Also, one key limitation was that the schools

these teachers came from did not formally use every tenet of CPTED or Harsh Target Hardening, thus many of the questions of the research were posed as hypotheticals (i.e., if your school did have metal detectors, how would you feel).

Another key limitation of this research was that it included only K through Grade 5 teachers. It is apparent that violence in schools is across all grade levels and is more prominent in older grade levels. Future research must include middle and post-secondary school teachers.

Another limitation was that this research is qualitative interviews, which always cannot be generalized across a population. Also, as stated, this research only focused on one county within the state of Maryland and largely from one school, thus this data cannot be generalized across the United States. The teachers are not representative of their schools as a whole and obviously of all of the other relevant stakeholders of the issue of school safety (Children, Parents, other school personnel, etc.).

Future Research

This study expands on the scope of current research on CPTED and school safety. This research specifically focused on the stakeholder of teachers, which has not been frequently focused on. Further, this research has looked at school safety using qualitative measures, which have rarely been used. To continue furthering the scope of research on CPTED and Target Hardening of schools there must be expansive research ventures. Ways this can be done include increasing the sample size, and expanding the demographics teachers (or other stakeholders) are chosen (i.e. more states, more counties, etc). Expanding the overall demographics of teachers specifically by state and county will allow more generalized results and offer new ideas on visions and feelings toward CPTED and the Harsh Target Hardening of school settings.

To make this research even more accurate, future research could focus on teachers whose schools are currently using CPTED or Harsh Target Hardening Techniques more formally. This research as discussed prior did not focus on schools with every tenet of CPTED or Harsh Target Hardening in use. Focusing on schools that formally use CPTED or formally use Harsh Target Hardening would be more informative.

Chapter 6: Conclusion

Violence within schools and specifically mass shootings is a growing issue in America. The goal is to increase safety within schools, but also to foster a safe school environment. Schools began the response to school safety by locking schools down using heavy security measures, but the prison-like feel of the school has proven questionable. Prior research on feelings of safety in regard to Harsh Target Hardening was mixed, but supported the belief that students feel less safe in the context of Harsh Target Hardening (Crawford and Burns 2018). This led to schools using a different approach to school safety—Crime Prevention Through Environmental Design (CPTED), which is characterized by more passive means of security. This present study aims to differentiate between the affects of Harsh Target Hardening and CPTED on perceptions of safety in the school.

This study was conducted to gather a better understanding of feelings of safety toward school safety practices that fall within CPTED and Harsh Target Hardening practices. From the results of this study, it is suggested that certain aspects of CPTED and Harsh Target Hardening are effective at making the school environment feel safer. The study supports the use of a combination or quasi approach with the use of Harsh Target Hardening and CPTED techniques.

CPTED versus Harsh Target Hardening is not straight forward. There are tenets of each practice that are seen as fostering safety and being proven effective: both in terms of actual safety and higher feelings of safety. More research must be completed that focuses on the nuances of both practices.

Appendix 1

Interview Questions

1.   Can you tell me a little about your history as a teacher? How long have you've been teaching and what grades do you typically teach?

2.   Have you always taught at the same school?

3.   In general, how safe do you feel on a given day while teaching? Can you tell me more about this? Have you always felt this way?

4.   Are there days when you feel less safe? What is it about these days that make you feel less safe?

5.   Are there any places at your school that you feel least safe?

6.   Where in the school do you see students misbehave?

7.   Thinking about the school you currently teach at, are there features that make you feel safer? PROBE are there things in the environment or structure of the building that make you feel safer

8.   I am going to ask you a series of questions about different features of schools. Please tell me yes or no or I don't know, if your school has these features:

1.   Secure visitor entry system

2.   Self-locking doors

3.   Security Cameras

4.   Security Officers

5.   Signs Prohibiting Items

6.   Metal Detectors

9.   Do any of those features make you feel safer? Why or why not?

10.   How accessible is the school to individuals on the street?

11.   How many entry points are there in your school?

12.   Are you satisfied with the maintenance of the school? PROBE run down places

13.   Does your school hold community cultivate events? If yes, where are they held?

14.   Is there anything on the topic of school safety that you believe is important

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