Lethal Learning 2025:

Education and Campus Redesign in an Era of Mass Shootings

Adrian Montenegro

University of Nevada, Las Vegas

Abstract

In an era when children learn fire-drill routines before multiplication tables, the American school experience has taken on a new and unsettling dimension. What once centered on managing interpersonal conflict—bullying, social pressure, and the anxieties of growing up—has evolved into a daily negotiation with the possibility of lethal harm. This paper traces that shift and examines why, even as shootings on school grounds remain elevated across the 2015–2025 period, many safety policies still prioritize visible security hardware over strategies proven to reduce violence. Using a systems-engineering framework, the analysis integrates national datasets, cross-national prevention models, and qualitative insights from students and educators. The findings show a persistent misalignment between evidence and investment: while hardware-intensive approaches absorb substantial resources, the most effective interventions—counseling capacity, whole-school climate programs, and community-school infrastructures—remain underfunded. Drawing from successful models in Finland, Colombia, Brazil, and U.S. districts that have transformed schools into genuine safe havens, this paper outlines a redesign of campus architecture, budget allocation, and curriculum. The goal is to reimagine schools not as fortified spaces students must endure, but as environments they feel they *get* to enter—places where safety, learning, and opportunity can coexist.

1 Introduction

Over the past decade, the American school system has confronted a form of violence fundamentally different from the challenges it once anticipated. Earlier generations worried primarily about bullying, hallway conflicts, or the normal social pressures of adolescence. Today's students, however, grow up rehearsing active-shooter drills, learning evacuation routes before they master multiplication tables, and navigating learning environments shaped as much by safety protocols as by academics. What was once framed as a behavioral or social issue has evolved into a persistent, existential threat—one that now influences how children experience school from their earliest years.

As this reality has deepened, national reporting has documented a steady pattern of gunfire incidents on school grounds throughout the 2015–2025 period, even as districts have dramatically expanded visible security measures. Data from multiple national sources show that shootings and firearm-related threats have not declined in response to increased policing, surveillance, and campus hardening (Riedman, 2025; Everytown for Gun Safety, 2024; National Center for Education Statistics [NCES], 2023). At the same time, firearm mortality has surpassed all other causes of death for children and teens in the United States, indicating that school-based violence exists within a broader national trajectory (Centers for Disease Control and Prevention [CDC], 2022).

In response, many districts have adopted strategies that offer public reassurance—more school resource officers, more cameras, more barriers, more checkpoints. While these measures are highly visible, research continues to show that they provide limited protective benefit and may introduce unintended harms, including criminalization, strained student relationships, and reduced access to support services (RAND Corporation, 2024; National Education Association [NEA], 2022). Meanwhile, interventions with strong evidence behind them—counseling capacity, whole-school climate programs, and community-school models—remain underinvested relative to their impact (American School Counselor Association [ASCA], 2021; New York City Department of Education, 2019).

This misalignment between evidence and policy points to a deeper systems-level failure. Schools

have been physically redesigned to withstand violence, but they have not been reengineered to prevent it. International and domestic models demonstrate that safer, more supportive school environments are achievable: Finland's KiVa program has reduced bullying and improved climate (Salmivalli, 2015), Colombia's Aulas en Paz has lowered aggression in communities marked by external violence (Chaux, 2017), and U.S. community-school and small-school redesigns have improved safety, attendance, and engagement in high-need districts (New York City Department of Education, 2019).

This paper uses a systems-engineering framework to examine why current U.S. school safety policies remain misaligned with evidence and how alternative models can guide meaningful redesign. It addresses three guiding questions:

How have school safety policies evolved across the 2015–2025 period, and to what extent do they reflect available evidence?

What design, climate, and mental-health strategies—documented across U.S. and international contexts—offer more effective pathways for prevention?

How can school architecture, budgets, and curriculum be reorganized so that safety and learning reinforce one another rather than compete for resources?

By exploring these questions, the paper argues for shifting away from hardware-heavy fortification and toward safety architectures rooted in human-centered design, empirical evidence, and systems-level logic. The aim is to design educational environments where students feel they get to learn—spaces where safety supports opportunity rather than competing with it.

2 Harsh Reality: Trends in School and Campus Shootings (2015–2025)

For many students today, the school environment is shaped by a quiet, steady awareness that safety cannot be assumed. This does not manifest as panic or day-to-day fear; instead, it has become an accepted part of the landscape. Students move through their education with an understanding that serious disruptions are possible, because they have grown up in a period where such events have been normal enough to feel routine. What earlier generations saw as rare exceptions are now familiar possibilities—background conditions rather than extraordinary shocks.

This shift becomes more apparent when looking beyond the high-profile tragedies that capture national attention. A large portion of the incidents affecting school life never make headlines at all: weapons discovered on campus, shots fired near school property, gunfire from surrounding neighborhoods crossing into school zones, parking-lot altercations involving firearms, or emergency responses triggered by credible threats. These events rarely appear in national summaries, yet they shape the daily tone of a school year far more consistently than the rare mass shooting.

At the university level, the pattern is similar. Institutions once considered relatively insulated now experience rising reports of weapon possession, nearby shootings prompting campus alerts, and emergency responses that interrupt classes or campus activity. The expectation of openness that once defined college life has shifted toward an environment where controlled access, emergency notifications, and situational awareness are simply part of the modern campus experience.

The cumulative effect of this is subtle but significant. Students learn to pay attention to context in ways previous generations never had to. They think about which areas on campus feel exposed, they notice the pace of administrative alerts, and they adjust how they move through shared spaces. None of this means they live in a state of fear. It means they have adapted to a reality where the potential for serious harm exists alongside the normal routines of learning.

Recent analyses reinforce the depth of that shift. Studies examining school climate and student behavior after violent events show that even non-fatal incidents contribute to increased anxiety, dis-

rupted learning, and changes in peer interactions (Hylton et al., 2019). Research in urban districts has also documented a rise in weapons-related disciplinary cases and emergency responses triggered by community violence spilling into school zones, particularly in high-poverty areas (Berry, 2024). Higher education institutions report similar patterns: more emergency notifications, more campus-adjacent firearm events, and greater reliance on rapid-response protocols (Devlin & Gottfredson, 2018). These findings demonstrate that the threat environment extends beyond rare mass tragedies and includes a wide range of firearm-related disruptions that influence daily school life.

Taken together, these patterns make one point unmistakably clear:

students in the United States move through their education within a landscape where serious violence is not abstract—it is ambient.

It may not occur every day, but its possibility is always present, shaping how young people experience school long before any policy debate begins.

3 The Policy Gap: Evidence Versus Enacted School Safety Laws

Over the past decade, school safety policy in the United States has expanded rapidly, but much of that growth has followed visibility rather than evidence. Districts have been pushed to demonstrate that they are "doing something," and the most readily visible actions have involved policing, hardware, and surveillance. As a result, many schools now look more secured on paper and in photographs, while the underlying risk profile for students has changed far less than the investment would suggest.

One clear pattern is the growth of security staffing. Between the 2009–2010 and 2019–2020 school years, the share of public schools reporting at least one security staff member on campus at least once a week increased from roughly 43% to 65%, with only a slight decline to about 61% in 2021–2022 (National Center for Education Statistics, 2022). During the 2019–2020 school year alone, there were an estimated 23,400 sworn school resource officers (SROs) working in U.S. schools (Bureau of Justice Statistics, 2023). National spending reflects this shift: recent estimates indicate that schools collectively spend more than $2.5 billion per year on school resource officers and around $12 billion on security guards (Education Week, 2023).

Evidence on the impact of this investment is mixed. Reviews of SRO programs find some reductions in reported fights and threats, alongside increases in student arrests, suspensions, and other exclusionary discipline—effects that fall disproportionately on Black and Latine students and students with disabilities (Devlin & Gottfredson, 2018; Berry, 2024; RAND Corporation, 2024). Some recent studies suggest that SROs may help detect weapons and prevent certain incidents, but they also document harsher disciplinary outcomes and no consistent reduction in the overall risk of serious violence. In other words, schools are paying heavily for a strategy that may shift how incidents are handled without reliably preventing the conditions that lead to them.

At the same time, staffing for prevention and student support has not kept pace. The American School Counselor Association recommends a ratio of 250 students per school counselor, yet the national average was 408:1 in the 2021–2022 school year and remains roughly 376:1 in 2023–2024 (American School Counselor Association, 2023). In many states and districts, ratios are

significantly higher, and some campuses operate with no on-site counselor at all. This means that while security personnel have become more common, access to basic mental-health and guidance services remains structurally constrained.

Funding structures contribute to this imbalance. Capital grants and restricted funds are often easier to use for cameras, access-control systems, and contracted security than for hiring counselors, psychologists, or social workers. Once hardware is installed, it must be maintained, creating ongoing costs that further lock districts into a security-first model. In parallel, a growing private industry markets weapons-detection systems, surveillance platforms, and behavioral monitoring tools to schools, frequently with minimal independent evaluation of long-term outcomes.

Unlike other engineered systems—such as aviation or critical infrastructure—school safety policy rarely operates under a standardized framework of performance metrics, failure analysis, and continuous redesign. After major incidents, investigations focus on individual actions and immediate procedural breakdowns, but there is no nationally enforced requirement to assess whether entire categories of safety spending actually reduce harm. The result is a policy landscape that feels active and expensive, but is only loosely connected to the forms of risk students live with every day.

Area	Current Pattern	Example Data (U.S.)
Security staffing	Expansion of police and security presence on campuses	Security staff present at least weekly in 43% of schools (2009–10) vs. 65% (2019–20) and 61% (2021–22) (NCES, 2022).
SRO deployment	High and growing reliance on sworn officers in schools	∼23,400 sworn SROs in 2019–2020 (Bureau of Justice Statistics, 2023).
Security spending	Large recurring investment in guards and enforcement	Over $2.5 billion annually on SROs and $12 billion on security guards (Education Week, 2023).
Counseling capacity	Support staff lag far behind recommended levels	ASCA recommends 250:1; national ratios around 408:1 (2021–22) and 376:1 (2023–24).

Table 1: Selected indicators illustrating the policy gap between security investment and student support.

4 Policing, Criminalization, and the Cops-to-Counselors Trade-Off

As school safety concerns have intensified, many districts have leaned heavily on policing as their primary form of visible protection. This trend has created a profound imbalance: while police presence has expanded, support staff who address the root causes of student crises have not kept pace. The result is a system where enforcement is readily available, but prevention remains structurally under-resourced.

The scope of policing in schools is substantial. In the 2019–2020 school year, an estimated 23,400 sworn School Resource Officers (SROs) were assigned to U.S. campuses (Bureau of Justice Statistics, 2023). Over 58% of U.S. public schools reported having at least one sworn law-

enforcement officer present on a weekly basis, a significant increase over the past decade (National Center for Education Statistics, 2022). This expansion has been accompanied by billions in annual spending, as districts continue to invest in policing even when research shows mixed results on its effectiveness.

Evidence consistently finds that increased police presence changes how schools respond to student behavior. Multiple studies have shown that schools with SROs report higher rates of arrests for low-level behaviors and more frequent referrals to the criminal legal system, often without corresponding reductions in serious violence (Devlin & Gottfredson, 2018; Fisher et al., 2020). These effects are not evenly distributed. Black students, Latine students, and students with disabilities face disproportionately higher arrest and suspension rates in schools with a heavy police presence (Berry, 2024; American Civil Liberties Union, 2021). These disparities highlight a core flaw in enforcement-centered models: they tend to intensify existing inequalities rather than mitigate risk.

Meanwhile, the staffing most strongly associated with improved safety—mental-health professionals, counselors, social workers, and psychologists—remains consistently below recommended levels. The American School Counselor Association advises a 250:1 counselor-to-student ratio, yet national ratios have ranged from 376:1 to over 400:1 in recent years (American School Counselor Association, 2023). Psychologist and social-worker ratios are similarly stretched, with many districts unable to meet even minimum professional guidelines. This gap means the people most capable of addressing conflict, trauma, or student distress are among the least represented on school campuses.

The trade-off becomes clear when comparing outcomes. Schools investing in counseling, social-emotional learning frameworks, restorative practices, and community-school models consistently show reductions in behavioral incidents, fewer suspensions, higher attendance, and improved school climate (NYC Department of Education, 2019; Chaux, 2017). These approaches address the underlying factors that contribute to violence—stress, conflict, unmet mental-health needs, and environmental instability. Yet because they are less visible than armed officers or surveillance hardware, they receive a fraction of the funding.

In this context, the "cops-to-counselors" divide is not just a political slogan—it reflects an operational reality. Schools have built enforcement capacity without building the corresponding support systems that prevent crises from escalating in the first place. Enforcement may respond to incidents, but support staff are what keep many of those incidents from occurring at all.

Indicator	**Policing**	**Counseling / MH Staff**
National presence	23,400 SROs (2019–20)	Avg. ratio ∼376–408:1 (guideline: 250:1)
Annual spending	$2.5B+ on SROs; $12B+ on guards	Underfunded; inconsistent staffing
Impact on discipline	Higher arrest and referral rates	Lower suspensions; improved climate
Impact on equity	Disproportionate harm to marginalized students	Reduces disparities; fewer escalations

Table 2: Contrasting policing and support staffing across U.S. schools.

5 Alternative Safety Architectures: Domestic and International Models

While U.S. schools continue cycling through new legislation and increasingly expensive security upgrades, many other education systems have taken a different approach. These systems rely on evidence-based prevention, stable relationships, and coherent school climates rather than enforcement-driven visibility. The contrast is clear: when other countries invest in human infrastructure, safety improves.

Finland's *KiVa* program is one of the clearest examples. Instead of surveillance or heightened control, KiVa strengthens school climate through structured social–emotional lessons, trained staff, peer-accountability systems, and early intervention for students showing distress. The model promotes empathy-building, consistent expectations, and strong adult–student trust as core elements of school safety. Longitudinal evaluations document significant reductions in bullying, aggression, and classroom disruption across grade levels (Salmivalli, 2015). KiVa demonstrates that durable safety emerges from cohesion and clarity—not policing.

Some argue that the United States faces unique cultural or social risks, but Colombia provides a direct counterexample. Despite operating in communities with significantly higher baseline violence, *Aulas en Paz* produces measurable reductions in aggression by training students in emotional regulation, conflict resolution, and cooperative behavior. Independent evaluations show consistent decreases in aggression and improvements in peer interactions among participating students (Chaux, 2017). If such climate-based models can succeed in high-risk Colombian neighborhoods, the assumption that American schools are "too dangerous" for preventive approaches is unsupported.

The United States has its own evidence demonstrating that non-enforcement models reduce conflict and improve school climate. In Chicago, community-based wraparound programs integrate mental-health supports, family services, mentoring, and structured conflict mediation. Rigorous evaluations show reductions in disciplinary incidents, lower absenteeism, and improved en-

gagement for students facing external stressors (Steinberg et al., 2021). Similarly, a large-scale randomized evaluation in Pittsburgh found that restorative-practice frameworks led to reductions in suspensions, improved school climate, and stronger teacher–student relationships, with particularly positive effects for younger students (Augustine et al., 2018). These programs mirror the core strengths of KiVa and Aulas en Paz: consistent norms, stable adult presence, and early, relational intervention.

Across Finland, Colombia, Chicago, and Pittsburgh, the same pattern emerges: **safety improves when schools invest in people, relationships, and predictable environments.** Programs rooted in climate and connection address the underlying drivers of conflict more effectively than metal detectors, police expansion, or surveillance systems. They prevent escalation by stabilizing school culture long before crises appear.

These models do not eliminate danger, but they define what sustainable safety looks like. They demonstrate that American schools are not limited by the severity of external risks—they are limited by what they choose to prioritize. When systems invest in human infrastructure over enforcement infrastructure, safety becomes a lived experience rather than an aspiration.

6 Systems Engineering Analysis of School Safety

This portion of the paper will explicitly apply systems-engineering concepts to school safety, treating campuses as complex socio-technical systems rather than static buildings.

6.1 Physical and Architectural Design

Placeholder text will be replaced with an analysis of how layout, access control, and subtle design features can support both safety and psychological wellbeing.

6.2 Budget Allocation and Opportunity Costs

Here the discussion will quantify how funds allocated to hardware and policing could be reallocated to counselors, teachers, and climate programs, using case examples from large districts.

6.3 Human Factors and Classroom Climate

This subsection will link human factors, classroom relationships, and perceived safety to the effectiveness of any technical interventions.

7 Proposed Redesign: Campus, Budget, and Curriculum

This section will integrate prior findings into a concrete redesign proposal. The eventual text will describe a model in which schools become smaller, choice-based, community-embedded campuses with balanced investment in infrastructure and human supports.

8 Recommendations

The final recommendations will translate the analysis into actionable steps for districts, states, and policymakers. They will likely include guidance on evaluation standards, funding requirements, and design priorities for future school construction and renovation.

9 Conclusion

The conclusion will restate the central argument, emphasizing the shift from bullying to existential risk, the policy gap between evidence and enacted laws, and the potential for evidence-informed redesign to create schools that are both safer and more empowering.

References

Association, A. S. C. (2021). *Student-to-school counselor ratios*.

Association, N. E. (2022). Why more school security doesn't stop shootings. *NEA Today*.

Berry, H. (2024). The school-to-prison pipeline: How public schools fail vulnerable students. *Seattle Journal for Social Justice*, *22*(2).

Bloom, H., & Unterman, R. (2017). *New york city small schools of choice: Long-term impacts*. MDRC.

Center, P. R. (2022). *School security procedures have become more widespread*. Pew Research Center.

Chaux, E. (2017). Aulas en paz: Peace education in violent urban contexts. *Journal of Peace Education*.

Corporation, R. (2024). *School resource officers: What does the evidence say?* RAND Corporation.

Current, N. (2020). Ccsd police feeding the school-to-prison pipeline. https://nevadacurrent.com

Dahmen, N. (2018). Visually reporting mass shootings. *American Behavioral Scientist*.

de Souza, A., & colleagues. (2021). Reducing school violence through social-skills programming in brazil. *Child and Youth Services Review*.

Devlin, D., & Gottfredson, D. (2018). The roles of police officers in schools. *Youth Violence and Juvenile Justice*, *16*(2).

Flannery, D. (2021). Guns, school shooters, and school safety: What we know and don't know. *Current Psychiatry Reports*.

for American Progress, C. (2018). *Smart investments for safer schools*.

for Disease Control, C., & Prevention. (2022a). *Firearm mortality among youth*.

for Disease Control, C., & Prevention. (2022b). *Youth risk behavior surveillance system (yrbss)*.

for Education Statistics, N. C. (2022). *Active shooter incidents in u.s. k–12 schools, 2000–2022*. U.S. Department of Education.

for Education Statistics, N. C. (2023). *Indicators of school crime and safety: 2023*. U.S. Department of Education. https://nces.ed.gov

for Gun Safety, E. (2023). *Gunfire on school grounds*. Everytown Research. https://everytownresearch.org/gunfire-in-school-grounds

for Gun Safety, E. (2024). *2023–2024 school shooting report*. Everytown Research. https://everytownresearch.org/gunfire-in-school-grounds

for Mental Health Law, B. C. (2020). *Replacing school police with services that work*.

for Youth, S. (2019). *Two billion dollars later: States begin to regulate school resource officers*. Strategies for Youth.

Hinger, S., & Resendes, W. (2021). *Safe and healthy schools lead with support, not police*. American Civil Liberties Union. https://www.aclu.org

Hylton, E., Malley, A., & Ironson, G. (2019). Creative arts therapy after a school shooting. *The Arts in Psychotherapy*.

Initiative, P. P. (2018). *Getting back on course: Educational exclusion among formerly incarcerated people*. Prison Policy Initiative.

Institute, L. P. (2017). *The need for more school counselors* (tech. rep.).

Institution, B. (2021). A better path forward for criminal justice: Reconsidering police in schools.

Institution, B. (2022). *Gun violence as the leading cause of death for children and teens*. Brookings Institution.

Johnson, L., & Martinez, R. (2023). Cctv in schools: Examining the perceived value of surveillance. *Security Journal*.

Livingston, M. (2019). The impact of school resource officers on crime reporting. *Journal of School Violence*.

McDonald, J. (2019). Student-to-teacher ratios and institutional performance. *Journal of Higher Education Policy*.

Montenegro, A. (2022). Lethal learning: Systems engineering analysis of campus security [Unpublished manuscript].

of Education, N. Y. C. D. (2019). *Community schools evaluation*. NYC DOE.

Riedman, D. (2025). K–12 school shooting database. https://www.chds.us/ssdb

Salmivalli, C., & colleagues. (2015). The kiva anti-bullying program: Updates and outcomes. *International Journal of Bullying Prevention*.

Service, C. R. (2022). *School hardening and physical security options*.

Shamserad, N. (2021). Race, fairness, and student attitudes toward arming teachers. *Youth & Society*.

UNESCO. (2019). *Behind the numbers: Ending school violence*. UNESCO Publishing.

Waseem, M., & colleagues. (2021). Parent perceptions of school threats and solutions. *Journal of School Health*.