Safe Yet Welcoming: Alternative Design Strategies for Secure Schools

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Abstract In recent decades, increased attention to safety and security issues in public spaces has changed the connection of Australian schools to their surroundings. Visible security measures such as high fences around schools are becoming a common feature of the urban landscape. The diplomat fence, a type of spear-topped security fencing, dominates many school boundaries regardless of the location and needs. Some analysts and commentators emphasise the necessity of such measures due to increased security concerns. Others argue that such measures create undue anxiety by constantly reminding students, teachers and the community of presumed threats. This chapter documents the author's research into defensible schools and discusses alternative ways to secure schools through urban, architectural and landscape design strategies, appropriate to context. Importantly, this research focuses on opportunities to remove unnecessary physical barriers and enhance schools' connections with their surrounding environments and communities.

Keywords School · Urban context · Security · Fences · Crime prevention through environmental design (CPTED) · School landscape

Introduction

When Australian schools were built during the 60s and 70s to accommodate children of the post-war 'baby boom', educational facility planners were not as focused on safety and security as they are today. In more recent times, concerns about the safety of school students have led to many schools being hidden behind security fences that have been installed without due consideration for site contexts or surroundings, insulating children from the broader public realm (Bracy, 2011).While these fences alone do not ensure a safe and secure environment for children, they are often a preferred choice for both public and private schools as they are hard to climb or cut and provide a low maintenance solution to safety concerns. The endless, rigid appearance

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of high school fences causes visual distraction, contributes to an impression that schools are exclusive and unwelcoming, and control the access of people who are regular visitors to schools anyway (Huang, 2012). Ensuring safety and security for students and teachers is vital. However, children also need to observe and learn about the nuances of social relationships, such as how people share a neighbourhood, a street or a public place (Lennard & Lennard, 1992). Designing community related facilities and social infrastructure based on fear and isolation is not the only way to prevent unwelcome visitors or keep children safe. A combination of other approaches should be considered.

Over the past 60 years, practice and research has demonstrated that thoughtful urban, architectural and landscape design can discourage crime and enhance safety (see for example, Jacobs, 1961; Newman, 1972; Saville & Cleveland, 1997). This body of research illustrates that school security can be addressed both actively and passively. Active security adopts solutions such as security systems, fences and bollards. Passive security relies on program design, building configuration and zoning, and community participation (Zahner, 2018). While no one has invented a foolproof facility design that eliminates all security concerns, boundary fences are not the only option for avoiding vandalism and enhancing security in the context of school and community buildings.

There is a need for learning environment design that increases social contact so that members of the community know each other, and intruders are visible (Merry, 1981). Passive security design, combined with active strategies where necessary, offers greater potential for students, teachers, parents, and local community members to use school environments with a strong sense of participation and care, while adding a layer of privacy, security, and protection (Zahner, 2018). Passive security measures are predominantly product-less and come with no ‘hard sell’ from commercial businesses trying to create a market. Rather, passive security approaches change the climate of safety in the community by encouraging a physical and socio-cultural environment that may have a positive influence on human behaviour.

Crime Prevention Through Environmental Design (CPTED)

To better understand security strategies in the school context requires a brief review of the literature related to the relationships been crime, urban planning and design.

The foundations of crime prevention through environmental design (CPTED: Jeffery, 1977) can be traced to Jane Jacobs’ (1961) seminal ideas about people-centred approaches to urban planning and their benefits for creating safe and liveable cities. She advocated for clear demarcation of public, semi-public and private spaces (territoriality); eyes on the street (natural surveillance); and well used spaces and places (diverse land use). These concepts have been enduring contributors to neighbourhood design and passive security for decades, supporting the routine activities and social contacts that foster safer environments for adults and children: working, walking, talking, sitting, playing and watching.

Later, Newman (1972) brought together people-centred urban design principles with crime theory in his concept of *defensible space,* arguing that it is possible to design cities and their neighbourhoods in ways that decrease crime and positively affect behaviours and safety. Four design principles underpin Newman's (1972) defensible space model:

- **Territoriality** refers to physical (e.g., fences) or symbolic (e.g., landscape, signs) markers that define spaces and encourage groups of people to assume care and responsibility for places.
- **Natural surveillance** provides clear sight lines and views of places to minimise risk.
- **Access control** involves controlling access and movement into, out of and between physical spaces or buildings.
- **Image** requires fostering and maintaining positive perceptions of places and spaces through good design, pleasant aesthetics and regular maintenance.

These principles seek to create the perception of capable guardianship, as it is thought that well-kept and well-used environments show people care for and are in control of an area. Although aspects of these first generation CPTED principles have been subject to critique over the years, they continue to underpin crime prevention design approaches today (Saville & Cleveland, 2006).

In advancing Newman's ideas, Saville and Cleveland (1997) placed increased emphasis on the social factors that may counter crime, arguing for a combination of social cohesion, connectivity, community culture, and capacity. They referred to this approach as second generation CPTED, and suggested that the value of social programs, and community participation in their design, cannot be underestimated for promoting positive social benefits and community outcomes. Using defensible space design principles to understand and encourage desired patterns of human behaviour and place use is increasingly thought to support community activities and enhance safety (Crowe, 2000).

CPTED in School Design

For schools, the four design principles of CPTED can be enacted actively or passively, and across various domains of policy and design. Indeed, there are many ways to achieve territoriality, natural surveillance, access control and image depending on site location, culture and social organisation. Each school represents a unique mix of histories, attitudes and expectations, physical and social realities, protective factors, and risks that need to be considered within their context. An appropriate CPTED approach for one school may not be applicable to another. The security solutions chosen will affect the school, members of the school, and the school's connection with the local community.

As an example, the primary CPTED goal in higher crime areas is to provide a well-delineated boundary condition that balances safety with the need to promote the

learning environment as welcoming, inclusive and safe. According to architect and criminologist Randal Atlas (2007), automatically responding with active security measures such as high fences and security cameras can contribute a militarised feel. Indeed, educational researcher Rooney (2015) found that fences and spiked gates may align with public perceptions of traditional security, but may also reinforce community patterns of fear, insecurity and over-protection. Even when active security measures do not cause fear, they should never be applied uncritically.

A starting point for creating a secure school environment is a crime risk assessment, which can be carried out during school development (Saville & Cleveland, 1997). Site observations, consideration of social aspects, crime mapping of police recorded data, establishing the history of criminal activity, and interviews with selected users and municipal stakeholders underpin the steps schools need to take. Furthermore, questionnaires measuring the safety needs of a school can be devised with community input, identifying local concerns and the need to additional security measures.

It is also important to consider the full range of activities that will be offered by a school and complement that knowledge with a community needs analysis, thereby understanding how diverse users may positively activate school infrastructure and enhance security across a year (Crowe, 2000; Saville & Cleveland, 1997). Given the purpose of schools, a combination of information collection and review processes is desirable.

Safe and Secure School Design Principles

In 2013, Atlas proposed the Secure School Design Principles. These cover five key domains:

1. **Planning & policies**, including urban planning approaches, the impact of government policies and community participation.
2. **Physical environment**, such as building organisation, point of entry, interior space, system and equipment and community context.
3. **Site design**, encompassing landscape, exterior pedestrian routes, and vehicular routes.
4. **Materiality**, with a focus on material specifications for a building's fabric and the messages they convey about a school.
5. **Maintenance**, specifically facilities management policies and practices.

This relatively recent take on CPTED for schools draws on the evidence and discourse developed over the past 80 years. As for the CPTED principles that have come before, they offer insights into how policy makers, planners and designers can contribute to the creation of safer school environments: places to raise citizens of the future, promote participation, facilitate critical thinking, and ultimately create settings in which community and children can experience a better public life.

Implementing CPTED in Australian Schools

Fear of crime and concerns about safety and security appear to be increasing in Australia. On one hand, research shows that crime across the most populous state of New South Wales (NSW) has remained stable or fallen in recent years (BCSR, 2018). On the other hand, research suggests that Australians greatly exaggerate the risks associated with most major categories of crime (BCSR, 2019). So, despite the proliferation of school fences in Australia, CPTED informed research and practice suggests that alternative approaches may be more suitable for promoting safety and security in Australian schools. This section begins with suggestions for implementing CPTED in schools and ends with a practical checklist for school officials and design teams.

Strategic Suggestions for Implementing CPTED

The strategic suggestions below draw on case study analysis (see Jahangiri, 2020) and are based on the five domains proposed by Atlas (2013): planning and policies; physical environment; site design; materiality; and maintenance. For each domain, alternative methods for achieving a secure environment are considered, drawing on Newman's (1972) four principles of CPTED design: territoriality; natural surveillance; access control; and image. These approaches do not eliminate the use of fences around school boundaries; in some cases, it may make sense to protect specific school facilities and other spaces with fencing. However, rather than adopting fencing as a 'default' response, other strategies should be considered. The following list is not exhaustive yet provides strategic guidance.

Planning and Policies

Territoriality Moderate traffic flows around schools to support maximum walkability of 'pedestrian friendly' precincts, fostering children's sense that their school is part of the broader community; consider schools as a safe place for teenage students to play in after school, supporting their sense of belonging and care for school amenities.

Surveillance Raise public awareness of the issues associated with safety, such as having 'eyes on the street'.

Access Control Site the school to take advantage of existing physical or natural barriers.

Image Design school places and spaces that are easy to maintain, thereby promoting a positive image.

Physical Environment

Territoriality Zone school grounds to create a sense of belonging and ownership for users; use signage to make clear statements about use of school spaces; offer clear separation of any conflicting activities.

Surveillance Provide clear views of entry points; create highly visible activity areas to discourage misuse by offenders; avoid dark or hidden alcoves.

Access Control Design school entry points as 'destinations' so that there are opportunities for users to linger and interact; create a logical and layered sequencing of zoned access to various elements of the school; design entrances to allow users to see in before entering.

Image Create attractive landmarks within the school environment to aid wayfinding and to help people know where to gather.

Site Design

Territoriality Distinguish public, semi-public, and private external spaces from one another through physical features such as different finishes or colours of footpaths or introducing artwork or other landscape elements.

Surveillance Adopt landscaping that promotes higher visibility and fewer hiding places; design to provide maximum supervision with minimum personnel; avoid sudden changes of gradient that reduce visibility.

Access Control Use natural physical boundaries such as steep hillsides or other topographical features rather than walls or fences; sign all boundaries with 'school zone'.

Image Ensure use of resilient planting in landscape features such as green walls so they look maintained; design robust external gathering areas to minimise damage from frequent use.

Materiality

Territoriality Provide several types of mural walls and similar locations for self-expression by the school community (e.g., student-made ceramic tiles).

Natural Surveillance Use permeable security grilles and doors to allow clear views and be sympathetic to the architectural style of the building.

Access Control Consider the strategic use of glass and windows to assist with passive supervision.

Image Specify sturdy and extra-durable materials without resorting to harsh, industrial-strength, prison-like materials; provide anti-graffiti finishes as appropriate.

Maintenance

Territoriality Implement a system to encourage the quick reporting of safety risks and increase pride in school buildings.

Natural Surveillance Ensure well-maintained trees and foliage in schools, alongside vandal-proof landscape equipment, to support clear sightlines into outdoor and indoor areas.

Access Control Check and maintain all accessing control measures to make sure they are functioning well.

Image Implement schedules for prompt cleaning, repair or replacement of infrastructure that is damaged and ensure the speedy repair of damage.

A Strategic Design Checklist

Bringing together the suggestions above, a strategic design checklist organised around Atlas' (2013) five domains is provided in Table 1. Use of the checklist may differ depending on a school's unique context and needs. Therefore, its use requires adaptation to suit individual schools.

Conclusion

Meaningful security is best achieved through a design that creates a safe territory for the users. Through good site planning and architectural design, we can effectively create settings that are less accommodating to intruders and offer a better public realm for the users and the broader community. However, American architect Kotob (Flynn, 2018) described security as a 'pie' comprised of legislation, policy, education, awareness, and technology, with architecture comprising one small piece. Creating a safe school is the responsibility of the entire community and all stakeholders and decision-makers need to work together to achieve this. Through thoughtful design and smart management of the built environment, we can provide a safe and liveable school environment. The most effective solutions are likely to be the ones which balance the needs of the community with both active and passive design strategies. To achieve this, all interested parties (e.g., students, parents, teachers, and community members) need to be involved from early in the design process to achieve an effective teaching and learning environment that supports schooling and embraces the community.

Over-designing safety measures and creating a prison-like environment can have a negative impact on both students and the community. Security features, while vital and necessary, should be as invisible as possible and incorporated into the school from the early stages of design. Effective school facility planning should embrace connections to the community that foster local context and regular patronage to create a far safer and secure socio-cultural environment than could be achieved by

Table 1 Strategic design checklist

Planning and Policies
Does the urban/architectural design recognise the needs and aspirations of the community, government agencies, key stakeholders and wider planning principles?
Have specific control measures been shared with the community?
Physical Environment
Does the design provide connection to the neighbourhood context and consider location e.g., rural, suburban, or inner city?
Is there an access control strategy?
Are transitional zones marked to delineate private, semi-private, and public spaces?
Are the building types selected and drawn with security in mind?
Is the material used suitable for the age group it is designed for?
Site Design
Does the landscape consider the locality of the campus including being rural, suburban or CBD?
Is there any ambiguity in the on-site design?
Are the private and public spaces well defined?
Do the paths lead to places where people want to go?
Are there clear and defined signs?
Are the existing slopes, mounds and hills incorporated into the design?
Has appropriate planting been specified as a barrier or as edge separation?
Materiality
Does the materiality respect and use the locality of the campus including being rural, suburban or CBD?
Have materials which reduce the opportunity of theft and vandalism been specified?
Are the materials used suitable for the age group they are designed for?
Maintenance
Does the school present a well-kept and 'cared for' image?
Are there signs instructing people on how to report maintenance problems
Does the design allow for good and easy maintenance

high security fences alone. When successfully adopted, the strategies outlined above have been shown to reduce opportunities to commit crime and increase perceived sensations of safety. This will make schools more desirable places to be, while creating a sense of identity and belonging within the wider community.

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References

Atlas, R. I. (2013). *21st century security and CPTED: Designing for critical infrastructure protection and crime prevention* (2nd ed., pp. 291–293, 288, 286, 300, 304). CRC Press.

Atlas, R., & Schneider, R. (2007) Schools behind bars? *Security Technology & Design, 17*(8), 32–34, 36, 38.

BCSR. (2018). NSW Bureau of Crime Statistics and Research, recorded crime statistics, viewed 02 October 2018. https://www.bocsar.nsw.gov.au/Documents/MR/mr_cjb44.pdf

BCSR. (2019). NSW Police Public Site, safer by design, viewed 9 January 2019. http://www.police.nsw.gov.au/community_issues/crime_prevention/safer_by_design

Bracy, N. L. (2011). Student perceptions of high-security school environments. *Youth & Society., 43*(1), 365–395. https://doi.org/10.1177/0044118X10365082

Crowe, T. D. (2000). *Crime prevention through environmental design: Applications of architectural design and space management concepts* (2nd ed.). Butterworth-Heinemann.

Flynn, K. (2018). *Architects prioritize design as a school security solution*, viewed 9 January 2019, https://www.aia.org/articles/201346-architects-prioritize-design-as-a-school-se

Huang, S. C. L. (2012). A study of the perception of elementary school fences in Urban areas. *Journal of Architectural and Planning Research, 29*(2), 149–168.

Jacobs, J. (1961). *The death and life of great American cities.* Random House.

Jahangiri, J. (2020). *Defensible schools—Investigating alternative methods of achieving a secure environment in schools.* Australian Institute of Architects.

Jeffery, C. R. (1977). *Crime prevention through environmental design* (Rev. ed.). Sage Publications.

Lennard, H. L., & Lennard, S. H. C. (1992). Children in public places: Some lessons from European cities. *Children's Environments, 9*(2), 37–47, Chapman & Hall.

Merry, S. (1981). Defensible space undefended: Social factors in crime control through environmental design. *Urban Affairs Quarterly, 16*(4), 397–422.

Newman, O. (1972). *Defensible space: People and design in the violent city.* Architectural Press.

Rooney, T. (2015). Higher stakes—The hidden risks of school security fences for children's learning environments. *Environmental Education Research, 21*(6), 885.

Saville, G., & Cleveland, G. (1997). *Second-generation CPTED in schools.* Paper presented at the 1st Annual International CPTED Association Conference. Orlando, Florida.

Saville, G., & Cleveland, G. (2006). CPTED and the social city: The future of capacity building. *The CPTED Journal, 4*(101), 43–50.

Zahner. (2018). *Passive security in architecture: Designing for security without sacrificing beauty*, viewed 2 October 2018, https://www.azahner.com/blog/passive-security-in-architecture/

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