

Crime prevention through environmental design


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Crime prevention through environmental design (CPTED) is a multi-disciplinary approach to deterring criminal behavior through environmental design. CPTED strategies rely upon the ability to influence offender decisions that

precede criminal acts. As of 2004, most implementations of CPTED occur solely within the built environment.

History

CPTED was originally coined and formulated by criminologist C. Ray Jeffery. A more limited approach, termed defensible space, was developed concurrently by architect Oscar Newman. Both men built on the previous work of Elizabeth Wood, Jane Jacobs and Schlomo Angel. Jeffery's book, "Crime Prevention Through Environmental Design" came out in 1971, but his work was ignored throughout the 1970s. Newman's book, "Defensible Space: - Crime Prevention through Urban Design" came out in 1972. His principles were widely adopted but with mixed success. The defensible space approach was subsequently revised with additional built environment approaches supported by CPTED. Newman represented this as CPTED and credited Jeffery as the originator of the CPTED term. Newman's CPTED-improved defensible space approach enjoyed broader success and resulted in a reexamination of Jeffery's work. Jeffery continued to expand the multi-disciplinary aspects of the approach, advances which he published, with the last one published in 1990. The Jeffery CPTED model is more comprehensive than the Newman CPTED model, which limits itself to the built environment. Later models of CPTED were developed based on the Newman Model, with Crowe's being the most popular.

As of 2004, CPTED is popularly understood to refer strictly to the Newman/Crowe type models, with the Jeffery model treated more as multi-disciplinary approach to crime prevention which incorporates biology and psychology, a situation accepted even by Jeffery himself. (Robinson, 1996). A revision of CPTED, initiated in 1997, termed 2nd Generation CPTED, adapts CPTED to offender individuality, further indication that Jeffery's work is not popularly considered to be already a part of CPTED.

1960s

In the 1960s Elizabeth Wood developed guidelines for addressing security issues while working with the Chicago Housing Authority, placing emphasis on design features that would support natural surveillability. Her guidelines were never implemented but stimulated some of the original thinking that led to CPTED.

Jane Jacobs' book, *The Death and Life of Great American Cities* (1961) argued that urban diversity and vitality were being destroyed by urban planners and their urban renewal strategies. She was challenging the basic tenets of urban planning of the time: that neighborhoods should be isolated from each other; that an empty street is safer than a crowded one; and that the car represents progress over the pedestrian. An editor for *Architectural Forum* magazine (1952–1964), she had no formal training in urban planning, but her work emerged as a founding text for a new way of seeing cities. She felt that the way cities were being designed and built meant that the general public would be unable to develop the social framework needed for effective self-policing. She pointed out that the new forms of urban design broke down many of the traditional controls on criminal behavior, for example, the ability of residents to watch the street and the presence of people using the street both night and day. She suggested that the lack of "natural guardianship" in the environment promoted crime. Jacobs developed the concept that crime flourishes when people do not meaningfully interact with their neighbors. In *Death and Life*, Jacobs listed the three attributes needed to make a city street safe: a clear demarcation of private and public space; diversity of use; and a high level of pedestrian use of the sidewalks.

Schlomo Angel was an early pioneer of CPTED and studied under noted planner Christopher Alexander. Angel's Ph.D. thesis, *Discouraging Crime Through City Planning*, (1968) was a study of street crime in Oakland, CA. In it he states "*The physical environment can exert a direct influence on crime settings by delineating territories, reducing or increasing accessibility by the creation or elimination of boundaries and circulation networks, and by facilitating surveillance by the citizenry and the police.*" He asserted that crime was inversely related to the level of activity on the street, and that the commercial strip environment was particularly vulnerable to crime because it thinned out activity, making it easier for individuals to commit street crime. Angel developed and published CPTED concepts in 1970 in work supported and widely distributed by the United States Department of Justice (Luedtke,

1970).

1970s

The phrase crime prevention through environmental design (CPTED) was first used by C. Ray Jeffery, a criminologist from Florida State University. The phrase began to gain acceptance after the publication of his 1971 book of the same name.

Jeffery's work was based on the precepts of experimental psychology represented in modern learning theory. (Jeffery and Zahm, 1993:329) Jeffery's CPTED concept arose out of his experiences with a rehabilitative project in Washington, D.C. that attempted to control the school environment of juveniles in the area. Rooted deeply in the psychological learning theory of B.F. Skinner, Jeffery's CPTED approach emphasized the role of the physical environment in the development of pleasurable and painful experiences for the offender that would have the capacity to alter behavioral outcomes. His original CPTED model was a stimulus-response (S-R) model positing that the organism learned from punishments and reinforcements in the environment. Jeffery "emphasized material rewards . . . and the use of the physical environment to control behavior" (Jeffery and Zahm, 1993:330). The major idea here was that by removing the reinforcements for crime, it would not occur. (Robinson, 1996)

For reasons that have received little attention, Jeffery's work was ignored throughout the 1970s. Jeffrey's own explanation is that, at a time when the world wanted prescriptive design solutions, his work presented a comprehensive theory and used it to identify a wide range of crime prevention functions that should drive design and management standards.

Concurrent with Jeffery's largely theoretical work was Oscar Newman and George Rand's empirical study of the crime-environment connection conducted in the early 1970s. As an architect, Newman placed emphasis on the specific design features, an emphasis missing in Jeffery's work. Newman's "Defensible Space - Crime Prevention through Urban Design (1972) includes extensive discussion of crime related to the physical form of housing based on crime data analysis from New York City public housing. "Defensible Space" changed the nature of the crime prevention and environmental design field and within two years of its publication substantial federal funding was made available to demonstrate and study defensible space concepts.

As established by Newman, defensible space must contain two components. First, defensible space should allow people to see and be seen continuously. Ultimately, this diminishes residents fear because they know that a potential offender can easily be observed, identified, and consequently, apprehended. Second, people must be willing to intervene or report crime when it occurs. By increasing the sense of security in settings where people live and work, it encourages people to take control of the areas and assume a role of ownership. When people feel safe in their neighborhood they are more likely to interact with one another and intervene when crime occurs. These remain central to most implementations of CPTED as of 2004.

In 1977, Jeffery's second edition of Crime Prevention Through Environmental Design expanded his theoretical approach to embrace a more complex model of behavior in which variable physical environments, offender behavior as individuals and behavior of individual members of the general public have reciprocal influences on one another. This laid the foundation for Jeffery to develop a behavioral model aimed at predicting the effects of modifying both the external environment and the internal environment of individual offenders.

1980s

By the 1980s, the defensible space prescriptions of the 1970s were determined to have mixed effectiveness. They worked best in residential settings, especially in settings where the residents were relatively free to respond to cues to increase social interaction. Defensible space design tools were observed to be marginally effective in institutional and commercial settings. As a result, Newman and others moved to improve defensible space, adding CPTED based features. They also deemphasised less effective aspects of defensible space. Contributions to the advance of CPTED

in the 1980s included:

- The "broken windows" theory, put forth by James Q. Wilson and George L. Kelling in 1982, explored the impact that visible deterioration and neglect in neighborhoods have on behavior. Property maintenance was added as a CPTED strategy on par with surveillance, access control and territoriality.
- Canadian academicians Patricia and Paul Brantingham published *Environmental Criminology* in 1981. According to the authors, a crime takes place when all of the essential elements are present. These elements consist of: a law, an offender, a target, and a place. They characterize these as "the four dimensions of crime", with environmental criminology studying the last of the four dimensions.
- British criminologists Ronald Clark and Patricia Mayhew developed their "situational crime prevention" approach: reducing opportunity to offend by improving design and management of the environment.
- Criminologist Timothy Crowe developed his CPTED training programs.

1990s

Criminology: An Interdisciplinary Approach (1990), was Jeffery's final contribution to CPTED. The Jeffery CPTED model evolved to one which assumes that

The environment never influences behavior directly, but only through the brain. Any model of crime prevention must include both the brain and the physical environment. ... Because the approach contained in Jeffery's CPTED model is today based on many fields, including scientific knowledge of modern brain sciences, a focus on only external environmental crime prevention is inadequate as it ignores another entire dimension of CPTED -- i.e., the internal environment. (Robinson, 1996)

Crime Prevention Through Environmental Design (1991) by criminologist Tim Crowe provided a solid base for CPTED to move forward into the rest of the 1990s.

From 1994 through 2002, Sparta Consulting Corporation led by Severin Sorensen, CPP managed the US Government's largest CPTED technical assistance and training program titled *Crime Prevention Through Environmental Design (CPTED) in Public Housing Technical Assistance and Training Program*, funded by the US Department of Housing and Urban Development. During this period Sorensen worked with Ronald V. Clarke and the Sparta team to develop a new CPTED Curriculum that used Situational Crime Prevention as an underlying theoretical basis for CPTED measures. A curriculum was developed and trained to stakeholders in public and assisted housing, and follow-up CPTED assessments were conducted at various sites. The Sparta led CPTED projects showed statistical reductions in self reported FBI UCR Part I crimes between 17% to 76% depending on the basket of CPTED measures employed in specific high crime, low income settings in the United States.

In 1996, Oscar Newman published an update to his earlier CPTED works, titled, *Creating Defensible Space*, Institute for Community Design Analysis, Office of Planning and Development Research (PDR), US Department of Housing and Urban Development (HUD).

In 1997, an article by Greg Saville and Gerry Cleveland, *2nd Generation CPTED*, exhorted CPTED practitioners to consider the original social ecology origins of CPTED, including social and psychological issues beyond the built environment.

2000s

As of 2004, elements of the CPTED approach have gained wide international acceptance due to law enforcement attempts to embrace it. The CPTED term "environment" is commonly used to refer to the external environment of the place. Jeffrey's intention that CPTED also embrace the internal environment of the offender seems to have been lost, even on those promoting the expansion of CPTED to include social ecology and psychology under the banner of 2nd Generation CPTED.

Strategies for the built environment

CPTED strategies rely upon the ability to influence offender decisions that precede criminal acts. Research into criminal behavior shows that the decision to offend or not to offend is more influenced by cues to the perceived risk of being caught than by cues to reward or ease of entry. Consistent with this research, CPTED based strategies emphasise enhancing the perceived risk of detection and apprehension.

Consistent with the widespread implementation of defensible space guidelines in the 1970s, most implementations of CPTED as of 2004 are based solely upon the theory that the proper design and effective use of the built environment can reduce crime, reduce the fear of crime, and improve the quality of life. Built environment implementations of CPTED seek to dissuade offenders from committing crimes by manipulating the built environment in which those crimes proceed from or occur. The three most common built environment strategies are natural surveillance, natural access control and natural territorial reinforcement.

Natural surveillance and access control strategies limit the opportunity for crime. Territorial reinforcement promotes social control through a variety of measures.

Natural surveillance

Natural surveillance increases the threat of apprehension by taking steps to increase the perception that people can be seen. Natural surveillance occurs by designing the placement of physical features, activities and people in such a way as to maximize visibility and foster positive social interaction among legitimate users of private and public space. Potential offenders feel increased scrutiny and limitations on their escape routes.

- Design streets to increase pedestrian and bicycle traffic
- Place windows overlooking sidewalks and parking lots.
- Leave window shades open.
- Use passing vehicular traffic as a surveillance asset.
- Create landscape designs that provide surveillance, especially in proximity to designated points of entry and opportunistic points of entry.
- Use the shortest, least sight-limiting fence appropriate for the situation.
- Use transparent weather vestibules at building entrances.
- When creating lighting design, avoid poorly placed lights that create blind-spots for potential observers and miss critical areas. Ensure potential problem areas are well-lit: pathways, stairs, entrances/exits, parking areas, ATMs, phone kiosks, mailboxes, bus stops, children's play areas, recreation areas, pools, laundry rooms, storage areas, dumpster and recycling areas, etc.
- Avoid too-bright security lighting that creates blinding glare and/or deep shadows, hindering the view for potential observers. Eyes adapt to night lighting and have trouble adjusting to severe lighting disparities. Using lower intensity lights often requires more fixtures.
- Use shielded or cut-off luminaires to control glare.
- Place lighting along pathways and other pedestrian-use areas at proper heights for lighting the faces of the people in the space (and to identify the faces of potential attackers).

Natural surveillance measures can be complemented by mechanical and organizational measures. For example, closed-circuit television (CCTV) cameras can be added in areas where window surveillance is unavailable.

Natural access control

Natural access control limits the opportunity for crime by taking steps to clearly differentiate between public space and private space. By selectively placing entrances and exits, fencing, lighting and landscape to limit access or control flow, natural access control occurs.

- Use a single, clearly identifiable, point of entry
- Use structures to divert persons to reception areas
- Incorporate maze entrances in public restrooms. This avoids the isolation that is produced by an anteroom or double door entry system
- Use low, thorny bushes beneath ground level windows. Use rambling or climbing thorny plants next to fences to discourage intrusion.
- Eliminate design features that provide access to roofs or upper levels
- In the front yard, use waist-level, picket-type fencing along residential property lines to control access, encourage surveillance.
- Use a locking gate between front and backyards.
- Use shoulder-level, open-type fencing along lateral residential property lines between side yards and extending to between back yards. They should be sufficiently unencumbered with landscaping to promote social interaction between neighbors.
- Use substantial, high, closed fencing (for example, masonry) between a backyard and a public alley.

Natural access control is used to complement mechanical and operational access control measures, such as target hardening.

Natural territorial reinforcement

Territorial reinforcement promotes social control through increased definition of space and improved proprietary concern. An environment designed to clearly delineate private space does two things. First, it creates a sense of ownership. Owners have a vested interest and are more likely to challenge intruders or report them to the police. Second, the sense of owned space creates an environment where "strangers" or "intruders" stand out and are more easily identified. By using buildings, fences, pavement, signs, lighting and landscape to express ownership and define public, semi-public and private space, natural territorial reinforcement occurs. Additionally, these objectives can be achieved by assignment of space to designated users in previously unassigned locations.

- Maintained premises and landscaping such that it communicates an alert and active presence occupying the space.
- Provide trees in residential areas. Research results indicate that, contrary to traditional views within the law enforcement community, outdoor residential spaces with more trees are seen as significantly more attractive, more safe, and more likely to be used than similar spaces without trees.
- Restrict private activities to defined private areas.
- Display security system signage at access points.
- Avoid cyclone fencing and razor-wire fence topping, as it communicates the absence of a physical presence and a reduced risk of being detected.
- Placing amenities such as seating or refreshments in common areas in a commercial or institutional setting helps to attract larger numbers of desired users.
- Scheduling activities in common areas increases proper use, attracts more people and increases the perception that these areas are controlled.

Territorial reinforcement measures make the normal user feel safe and make the potential offender aware of a substantial risk of apprehension or scrutiny.

Other CPTED Elements

Maintenance and activity support aspects of CPTED were touched upon in the preceding, but are often treated separately because they are not physical design elements within the built environment.

Maintenance

Maintenance is an expression of ownership of property. Deterioration indicates less control by the intended users of a site and indicate a greater tolerance of disorder. The Broken Windows Theory is a valuable tool in understanding the importance of maintenance in deterring crime. Broken Windows theory proponents support a zero tolerance approach to property maintenance, observing that the presence of a broken window will entice vandals to break more windows in the vicinity. The sooner broken windows are fixed, the less likely it is that such vandalism will occur in the future.

Activity Support

Activity support increases the use of a built environment for safe activities with the intent of increasing the risk of detection of criminal and undesirable activities. Natural surveillance by the intended users is casual and there is no specific plan for people to watch out for criminal activity.

Effectiveness and criticism

CPTED strategies are most successful when they inconvenience the end user the least and when the CPTED design process relies upon the combined efforts of environmental designers, land managers, community activists, and law enforcement professionals.

In terms of effectiveness, a more accurate title for the strategy would be crime **deterrence** through environmental design. Research demonstrates that offenders cannot be literally prevented from committing crimes by using CPTED. CPTED relies upon changes to the physical environment that will cause an offender to make certain behavioral decisions. Those changes are crafted so as to encourage behavior, and thus they deter rather than conclusively "prevent" behavior.

Beyond the attraction of being cost effective in lowering the incidence of crime, CPTED typically reduces the overall costs of preventing crime. Retrofitting an existing environment to meet CPTED can sometimes be costly, but when incorporated in the original design phase of facility planning, cost of designing to CPTED principles are often lower than with traditional approaches. Operational costs are often lower also, as CPTED lighting designs can significantly lower energy use. Adding to the attraction of CPTED is that it lowers liability.

The area of liability has led to the questioning of how much crime prevention is really necessary for a given place. It has been mooted that a risk management approach might be superior to a fear-driven one.[1] The question is, "does a community give up too much freedom, usually in terms of movement and assembly, to be free from fear of crime?" This was a question that was not widely asked in the 1990s; note the rise around the world of gated communities and the use of CCTV in public spaces.

Four obstacles to adopting CPTED

There are four primary obstacles to the adoption of CPTED.

First is a lack of knowledge of CPTED by environmental designers, land managers, and individual community members. For this reason, allocating substantial resources to community educational programs are often required.

The second major obstacle is resistance to change. Many specifically resist the type of cooperative planning that is required to use CPTED. Beyond that, skeptics reject the research and historic precedents that support the validity of CPTED concepts.

The third obstacle is the perception that CPTED claims to be a panacea for crime that will be used to displace other more traditional approaches rather than a small, but important, complementary tool in deterring offender behavior.

The fourth obstacle is that many existing built areas were not designed with CPTED in mind, and modification would be expensive, politically difficult, or require significant changes in some areas of the existing built environment.

See also

- Natural surveillance

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External links

- International CPTED Association ^[4]
- European Designing Out Crime Association ^[5]
- Stichting Veilig Ontwerp en Beheer (the Netherlands) ^[6]
- California Designing Out Crime Association ^[7]
- Crime prevention and the built environment ^[8].
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- Oscar Newman, *Creating Defensible Space* ^[10] (pdf) (Washington, D.C.: U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 1996). Url last accessed May 6, 2006.
- CPTED Crime Prevention Guide ^[11]. CPTED Handbook for Architects and Urban Planners.
- CPTED LinkedIn Discussion Group ^[12]

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- [1] <http://www.rudi.net/pages/8864>
- [2] <http://www.huduser.org/publications/pdf/def.pdf>
- [3] <http://www.acs.appstate.edu/dept/ps-cj/vitacpted2.html>
- [4] <http://www.cpted.net>
- [5] <http://www.e-doca.eu>
- [6] <http://www.stichtingvob.nl>
- [7] <http://www.caldoca.org>
- [8] <http://humanics-es.com/recc-design.htm#cpted>
- [9] <http://www.thecptedpage.wsu.edu/Resources.html>
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