Designing with Nature for Personal Safety in Parks

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Overview

• Brief intro about nature benefits
• The perception of safety
• In what environments do people feel safe?
• The social context created by nature
• Aggregation and violence
• Does vegetation reduce crime?
• Design Implications
Benefits of Nature

• Ecological benefits
  • Mitigate many negative impacts of intense urban development
  • Moderating climate
  • Conserving energy
  • Reducing carbon dioxide
  • Improving air and water quality
  • Controlling rainwater run off and flooding

• Mental and physical health benefits
  • Reduce stress
  • Restoring attention
  • Promoting physical activity
But, how about safety? Does nature contribute to our safety in any way?
Perception of Safety

The wellbeing of individuals may be affected not only as a result of direct experience of harm but also as a result of a fear of harm.

Individuals’ perceptions of safety involves judgements about the chance of injury or loss (Canterbury well-being Index)
Safe Environment

It is safe..........Doesn’t feel safe
It is  safe ..........It feels safe
It is Not safe......But people feel safe
What are the elements of a safe environment?
Fears and Preferences
Fears

Visual access

Human signs

Enhancing familiarity
Scenes that people generally do not prefer?

• Blocked views

• Wide open spaces without any distinguishing characteristics

• Urban landscapes or industrial landscapes without any vegetation
Some of the characteristics of settings that people do prefer:

- Small coherent areas in a larger setting
- Smooth ground plain
- Mystery
- Layers that create a sense of depth
- Openings
The patterns or characteristics that contribute to preference or fear?
Preference Rating results
Maintenance and Safety

Cue of Care
(Nassauer, 1995)

Broken Window Theory
(Wilson & Kelling, 1982)
• For a long time there was this notion that More Trees is associated with more crime......

• But is it right? More Trees? More Crime?
Built environment & social ties?
Built environment & social ties?
Landscapes & social ties?
Quick review of some evidence
Empirical Evidence

Coley, Kuo, & Sullivan (1997)

Number of Trees Present

Taylor

- 0
- 1-2
- 3-4
- 5+

Individuals Observed

- 0.5
- 1.0
- 1.5
- 2.0

Wells

- 0
- 1-2
- 3-4
- 5+
The graph illustrates the mean number of females in different green cover conditions. The x-axis represents the levels of green cover (Barren and Green), while the y-axis shows the mean number of females. The data indicates a higher mean number of females in the Green condition compared to the Barren condition.
Neighborhood social ties

An interview study

- 145 residents
- Asked about social dynamics
- Compared answers from people living with and without nearby nature
Neighborhood social ties

What did this study find?
Domestic Violence

An interview study
- 145 residents
- Compared answers from people living with and without nearby nature
Domestic Violence

What did this study find?
Aggressive Conflict Tactics Against Partner

Kuo & Sullivan, 2001a

Proportion Yes

- spiteful
- threatened to hit
- threw or smashed
- threw at partner
Aggressive Conflict Tactics Against Partner

Kuo & Sullivan, 2001a

Proportion Yes

Hit with something
Hit with fist
Beat them up
Used gun or knife
Mean Rates of Aggression Against Partner During Past Year

Aggressive and Violent Behavior

Mean Values

Aggressive and Violent Behavior

p < .05
Landscapes & Crime
Landscapes & Crime

An archival study

- 98 apartment buildings
- Measure density of vegetation
- FBI Part I crime statistics
Kuo & Sullivan, 2001b

- Low Density of vegetation: Total Crimes = 7
- Medium Density of vegetation: Total Crimes = 5
- High Density of vegetation: Total Crimes = 3
But, what does all these information have to do with parks and design?
Design Implications
The design of a park can have a direct impact on people's perceptions of safety and their willingness to use a space.
Role of Design in Creating Safer Parks
The physical characteristics which park users associate with high-risk environments include:

- Poor lighting
- Confusing layout
- Physical and aural isolation
- Poor visibility
- No access to help
- Areas of concealment
- Poor maintenance
- Vandalism

(source: Projects for public spaces)
Bishan-Ang Mo Kio Park in Singapore  (2016 ASLA Professional Award)
Source: ASLA website
Source: ASLA website
Background and history

• Bryant Park has been served as a public open space since 1850s. (example of unsuccessful public open space)
• The redevelopment of Bryant Park was completed between 1991 and 1995. (example of successful public open space)
People’s needs are a substantial issue in the successful design of open space. It was safety concerns and a sense of danger that made planners and landowners to decide to redevelop the park. After the redesign of the park, the number of users of the park and the diversity of them increased.
Comfort
1. Seating
2. Shelter
3. Food
4. Safety

Bryant Park - old entrance
New York

Bryant Park 1992
$18 million make-over
Landscape Architect: Hanna/Olin Ltd.
Garden Designer: Lynden B. Miller
Increased visibility & access
• Lowered land & hedges, entrances
• Activity on the perimeter
• Connection with street
• Coherence

Bryant Park - old entrance
No visual access

Bryant Park - after it reopened in 1992
Offers Visual access
Increased visibility & access
• Dramatically increased usage
• Less crime
• More women users

“Where there is a higher than average proportion of women the plaza is probably a good one and has been chosen as such” (Whyte 1980)
Bryant Park: Waiting for the movie to start
Some Pershing Square Trees to Be Replaced by Chessboards
Work Comes as Roots Wreak Havoc on Electrical, Irrigation Systems
Donna Evansi  May 9, 2014
Reopened with new design: February 6, 1994
Cost: $20 million
Architect: Ricardo Legorreta
Landscape Architect: Laurie Olin
Nature at every door step
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All references are available upon request