

**Design Evaluation and Guidelines**  
**Papers Selected for Publication**

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## ABSTRACT

Individuals' perceptions of their safety from crime in an environment is determined by a variety of factors including personal experience of a place, its physical appearance, and characteristics of the individual. This perception may affect how the place is used, regardless of the actual occurrence of assaults in that area. Male and female students at the University of Illinois campus at Urbana-Champaign were mailed surveys that asked how safe they felt in eighteen specific campus areas and to rate what factors contribute to their feelings of danger in a particular area. The areas students felt to be most dangerous were not areas that were statistically the most dangerous. Design elements, such as lack of lighting, were more likely to be mentioned as contributing to a feeling of danger than were personal experiences of a place. Female students generally had lower safety ratings for areas than did men, and they were more likely to report using place avoidance behaviors in order to cope with the threat of assault. The findings of this study imply that the perceived safety of an area may be directly modified through design and management decisions.

## INTRODUCTION

The purpose of this research is to assess what factors, particularly design elements, contribute to the perception of safety of a particular area. What makes some places feel less safe than others? Does this perception depend upon hearsay, actual experience or the design elements of a particular area? Does the perception of an area as dangerous affect the manner in which an individual uses the area? What types of preventative measures do individuals using those areas employ to protect themselves against assault? Can the perception of the safety of an area be affected by design and management decisions?

## LITERATURE REVIEW

A study by McPherson (1978) of Minneapolis neighborhoods suggests that people have a fairly accurate perception of the seriousness of crime in their neighborhoods. Lewis and Maxfield also identified a moderate correlation between official crime rate and fear at the aggregate level (Baumer, 1978). However, this reflects the feeling of safety in the neighborhood as a whole rather than in specific places within the neighborhood.

Other studies have not found a clear relationship between perceived and reported levels of crime. According to Scheppele, "the geography of fear does not necessarily parallel the geography of rape" (Scheppele, 1983, p. 65). Studies have shown that approximately 40% of rapes occur during the daylight hours, and as high as 56% of rapes occur within the victim's home by a non-stranger. Scheppele speculates that perhaps the reason why rapes seem to occur in seemingly 'safe' places is that women are successful in avoiding those places that are indeed dangerous, thus reducing the likelihood that the event will occur there.

In a survey by Kirk (1986), students were asked to list the areas on a university campus which they felt to be the most dangerous. Those places students mentioned most frequently as being dangerous did not accurately correspond with areas where sexual assaults reported to police had taken place. The campus areas they mentioned as being unsafe tended to have more naturalistic vegetation, be less populated, and have poorer lighting. The areas where assaults were more likely to occur were in student residential neighborhoods. Subjects also tended to view areas further from their residence as dangerous, whereas studies have shown that many assaults occur within or near the home of the victim. This indicates that assaults are likely to occur where students live rather than in the more deserted campus areas that were felt to be more dangerous. However, it is possible that fewer assaults occur in places that are perceived as dangerous, because peoples' fear keeps them from using them. The ratio of users to assaults may actually be higher in these areas, and thus the perception of danger may indeed be accurate.

According to Schroeder (1983), decisions to remove dense vegetation are based on the belief that these elements contribute both to feelings of danger and to the actual danger of an area. However, the specific design elements that affect perceptions of safety have not been examined carefully. Visible signs of disorder and decay that signify crime, such as vandalism and poor maintenance can lead to a feeling of risk in a particular area (Baumer, 1978, and Weidemann, et al, 1983). A place may actually be safe in terms of the likelihood of being assaulted there, yet be viewed as dangerous, thus limiting its use and enjoyment.

One problem with sexual assault statistics is that of under reporting. According to the Rape Crisis Center in Urbana, Illinois, as many as 70% of rapes may go unreported (1986). Even the FBI

disclaims its figures on rapes (Warr, 1985). Many of these unreported instances may be classified as "date rapes", in which the setting was one that is not typically considered unsafe, such as the victim's apartment. Of personal assaults reported in a survey by Lott et. al. only 7% were reported to the police. Only 31% of these were by total strangers. This confirms the idea that sexual assaults are grossly underreported. Findings in general suggest that rape by a stranger is more likely to be reported to police than is sexual assault by an acquaintance (Lott et. al., 1982). Therefore the "classic rape," an attack by a stranger outside the home which characterizes the popular image of rape (Warr, 1985), will be more likely to be reported.

In this study, locations of reported rapes were used as an indication of the danger of an area. The purpose of this study was to examine the various factors, including the statistical safety of an area, that contribute to perceptions of safety in a large university campus setting.

## METHODS

### Setting

This study focused on the University of Illinois at Urbana-Champaign campus, which is located in a city with a population of about 100,000 in east central Illinois. The landscape surrounding the city is predominately rural with a scattering of smaller towns. The student body of the university is about 36,000. The area that the survey focused on is approximately 1000 acres in size and is comprised of a mix of university buildings, residences, and retail land use (see Figure 1).

### Subjects

The population sampled was the university students who use the campus daily. Questionnaires were mailed to 150 University of Illinois students who were randomly selected from the 1986 Campus Directory. The surveyed population included students living in both University owned or approved housing, and private apartments and houses. Students excluded from the sample population would include those who requested that their names be removed from the Campus Directory and those students who had moved into the community within the past three months.

### Instrument Description

The survey consisted predominantly of structured questions designed to measure various levels of perceived safety in eighteen specific campus areas (see Figure 1). Questions asked students to rate the perceived safety of these eighteen areas and the frequency with which they used these areas at night. The list included areas that were mentioned as being dangerous in a previous survey as well as areas that were not listed as dangerous.

Respondents were also asked about the frequency with which they employed various behaviors to prevent assault and how capable they felt they were of defending themselves. In a study carried out by Riger (1981), it was found that most female respondents felt themselves to be weaker than the average person of their gender. Obviously this cannot be true, but it reflects women's general feelings of helplessness in the face of an assault.

Subjects were asked questions to determine their overall perceived safety level in the University area. They were asked to rate the likelihood that they would be the victims of an assault while on campus and to make comparisons between the University of Illinois campus environment, their previous neighborhood, and other campus environments. Finally two open ended questions asked for suggestions on improving the safety of the campus environment and for general comments on the issues.

The survey also included general information questions concerning the sex, address, and level of familiarity with the campus environment as measured by length of time the respondent had lived in the area. Subjects were asked about their previous living environment to determine whether its size and character affected the responses. According to Schroeder (1983), people who are from an urban background tend to rate urban types of scenes as safer than those from rural environments, and visa versa.

A cover letter on the Department of Landscape Architecture stationery was enclosed. This explained to students the purpose of the survey and guaranteed the respondent's anonymity. It also gave a phone number which they could call for further information on the study.

### Procedure

Students were instructed to place the completed surveys in an enclosed return envelope, and deposit it in one of the Campus Mail drop off boxes located throughout the university.

Surveys were numbered on the back page in order to determine which students had responded. One week after the questionnaire was mailed, a follow-up postcard was mailed to students who had not yet returned the surveys, thanking them for participating in the survey and reminding them to complete the questionnaire.

## RESULTS

The return rate was 44.7%, or sixty-seven questionnaires returned out of 150. Thirty males and thirty-three females returned the questionnaire. The median age of the respondent was 21.9 years with a range from 18 to 44 years and they were predominantly from suburban background (68.7%).

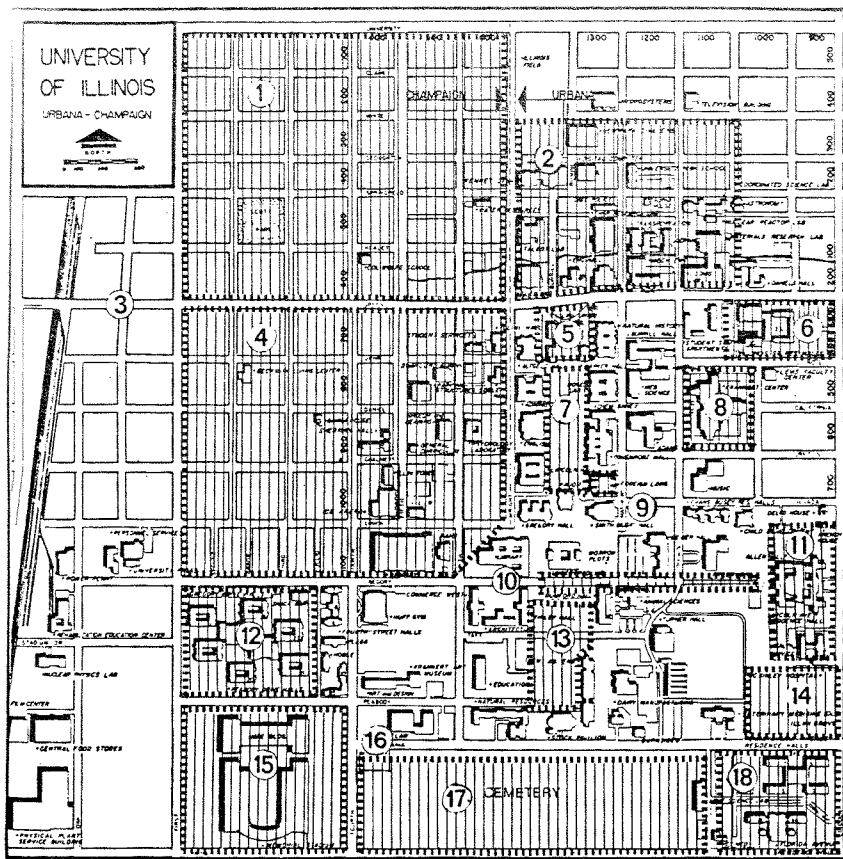


Figure 1: Campus Area Map

- 1 Green-University/Wright-1st  
(residential area)
- 2 Engineering Campus
- 3 Green Street  
(campus commercial area)
- 4 Green-Gregory/Wright-1st  
(fraternity/sorority area)
- 5 Illini Student Union
- 6 ISR Dorm Area (NE Campus)
- 7 The Quad
- 8 Krannert Performing Arts Ctr.
- 9 Foreign Language Bldg
- 10 Gregory Drive  
(central campus street)
- 11 LAR Dorm Area (E. Campus)
- 12 GDR/PDR Dorm Area (SW Campus)
- 13 South Quad
- \* 14 Illini Grove
- 15 Intramural Sports Facility
- 16 Pennsylvania Ave.
- \* 17 The Cemetery
- 18 PAR/FAR Dorm Area (SE Campus)

\* Areas felt to be most dangerous

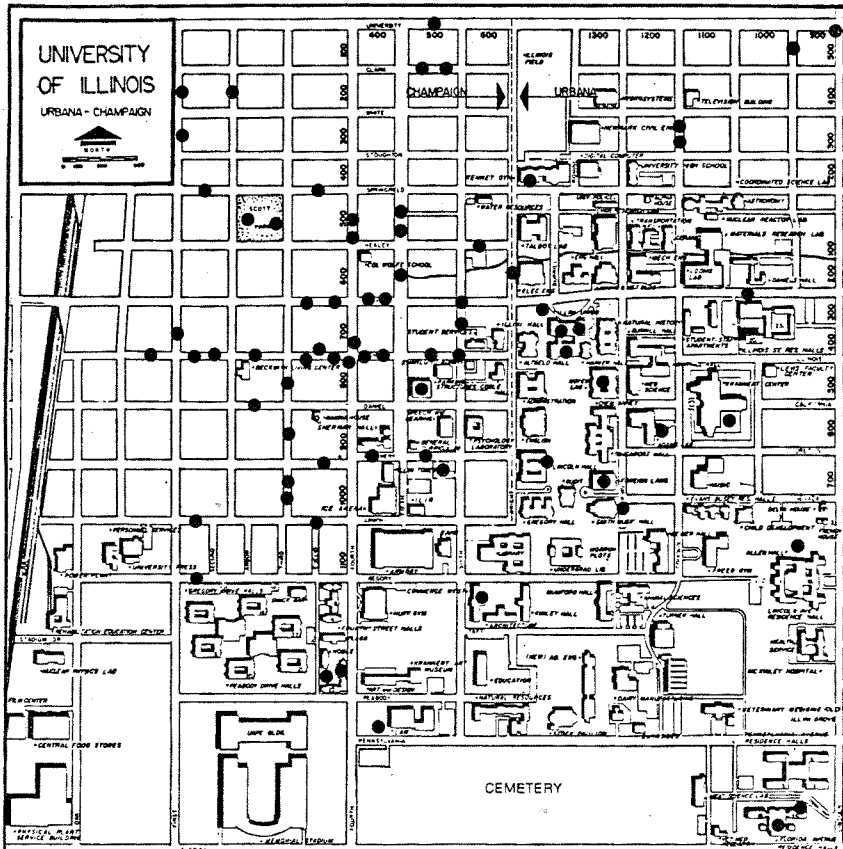


Figure 2:

Approximate Assault Locations  
(Jan. 1982 - Dec. 1986)

## Areas Felt to be Unsafe

Most of the 18 campus areas rated close to 2.5 on a safety scale of 1 to 5, with 1 being the most safe. The Cemetery and Illini Grove stood out as the areas perceived as most dangerous, with average ratings of 3.84 and 3.86 (see Figure 3). They were also named most frequently as areas considered to be most dangerous on campus (Cemetery - 12 times, Illini Grove 21 times). The Cemetery, located to the south of the central campus area, is a picturesque setting with scattered trees and rolling topography. As one respondent pointed out its use is restricted to daylight hours. Illini Grove, is the most heavily wooded area on campus, and is on a route to a major dormitory area. To many students and campus officials Illini Grove is known as "Rape Grove," yet it is not statistically one of the most dangerous areas on campus.

Although few people use the Cemetery, even during the day, Illini Grove is located along a route to a major dormitory area. Its dangerous appearance affects many students who live in the area.

The areas respondents rated as feeling safest were the Illini Student Union and Green Street commercial area with mean ratings of 2.13 and 2.20. Both areas receive heavy student use during evening hours, perhaps leading to the belief that the presence of others would deter assaults. However, the area around Green Street is actually near the center of the densest concentration of reported sexual assaults (see Figure 2). This area receives heavy pedestrian and vehicular traffic and includes many college bars and student hangouts. It is possible that the sheer numbers of people here increase the possibility of assault.

## Factors Contributing to Perceptions of Danger

The factors students rated highest in a closed ended question as being important to the perception of danger of an area were "poor lighting" and "places to hide" (see Figure 6). "Places to hide" could mean either dense vegetation or architectural elements such as the massive columns of the Foreign Language Building, which were specifically mentioned as being scary. Both the Cemetery and Illini Grove, which were rated as being the most dangerous areas, are landscaped with naturalistic vegetation which may be seen as providing cover for potential attackers. In the open ended question, which asked about improvements that could be made to increase campus safety, increasing lighting was mentioned most often. Also suggested were increasing police patrols and installing more emergency phones. These factors relate directly to design and management issues and may be manipulated to enhance the feeling of safety in an area.

Ranked lowest on the list of reasons for a perception of danger was "personal experience". The factor "acquaintance had a bad experience there," was also rated fairly low. This indicates that the perception of danger of a

place is not generally directly related to personal experience, but is rather a combination of the appearance of a place and hearsay.

## Differences Between Male and Female Respondents

The personal characteristic that was most strongly related to perceived safety of the listed areas was the sex of the respondent. Males gave overall higher safety ratings to the various places, while females rated them as being more dangerous. In a comparison of mean scores females also gave the campus a significantly lower overall safety rating than did men ( $P = .001$ ), and rated their chances of being the victim of an assault higher than did men ( $P = .0001$ ).

Sex also related strongly to the use of various types of crime prevention measures. On average, women were more likely than men to use precautionary measures. In particular women were more likely to use passive measures such as "staying out of dangerous places" and never "walking alone at night." They were also more likely to depend upon some sort of escort at night, and were likely to employ non-aggressive defense techniques such as carrying a whistle or keys in their hand to use as a weapon. Predictably men rarely used Women's Wheels, an evening escort service, and were more likely to "offer to walk someone home." Unlike the U.S. Department of Justice studies, there were no significant differences between aggressive measures such as "carrying a weapon" or "taking self defense classes." Furthermore, both sexes rarely reported the usage of these assault prevention activities. In the Justice Department studies men were more likely to employ these methods.

In a study by Baumer (1978), it was found that "despite the lower victimization rates for women in several crime categories, sex emerges consistently as the most powerful predictor of fear of personal crimes" (p. 225). The reasons for this may be that women in general are less able to defend themselves and are thus more vulnerable to crime, and the fact that women are almost the sole victims of sexual assaults.

No significant sex differences in the use of physical security measures were found in a study by Warr (1985), but large differences in lifestyle precautions were found; 42% of the women surveyed avoided going out alone at night, while only 8% of the men reported this. Place avoidance was another common strategy used by women. Warr felt that spatial mobility is affected by fear of rape and shows up in out-of-home activities. The belief that home is a "safe-zone" when it comes to sexual assault is a fallacy and may actually result in a neglect of home security precautions.

There was generally no relationship between sex and factors determining perceptions of danger of the most dangerous campus areas. Women rated only one factor, the absence of police patrols, higher than did men. This seems to follow the

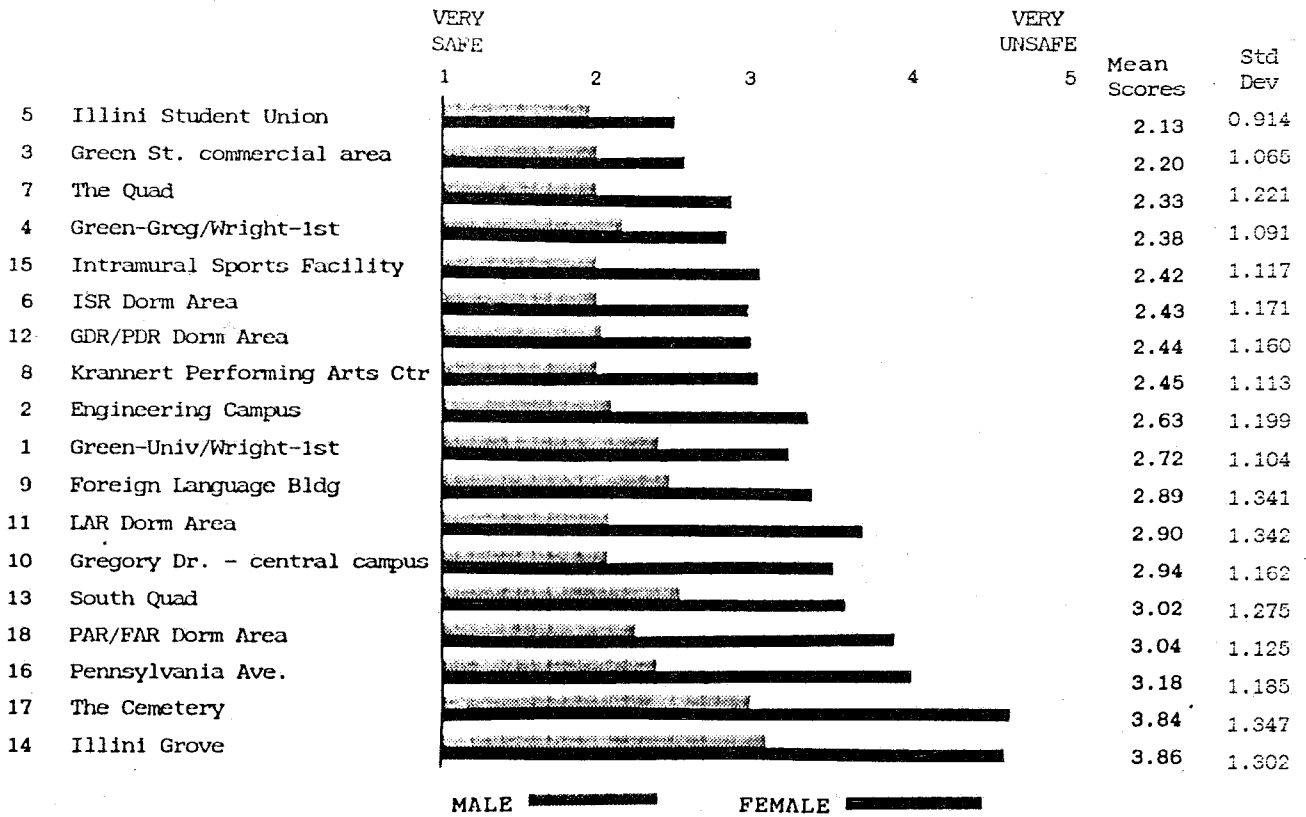


Figure 3: Mean Perceived Safety Levels for the Campus Areas

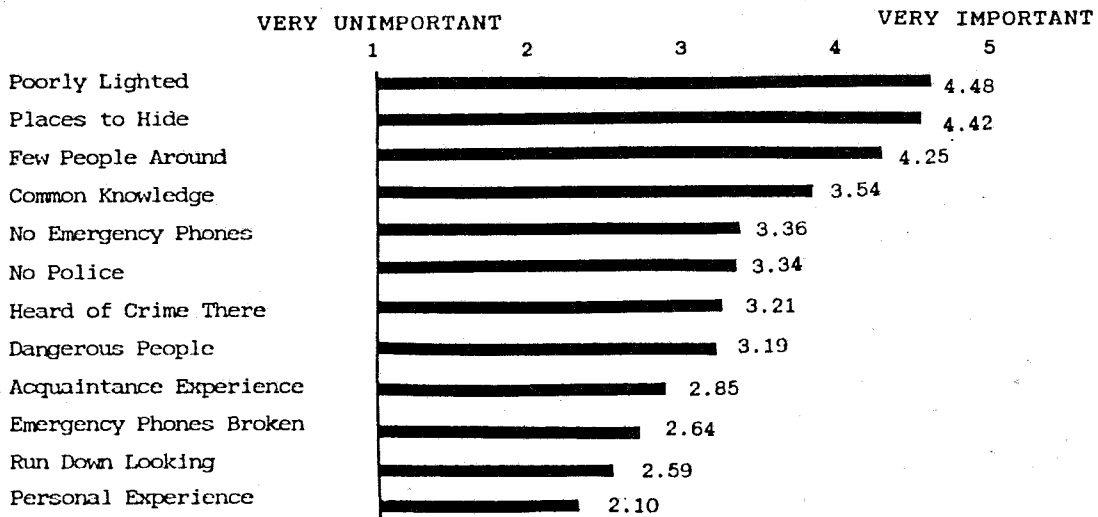


Figure 4: Mean Scores: Reasons for Perceptions of Danger

idea that women depend more on the protection of others for their safety.

It seems that the sex of an individual is a strong determinant of perceptions of safety and behaviors employed to cope with the threat of assault.

## IMPLICATIONS

The results of this survey indicate that the perceptions of safety in a particular area are not linked so closely to personal experience of a place, but are rather a combination of the appearance of a place, popular myths about the place, and personal characteristics, particularly sex.

Unfortunately, Illini Grove and the Cemetery, the two areas generally thought to be the most dangerous on campus, are two of the most picturesque places by day. However, the abundance of naturalistic vegetation may lend a dangerous appearance to the areas at night. Wild nature may be unconsciously perceived as dangerous in our culture as it provides places for modern bogeymen, the muggers and rapists, to hide (Tuan, 1979).

Results of the survey seem to imply that the perception of safety of an area may be directly modified through design and management decisions. However, not one respondent suggested removing vegetation as a means of increasing the safety of an area. One person even mentioned that he would not suggest any improvements that would harm the aesthetics of the campus. Instead measures such as increasing the lighting on campus and police patrols were most often recommended. Perhaps the solution may not be to defoliate these places, but to increase the lighting and presence of symbols of safety, such as police patrols and emergency phones.

The fact that many students feel safe in areas which are statistically most dangerous, implies that there is a tendency to unrealistically evaluate some areas. Campus education programs should emphasize that any area can be dangerous, regardless of one's familiarity with it.

Women's Wheels was seldom used even by female respondents. From the open ended questions, it seemed that many people view it as an ineffective service. Women complained of long waits and its limited, inconvenient hours of operation. A service that operated longer hours might be better appreciated. Yet should this service be limited to women only? The name "Women's Wheels" implies this. Leach (1986) argues that by having a male run escort service or one that is for the exclusive use of women, you run the risk of perpetuating women's sense of dependence upon men. Although these services do increase the spatial and temporal range of women, they may not in fact increase women's confidence in their ability to cope with dangerous situations. When the service terminates or is unavailable, women may feel even more insecure.

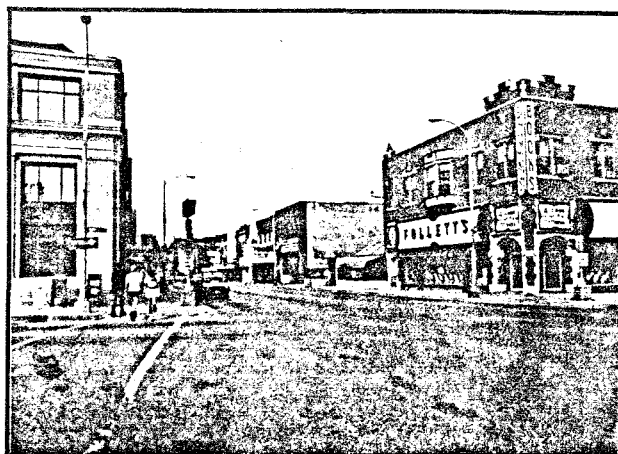


Figure 5: The heavily used Green Street commercial area was rated as one of the safest of listed areas on the campus.



Figure 6: The naturalistic Illini Grove was perceived to be the most dangerous area on campus.

Since women generally had a higher perception of danger on campus, it may be that the best method to decrease the feeling of danger in a particular place may be to focus on women's sense of confidence and her ability to resist an attack. Women tend to underrate their ability to defend themselves. According to Leach, "an air of confidence decreases a woman's risk of becoming a victim. An ability to defend oneself has the same effect" (p. 12). Self defense classes and rape education might be the most effective methods of combating fear and increasing actual safety. Those harmed by crime include both actual crime victims and those whose lives are inhibited by the fear of victimization.

## CONCLUSIONS

The results of this survey indicate that perceptions of the safety of a place are affected more by the area's appearance and hearsay than

personal experience or statistical reality. This suggests that elements such as lighting and design detailing could be manipulated to alter these perceptions. It is possible that the feeling of safety in an area could be enhanced by merely a minor redesign or change in management policy. Further research needs to be done to evaluate specific design features that affect these perceptions and to eliminate the contribution of hearsay.

Care must be taken not insert design elements which give a false sense of security in an area. Improvements must be made to change not only the perception of safety, but the actual safety of an area. Improvements such as better lighting or increasing visible police patrol of an area would do this.

The sex of the individual may also have a great deal to do with the overall assessment of danger in an environment. In general, women have a much higher perception of danger than men. This suggests that women may be more sensitive to the elements that contribute to the overall feeling of safety in an area. Similarly, female users are more likely to employ behavioral modification to cope with this increased sense of danger. When a statistically safe area is perceived as dangerous, it is the women who suffer most by limiting their enjoyment of it. Other personality factors that may moderately correlate with perceptions of safety should also be looked at in future research.

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