

“Safety is just a thing men take for granted”: Teaching a Spatial Vocabulary of Equality to Architecture Students

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Abstract

The focus of this paper is to present a method of teaching architecture students how to learn from conducting a socio-spatial analysis in order to design a safe and secure built environment. This paper illustrates the connections between the learning objectives of a multi-part assignment and issues of citizenship, inclusivity, and equity.
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Résumé

L'objet de cet article est de présenter une méthode visant à enseigner aux étudiants en architecture les façons d'apprendre d'une analyse socio-spatiale afin de concevoir un environnement bâti sûr. Cet article illustre les liens entre les objectifs d'apprentissage d'un travail à multiples volets et les enjeux de la citoyenneté, de l'inclusion et de l'équité.

Introduction

Space, like language, is socially constructed; and like the syntax of language, the spatial arrangements of our buildings and communities reflect and reinforce the nature of gender, race, and class relations in society. The uses of both language and space contribute to the power of some groups over others and the maintenance of human inequality.” (Kanes Weisman 1992, 2)

In the past twenty-five years, there has been a movement in architecture that focuses less on form and aesthetics and more on the issues of social justice and social responsibility in architecture. As the quote above by Kanes Weisman indicates, power relations and issues of human equity are embedded within the vocabulary of the built environment. However, architectural education is still primarily known for its aesthetic formalism and designs exercises structured around the deployment of formal geometries. Unfortunately, formal principles of architectural design are all too often presented in a manner that disassociates them from their historical, theoretical, and cultural development. “Principles, organizational systems, spatial relationships, and the like are showcased as ends in themselves, as value-free tools to be used at will regardless of culture, circumstance, context” (Dutton 1991, xix). In the early 1990s, Dutton (1991) made the observation that, “ironically, while architecture is widely assumed to reveal much about the character of a society, students learn little about their society beyond that which is necessary to function professionally” (xvii). His explanation was that architectural programs are mostly staffed by architects who see the practice of architecture as more important than its theories, civic roles, social responsibilities, and political consequences.

The goal of social justice educators outside of architecture is to help students identify and analyze dehumanizing sociopolitical processes and to reflect on the consequences of oppressive socialization in their lives

(Adams, Bell, and Griffin 2007, xvii). Social justice in architecture is a set of beliefs about issues of social equity as it relates to the design of the built environment. This approach aligns itself with critical pedagogy in architecture which values “social justice, democracy, equality, and emancipation” (Dutton 1996, 172). In 1995, Crysler provided a critique of the transmission model of education that dominated architectural education at that time. He criticized the tendency to portray students as “passive and homogenous professional subjects removed from social and political forces” (208). Crysler promoted an alternative model of educational practice influenced by theories of critical pedagogy that would provide for a more democratic learning environment informed by alternative histories and a range of political issues. Salama (2015) states that, “in essence, critical pedagogues identify and place emphasis on the influences of educational knowledge that establish an unjust situation in society...Instructors try to foster a critical capacity in learners or citizen groups to provide them with the tools and skills to resist the effects of unjust, biased, or illegitimate authority, dominance and power” (311-312). More simply put, Fisher (2008) believes that “the definition of architecture should be expanded to include the health, safety, and welfare of all people” (10).

In order for the profession of architecture to move towards being more equitable and inclusive, I believe that we must incorporate social justice ideals early in the students’ architectural education and teach students how to conduct socio-spatial analyses of the built environment from a critical standpoint. In the second year architecture design studio, students at Ball State University are challenged to design building types with multiple users, such as museums, craft training centers, green workforce centers, event spaces, libraries, veterinarian clinics, a visitor’s center, etc. Students are asked to consider prevailing salient topics, such as sustainability, green architecture, community revitalization, urban gardening, active living, and multi-modal transportation. However, while the relationship between women’s fear of crime and public space has been the focus of considerable research in many fields including criminology and geography, students of architecture do not typically receive any education in this area.

I believe that it is imperative that architecture students be exposed to the theory and research being

done about safety and security in the built environment. The focus of this paper is to present a method of teaching undergraduate students what role architects can play and how they can contribute to the design of a safe built environment. Using a hands-on assignment, in which students learn to analyze the safety implications of spaces that they are familiar with on campus, is an effective way of sensitizing future architects to gender-based actual threats to personal security as well as the impact of a perception of fear for users in different socio-spatial contexts. I discuss these learning objectives using an assignment that I designed to be a multi-part safety and security case study. Kanes Weisman (1992) maintains that a feminist analysis of the man-made environment as a form of social oppression or as an expression of social power is necessary. She asks the question: “How does built space contribute to human oppression?” (4). This is a question that I pose to my students when we explore a socio-spatial analysis of the built environment. Adams, Bell, and Griffin (2007) argue that it is best to “draw upon multiple pedagogies to help participants consider information about various forms of oppression in light of their own personal experiences in ways that we hope foster critique, self-assessment, and more conscious choices about the actions they take in the world” (xvii). In this case, those conscious choices would be how architects make design decisions.

In this paper, I first present the literature that discusses the connection between safety and the built environment, including the origins of the safety audit. This is followed by a detailed description of the six parts of the safety and security assignment. Next, the student’s research findings and student learning outcomes for the assignment are explained in terms of equity issues and the fear of being a victim of violence (gendered citizenship) within the context of the literature that supports these findings and outcomes. Recommendations are then provided in regards to informal surveillance and two types of interventions are discussed: design and programmatic interventions. The design interventions that afford informal surveillance are lighting and sightline issues together with entrapment spots. Programmatic interventions that afford informal surveillance are the provision of activity generators; designing for the legitimate presence of people; and designing for transparency between inside and outside. In the conclu-

sion, the benefits and disadvantages of the assignment are discussed.

Pedagogical Approaches

My critical pedagogical approach to this assignment highlights the gender dimensions of citizenship, equity issues, and human rights and acknowledges the multiple facets of 'gendered spaces.' Phadke (2012) uses this term to refer to "the socially constructed geographical and architectural arrangements around space which regulate and restrict women's access to those spaces which are connected to the production of power and privilege in any given context" (53). Dutton (1991) also highlights power relations when discussing the purposes of critical pedagogy when he claims that, "highlighting the politics of the everyday, critical pedagogy unravels and critiques the experiences of students and teachers as they find themselves in asymmetrical relations of power tempered by class, race, gender, ethnicity, and others" (xxiii). As Andrew (2000) indicates, there are boundaries that are defined by time, by space, and by social relations. As future producers of the built environment, what power relations should architecture students be made aware of? How can architects be critical about what is negotiated in public space? What role do architects have in the production of spatial inequalities? Are architects even aware of this inequity in the built environment? Instead of continuing to make assumptions about how people live, how people use space, and what people prefer, I advocate an evidence-based design approach. Feminist writer and educator hooks (2010) states that the "heartbeat of critical thinking is the longing to know—to understand how life works" (7). I strongly believe that we must utilize authentic ways of discovering what people need, what people want, and what people prefer. I believe that it is vital that students reflect on a number of sources, including short interviews with both males and females who use the space that is being studied. This will reinforce that safety is a significant issue for women as well as other vulnerable populations. Adams, Bell, and Griffin (2007) state that an approach to social justice education includes "a set of interactive, experiential pedagogical principles to help learners understand the meaning of social difference and oppression both in the social system and in their personal lives" (xvii).

The assignment discussed in this paper is assigned in a required second-year undergraduate course

called *Introduction to Social and Cultural Issues in Architecture* in the architecture program. Most semesters I teach two sections of the course that enroll a total of approximately 60 students. Typically the male to female ratio in the second year of the program is approximately 50/50. The average age of the second-year student is twenty years old. The university student body is 84.4 percent white, which is higher than the national average, 6 percent of students are African American, 2.9 percent are Hispanic American, 0.9 percent are Asian American, and 1.9 percent are international students from countries such as Turkey, South America, and Saudi Arabia. In the *Introduction to Social and Cultural Issues in Architecture* class discussed here, the student body was predominantly white, with the percentage of African-Americans at .01 percent, the international students were at .05 percent (below the university average), and there were no Asian American students. The percentage of Hispanic Americans (10 percent) in the class was higher than the university average.

Founded in 1918, Ball State University is located in a mid-sized Midwestern city of 70,000 people. There are over 21,000 undergraduate and graduate students. The campus has experienced a building boom in the past decade with the construction of several new state-of-the-art buildings, a bell tower, student residences, a center for making glass, and a recreation and wellness center. Extensive attention to landscaping makes it a very beautiful campus (Ball State University, 2014). The campus serves as an excellent case study for the students to use for the course assignment and it is very convenient for them to do the detailed nighttime study required for it. It provides an environment that the students think they know well and that they are familiar with at night. In the research that Boyle, Findlay, and Forsyth (2004) conducted on women's perception of fear and the design of the urban environment, they found that "the more familiar an environment is to an individual, the less closely they look at aspects of its design, instead drawing upon personal experience and opinions of spaces to reach a conclusion on how safe they perceive it to be" (6). Doing a detailed socio-spatial analysis of their assigned part of the campus allows the students to get past their preconceived ideas about the nature of safety issues for students on campus. Doing the assignment illustrates to the students that there are aspects of the campus built environment that they very

likely have not considered as having the potential to be problematic in terms of safety, especially in the dark.

Connection between Safety and the Built Environment

Many feminists believe that there is a valid connection between safety, perception of fear, the design of the built environment, and environmental factors such as informal surveillance (Jacobs 1961; Franck and Paxson 1989; Wekerle and Whitzman 1995; Andrew 2000; Koskela and Pain 2000; Listerborn 2002; Boyle, Findlay, and Forsyth 2004; Caiazza 2005; Tibaijuka 2008; Loukaitou-Sideris 2014). Listerborn (2002) believes that “to leave out the material dimension is not useful when talking about fear in public spaces” (40). Women’s fear of violence has been made visible by women’s grassroots groups and feminist researchers and, in the past three decades, social scientists, criminologists, urban designers, environment-behavior designers, and geographers have also been interested in women’s safety issues. For example, Jane Jacobs (1961), an author, editor, urban planning activist, and critic formulated the *natural surveillance* strategy based on her lived experiences and observations in New York’s Greenwich Village. Jacobs argued that if an area is open (clear sightlines) and well lit, people will naturally watch what is going on around them (natural surveillance) and that any architectural design that enhances the chance that a potential offender will be seen is also a form of natural surveillance. Jacobs’ publication, *The Death and Life of Great American Cities* (1961), introduced sociological concepts to architects and planners, such as *eyes on the street*. Jacobs explained this important component of natural surveillance when she discussed the use of sidewalks in relation to safety and stated that “there must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street” (35). Jacobs indicated that, in order to achieve this, buildings on a street must be oriented to the street and not have “blank sides on it” (35).

In the 1970s, the built environment became an important aspect of safety and crime prevention that involved a broad spectrum of crime-preventing agencies—planners, architects, community groups, and the police force (Listerborn 2002). Among the different approaches to controlling urban crime, the three main ones are law and order, root causes, and safe cities (Wekerle and Whitzman 1995). The law and order ap-

proach assumes that the best way to address crime is to improve the criminal justice system; the root cause approach takes a sociological perspective believing the best way to address crime is by dealing with poverty and marginality. The safe cities approach considers fear of crime to be as important as crime itself and, through partnerships between government and citizens, criminal behavior can be prevented through environmental design and education. This approach advocates the employment of a safety audit by the users of the area of the built environment that is being studied.

The conduction of a safety audit involves typical users of the space spending several hours after dark examining the space from the point of view of the users’ sense of safety. A safety audit links social issues with elements in the physical environment in the hopes of imagining a more accessible and livable city (Andrew 2000). As the safety audit process is based on the lived experience of the people whose space is being studied, Andrew (2000) maintains that it should be reflected in policy (164). She points out that in our society, expertise is usually seen as something held by experts, rather than the participants, and that we need to develop a more realistic conceptualization of expertise and the status of knowledge that can be gained through people’s lived experiences. Successful safety audits can result in more women participating in urban space and can encourage a wider range of women and other vulnerable groups to use the space (Andrew 2000).

For example, METRAC (Toronto’s Metro Action Committee on Public Violence against Women and Children) was founded in 1984 as a reaction to a series of sexual assaults and rapes that occurred in Toronto parks (Loukaitou-Sideris et al. 2009). METRAC is a community-based, not-for-profit organization that works to prevent violence against women and youth. The root of the community safety program is to create safer public spaces for women, youth, and those at high risk for harassment and violence. METRAC produced the WISE (Women in Safe Environments) Report which documents the design features that contribute to women’s feeling unsafe in public places, such as poor lighting, not being visible to others, and having no access to help (Kanes Weisman 1992). One of its mottos is “safer for women, safer for everyone” (METRAC 2014). In 1985, METRAC developed a women-centered safety audit, which is a comprehensive method of analyz-

ing the built environment and identifying unsafe “hot spots” from the standpoint of female users, including best practices of CPTED.

The use of women’s safety audits has spread globally, as evidenced by the development and adoption of the women’s safety audit by UN-HABITAT in the cities of Cape Town, Johannesburg, Durban, Dar es Salaam, Abidjan, Nairobi, and Warsaw (Tibaijuka 2008). However, Klodawsky (2013) points out that, even though big changes to increasing women’s self-sufficiency are being undertaken in cities around the world, women’s vulnerability to violence must also be mitigated, as acknowledged at the *Women in Cities International and Jogori* conference in 2010. Tibaijuka (2008) states that, in many cities, women and girls face violence in public spaces because of poor urban design and poor management of public spaces. She believes that one of the ways women can feel safer and fully benefit from the services and resources that cities offer is to address the design shortcomings of their physical environment. After the safety audit is completed, recommendations are made to a wide variety of public and private bodies: municipal governments, provincial governments, individual landlords, store-owners, schools (Andrew 2000). Tibaijuka (2008) claims that the safety audit has also been found to be an effective tool for building community safety because it enables a critical evaluation of the urban environment, while giving legitimacy to women’s concerns.

Being thoughtful about how we design the built environment in terms of safety is not only about trying to prevent crime through environmental design, but it is also about eliminating environmental factors that contribute to women’s fear. Design professionals, including architects, landscape architects, and urban designers, have much to contribute to mitigating this fear. As stated above, having participants use their lived experience of an environment is important when doing a safety audit and so the student teams in my class are assigned sites on the university campus. The students are both ‘users’ and ‘researchers’ studying users’ experiences. I employ several feminist approaches and sensibilities in my own approach to teaching and in the multiple parts of this safety and security assignment explained below.

Safety and Security Audit Assignment

Similar to objectives expressed by Salama (2012) in an assignment that he designed for his theory courses

in architecture and urbanism, the objectives of this assignment include developing students’ critical thinking abilities about the role of built form in regards to cultural behaviors and attitudes as well as enhancing students’ understanding of human-environment relations and how these concepts vary for different cultures and sub-cultures, such as gender (7). With an objective of having more knowledgeable designers in regards to gender issues in public space, aspects of this assignment achieve several of Franck’s (1989) women’s ways of knowing and a feminist approach to design: a responsibility to respond to the needs of others (ethic of care); acknowledgement of the value of everyday life and experience; and acceptance of subjectivity as a strategy for knowing and of feelings as part of knowing. Franck reminds us that Clare Cooper Marcus’ research focuses on the everyday lives and perceptions of residents and Delores Hayden’s work demonstrates a sensitivity to daily life, particularly “that of women and children and the elderly whose needs have long been ignored or misunderstood by planners and architects” (299). As Ahrentzen (1996) points out, “men control environmental decision making and often base this decision making on male-experience-as-norm” (73) and it continues to be a challenge to have women’s experiences in public space validated and designed for. This assignment brings women’s experiences and perceptions of the built environment at night to the foreground.

There are six parts to the assignment, and I provide a description of each below. As Salama (2015) and many other architectural educators advocate, one benefit of having architecture students do group, rather than individual, work is that the architecture and design professions are collaborative in practice (313). I have the students work in teams of four or five and each part of the assignment is done collaboratively except for the final reflection papers, which are done by students individually.

Safety and Security Readings

Each team reviews one of the three key readings assigned at the beginning of the safety and security assignment, answering a set of questions. One article is a theoretical presentation of safety audits (Andrew 2000), the second is a research study done in Scotland with a focus on familiarity and the presence of people (Boyle, Findlay, and Forsyth 2004), and the third is a

cultural and social study of safety issues for women in Mumbai (Sur 2014). After the students have completed this part of the assignment, we have a fishbowl discussion in class to discuss each group's answers to the questions posed, reviewing the different perspectives presented in each article. Each student has an opportunity to speak because for each of the four questions, a different member of the team will come into the 'fishbowl' to discuss that particular question as it relates to their team's assigned reading. During the fishbowl discussions, students are encouraged to voice their own personal opinions and experiences that are generated by the reading material. Leavitt (1991) argues that "the transformation of personal experiences into architectural education" (227). She maintains that different strands of feminist theory drew on the experiential aspect of consciousness-raising, and that the original consciousness-raising groups were the vehicle for transforming personal issues into political ones. I know that this is beneficial for architecture students as well, because they learn that these issues are not solely personal ones, but also political in that they are representative of larger issues about basic civil rights for women and other vulnerable populations.

Safety and Security Audit

Each team is assigned an area on campus that includes a building, a path, a public space, and parking. The students choose a time after dark to conduct their safety audit and to take their photos. The safety audit has about seven pages of Yes/No/NA questions as well as open-ended questions, including some for each gender to respond to. The questions are categorized under the spaces being studied that I mentioned above: the building, pedestrian sidewalks/footpaths, the public space, and parking. Within each category are sub-headings such as lighting, which has a list of Yes/No/NA questions to check off, such as "are light fixtures protected from breakage by some means such as wired glass?" and "are there pools of light and darkness?" An example of an open-ended question is: "what is the adjacent land use?" and "what is your instinctual feeling about your safety in the stairwell?" which is targeted to each gender. Salama (2013) states that the benefits of what he calls a systemic pedagogy, in contrast to a mechanistic pedagogy, is that "systemic pedagogy places emphasis

on learning by experience, learning by exploring and doing" (3). This part of the assignment employs this approach with the students getting hands-on experience conducting the audit.

Photo Panels

There are eight environmental factors and these include types of lighting (see Figure 1), sightlines, adjacent land use, entrapment spots (confined areas that are shielded on three sides by barriers; see Figure 2), movement predictors (a predictable or unchangeable route or path that offers no choice to pedestrians), informal surveillance (visibility by others), formal surveillance (CCTV, security, blue lights, police), and signage as it relates to safety (Wekerle and Whitzman 1995). The analysis of each environmental factor is represented on an 8.5 x 11 cardstock panel. The students must include the location of the photographs as well as provide both a definition and an explanation of the environmental factor that the photo illustrates. Additionally, the students must indicate the other environmental factors that are found to be problematic with each example.

SAFETY + SECURITY AUDIT

JO ANN GORA STUDENT RECREATION AND WELLNESS CENTER | ARCH 352: CULTURAL & SOCIAL ISSUES | ASSIGNMENT 1 | LIDIA A-WAN, ERIC ANDERSON, ELISE HOFF, EMMA MAPPE, MEGAN STENFENAGEL | GROUP 10




LIGHTING

DEFINITION: The presence of light increases the visibility and safety of a site. Badly designed and poorly lit areas offer increased opportunities for crime and give the message that the area is uncared for. Improving lighting decreases the fear of crime and levels of interpersonal crime.

TOP PHOTO
LOCATION: The staircase to the main entrance of the South side of the Recreation Center.
EXPLANATION: This staircase offers a great example of adequate lighting at night. A light built into the staircase wall turns on at night, illuminating the path. Also, the interior of the Recreation Center offers additional lighting for exterior spaces by the use of windows. In addition, there is the informal surveillance of the users inside of the building, therefore creating a very safe entrance.

BOTTOM PHOTO
LOCATION: View looking North by Southeast corner of the Recreation Center, by Cardinal Creek.
EXPLANATION: This site provides adequate but minimal lighting. The street sidewalk is well lit, however paths beyond that, such as the right turn to cross the bridge over the creek, cannot even be distinguished at this view; there is a void of darkness in the middle of this photo. Also, the lack of people offers no sense of formal or informal surveillance.

Figure 1: Lighting. Used with permission.

SAFETY + SECURITY AUDIT

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ENTRAPMENT SPOTS

DEFINITION: Entrapment spots are confined areas, near a well-traveled route, that is shielded on three sides by barriers such as walls or bushes.

TOP PHOTO

LOCATION: Ramp to enter the bottom floor of the Recreation Center, on South side
EXPLANATION: This is perhaps the worst example of an entrapment spot in the nearby area. A ramp, intended to help disabled users, has only caused a hindrance for safety by its barriers of three thick concrete walls. An assailant can easily chase a person into this spot, and that person, finding the door at the bottom locked, would have no means of escaping. In addition, there is little lighting and no sense of surveillance, creating a very dangerous area.

BOTTOM PHOTO

LOCATION: Dumpster area on East side of Recreation Center
EXPLANATION: While not as significant as the ramp, this photo also illustrates an example of an entrapment spot. Three tall masonry walls, meant to shield views of the dumpsters, also create barriers to limit access. An assailant can easily corner a victim in this unit, unwatched, and closed-in area.



Figure 2: Entrapment spots. Used with permission.

Interviews Analysis and Report

Based on the assigned readings and the impressions from an initial site visit, the team develops a research question and four interview questions that will provide findings to help answer the research question. Each student in the team conducts an interview with one male and one female student on campus. This provides the voice of their peers in relation to the other parts of the assignment and, as Crysler (1995) states, “democracy and citizenship are thus linked in theories of critical pedagogy to the notion of voice” (213). Since this is an assignment in which the students are learning how to do research methods, and it is not classified as conducting research, no Institutional Review Board (IRB) permission is required. The students are taught how to code their interview transcripts and to choose three to five basic themes. An interview report is written with the expectation that the thematic analysis will provide answers to the team’s research question.

Design and Programming Recommendations

Educator hooks (2010) provides a definition of critical thinking, which involves “the act of analyzing and evaluating thinking with a view to improving it” (9). The students are required to make three types of recommendations that would help users feel safer in the space: architectural, landscaping, and people. The *architectural* recommendations could include altering recessed entrances, having good visual connections between the building lobbies and the outside, installing more lights at the back of the building, etc. The *landscaping* recommendations could include thinning the branches of trees that obstruct views, providing outdoor seating areas that are well lit, and including ground lighting within the denser foliage. The *people* recommendations could include formal surveillance such as CCTV, security personnel, and police patrols as well as programmatic recommendations that would provide informal surveillance by having cafés that are open at night in dark areas of the campus.

Reflection Paper

Each student in the team submits their own three page reflection paper. Adams, Bell, and Griffin (2007) argue that the core frameworks of social justice education are to “make conscious use of reflection and experience as tools for student-centered learning” (15). The student is asked to explain how conducting the safety audit, producing the eight photo panels, reflecting on class lectures and discussions, conducting interviews and analyzing the responses, and doing the assignment readings has informed them about the architecture, landscaping, and people factors related to the safety and security issues on our campus. Students must provide supportive quotes from the required readings and are encouraged to reflect on both the theoretical and experiential aspects of the assignment.

Gendered Citizenship: Equity Issues and Fear of Being a Victim of Violence

When I was growing up, I knew that women shouldn’t go out alone at night and I knew that it was OK if I did. I just thought that was the way things were—that it was just normal. I never saw it as an equality issue, until now.
(Male architecture student)

This section will discuss student learning outcomes in the context of gendered citizenship by looking at it in terms of equity issues and the fear of being a victim of violence. From a feminist perspective, feeling safe in the built environment is a fundamental human rights and equal citizenship issue. "Assaults in urban public places, to a great degree, are crimes of opportunity. While the design of our physical surroundings does not cause sexual assault, it plays a significant part in creating opportunities for it. Those who are vulnerable—women, children, the disabled and elderly people—have the right to safe access to the cities in which they live. Preventing sexual assault against women by deliberate planning and assessment results in urban and architectural design that enhances everyone's safety" (Kanes Weisman 1992, 72).

In general, the students found that there are significant differences between how men and women perceive campus safety. This knowledge came from discussions in their assignment teams, the readings that were assigned, the class discussions, their experience of doing the safety audit, and from the interviews they conducted with both genders. Their interview findings confirmed what the students learned from the assignment readings and what we discussed in class about differences in perception of safety between men and women. A male student stated that, "safety is just a thing that many men take for granted." Based on the belief that women should have the right to use urban spaces at night and should feel comfortable doing so, Andrew (2000) claims that, "women do not now have full access to urban citizenship, but this right can be advanced by the use of safety audits, the right to structure urban space in a way that would create a more equitable access to citizenship" (163).

It is not surprising that women have a fear of gender-based violence when one considers the extent to which women experience sexual harassment all over the world when using public space and public transportation. In 1989, Franck and Paxson wrote about the frequency of sexual harassment that women experience in public space. Recent studies conducted indicate that between 80-90 percent of women have been harassed in public (Hollaback! 2015). The harassment ranges from friendly overtures to sexually explicit comments and actions to actual touching. May (2013) argues that public streets remain one of the final frontiers in ad-

ressing sexual harassment and affirming basic civil rights for women.

Many students claimed that they had never considered how the built environment contributes to a place being perceived as safe or unsafe. A male student stated that he had never been encouraged to look at architecture and design in a way that "promoted social justice and safety." One of the biggest obstacles to equality is women's fear of victimization and violence targeted at women. Kanes Weisman (1992) states that, "If the fear of sexual harassment on the street causes women stress, the fear of rape keeps women off the streets at night, away from public parks and 'dangerous' parts of town" (69). Most of the male students, almost all of whom were Caucasian, claimed in their reflection papers that they were very surprised to discover that there was such a difference between the sexes in regards to their perception of fear and crime on campus at night. Even a male student with considerable mobility limitations considered himself free from concerns for his safety on campus. An initial analysis of the lack of concern about one's vulnerability to attack, expressed by the predominantly Caucasian heterosexual males, seems to verify the existence of white male privilege on this campus.

Understanding issues of equity includes an examination of gendered differences in perception of fear and the different ways in which men and women negotiate space at night. Fear of victimization and crime is quite widespread among women and almost every fear of crime survey reports that they are much more fearful of crime than men (Loukaitou-Sideris et al. 2009). Wekerle and Whitzman (1995) emphasize that "fear of crime is viewed as important as crime levels, as it affects people's behavior and the general livability of the city" (13). Fear of crime limits women's access to resources and opportunities, such as employment at night or night classes. Several male students commented on how they never felt unsafe on campus and that they did not have to make the types of safety-related decisions that females did, such as choosing which path to take at night based on how well lit the path is.

Listerborn (2002) points out that, even though young men are more susceptible to violent crime, it is women, children, and the elderly who are the most fearful of being attacked. Nasar and Fisher (1993) further indicate that, "Although the subjective feeling of fear may not accurately reflect actual crime, it has significant harmful

effects on individuals and communities. It [the feeling of fear] has been found to limit activities and territory, heighten stress, make people feel like prisoners in their homes and neighborhoods, and disrupt neighborhood cohesion” (187). According to Gordon and Riger (1991), women use a wide range of what are called defensive behaviors to cope with fear of crime on a day-to-day basis. They state that women will drive, rather than take public transportation, despite being supportive of sustainability policies and objectives. Wekerle and Whitzman (1995) point out that “sometimes these behaviors are seen as irrational or self-indulgent by urban planners and designers, but they make perfect sense as a response to women’s fear of being sexually assaulted” (4).

Caiazza’s (2005) research findings support the hypothesis that a fear of violence influences women’s political and civic participation more than men’s. Fear affects women’s mobility whether travelling by bus, car, or subway. Women’s fear of transportation facilities such as parking structures, bus stops, and inside the bus or subway cars affects how women engage in travel, impacts their travel patterns, and hence, their participation in the built environment (Loukaitou-Sideris 2014). This denies women a basic right to the city when the ability to move from origin to destination is compromised by having to worry that a transit setting or time of travel could have consequences for their safety (Loukaitou-Sideris et al. 2009). A male student wrote, “I relate to the idea of ‘privilege’ that was discussed in our assigned reading. I guess I knew traveling in public alone was less safe for women, but I hadn’t taken the time to consider the implications.”

According to Caiazza (2005), “Violence and the fear of violence should be central to our understanding of the conditions that encourage democratic participation. Measures to ensure safety from violence should be understood not just as a way to establish order and decrease crime but also as a way to strengthen U.S. democracy and women’s access to it” (1627). She recommends that community leaders consider issues of safety when trying to increase women’s community involvement. She states that, “like the right to freedom of speech or to assembly, freedom from gender-based violence can help guarantee the existence of minimal conditions that would encourage democratic engagement among all citizens” (1609). Several students commented on the difference between being on campus at

night and during the day and how designers should be aware of how people experience space at night. A male student wrote, “most projects never show a rendering of what the space will look like at night or how people will inhabit the space at night.” He claims that the assignment gave him ideas for future projects on how to make a space more active both during the day and at night.

Design Interventions that Afford Informal Surveillance

In the literature, natural and informal surveillance have come to mean the same thing. However, I prefer the term ‘informal surveillance’, which is used in the METRAC safety audits (Wekerle and Whitzman 1995; Andrew 2000; METRAC 2014), because I find it to be more descriptive in terms of how the surveillance is being carried out in a physical setting (Jacobs 1961; Newman 1973; Sorensen, Hayes, and Atlas 2008). Opportunities for informal surveillance can occur as a direct result of architectural design and programming. Wekerle and Whitzman (1995) discuss two types of environmental factors that have a direct connection to enabling informal surveillance: ‘visibility by others’ (*to be seen*) and ‘awareness of the environment’ (*to see*). ‘Visibility by others’ includes the ability to be seen through the reduction of isolation; improvements to land use mix; and strategic use of activity generators. In order for people to feel safe and be safe, it is vital that they know that there are people present who could come to their aid. A site is more likely to be avoided if no people are present, such as in the case of an empty parking lot at night. The second type of environmental factor is ‘awareness of the environment’ (*to see*). This includes the ability to see and understand the significance of the surrounding environment and what is up ahead. The assignment reveals to the students certain design interventions and programmatic opportunities that would provide informal surveillance. Informal surveillance then is used as a strategy to enhance the safety of the built environment, but it is also important to include design interventions, such as lighting considerations and clear sightlines.

Lighting Issues and Recommendations

Badly designed and poorly lit areas offer opportunities for crime to occur and send the message that the area is uncared for (Wekerle and Whitzman 1995). As a

crime prevention strategy, good lighting improves the appearance of the space, encourages people to use the space, contributes to a sense of personal security, and is often a low cost solution. Good lighting encourages the use of public space, while increasing informal surveillance. A group of researchers in Britain claimed that their research showed that “good lighting increases the risks that offenders may be recognized or increase the chances of someone coming to the aid of a victim who has been attacked” and that “it deserves more attention as a preventative strategy” (29). What is also important is consistent lighting, rather than pools of light and dark. The type of lighting is also significant; for example, it has been found in both North American and European cities that high-pressure sodium lighting dramatically improves lighting levels. Lighting should shine on pedestrian pathways and possible entrapment spaces, such as recessed doorways, alcoves, landscaping, and below-grade entrances. It is important that the light fixtures are protected from vandalism by using wired glass or wire cages in such places as parking garages and that they are well maintained by replacing light fixtures when they burn out. In their comparative study conducted in Edinburg and Helsinki, Koskela and Pain (2000) found that poor lighting would make women fearful of what they could not see and bright lighting would make them fearful that a potential attacker could see them as potential victims.

On our campus, the lights are programmed to respond to motion for a specific period of time; then, at some point, the lights will turn off, making the entire pathway dark. Several students recommended that lighting around the buildings should come on earlier than they are currently programmed to do. Adding more lights, regulating their timing when shutting down, and adding a variety of lighting types could remedy this. All student teams reported that a recurring theme in their interviews and safety audit findings was the uneasiness felt by students about the lack of well-lit outdoor spaces around campus, especially on walkways. Almost all of the female interviewees stated that they would feel significantly safer walking around on campus if there was much better lighting.

Sightline Issues together with Entrapment Spots and Recommendations

Designing spaces and pathways with good sightlines also means that people are visible to those who could come to their assistance (Wekerle and Whitzman 1995). Sightlines can be inside buildings or outside in natural or built environments. Users should be able to see where they are going in order to make route choices. The inability to see what is ahead on a route because of sharp corners, walls, earth berms, fences, bushes, or columns is a serious impediment to feeling safe and being safe. Also of concern are wide columns in a parking garage, tall privacy fences, and overgrown shrubbery. Design interventions such as low hedges, concrete planters, small trees, wrought-iron fences, transparent reinforced glass, permeable fences, low flower beds, and low benches all help with having good sightlines. Wekerle and Whitzman (1995) make the point that entrapment spots can also hinder good sightlines because these are spaces that are out of the line of vision. One of the student teams reported that, on their campus site, there were several tall walls near the loading dock that obstructed sightlines and created an entrapment area. Unfortunately, a bike rack is located there and the space has pools of light and dark which made it harder to see at night. This is a good example of how sightline issues, in combination with entrapment spots and inadequate lighting, work together to make a space appear to be unsafe. Also, as mentioned above, perceptions of a lack of safety among those who would consider riding their bike to campus at night or taking public transportation can influence a woman's choice to drive instead because of her safety concerns.

Programmatic Interventions that Afford Informal Surveillance

Programmatic interventions that contribute to informal surveillance are activity generators, designing for the legitimate presence of people, and designing for transparency between inside and outside.

Activity Generators and Recommendations

Active vital urban spaces that attract diverse groups of people are perceived as safe places. Empty and neglected space can further suffer from the “broken window” effect (Wilson and Kelling 1982). Loukaitou-Sideris (1999) explains that, “a broken window left

unrepaired sends a signal that social control is attenuated in the area. Sensing that no one is in control, potential criminals are apt to prey on the locality” (398). Abandoned commercial and industrial structures, boarded up doors and windows, and uncollected trash all give an impression that the area is a “no-man’s land” (398). Activity generators include moves, such as increasing recreational facilities in a park, placing housing in a commercial area, or adding an outdoor café to an office building. Architects can plan for different uses and users for the purpose of generating activity and this will add greatly to providing informal surveillance. Wekerle and Whitzman (1995) state that, “the purpose of activity generators is to add eyes to the street or open space; to make a place more secure by populating it” (46). One student team recommended that there be an evening café set up behind the Arts and Journalism building, so that there would be informal surveillance on the back of the building where there exists a long “cowpath,” which is the paved path that runs along the fence between the university campus and the residential area adjacent to the university.

Since women’s safety in the built environment is heavily dependent on temporal aspects, it is imperative to program the buildings and public spaces to provide for activities that will bring people to the site after dark. Can there be activities and events planned for ‘off-hours’ uses, such as using a parking lot as a farmers’ market on the weekends or blocking off downtown streets for street fairs or New Year’s Eve celebrations? When assessing safety issues in an area, it is important to know if the building is used at night, such as an architecture school where students are spending long hours in the design studio almost every night.

Design for the Legitimate Presence of People

Just the presence of people in certain areas of campus made students feel safer whether they were in a building during the evening or in a “nice outdoor space that had a friendly environment,” such as the outdoor seating area for the cafeteria. Boyle, Findlay, and Forsyth (2004) found in their research that the presence of people in a space, especially if their presence was considered legitimate or to be appropriate for them to be there, had a direct connection to respondents perceiving the space as safe or not. The students recommended that building more student accommodations

on campus and having more student activities on campus would create a greater sense of security in the space because of the presence of people. They also recommended that a coffee shop or activities in the university quad after dark would bring students and people to this uninhabited and dark space, thus enhancing informal surveillance. A male student wrote that, “things like sightlines, movement predictors, or informal surveillance hadn’t really ever been articulated in my mind. It makes sense, and makes me realize I definitely feel more secure when the population density is higher.” A female student wrote that, “places with lots of people walking around and driving around also make me feel safer. Isolated places are creepy and make me feel uneasy, especially if I am in them alone or for the first time.” Another female student wrote about the fine line between the need to have more people present in a space and the presence of too many people, making it feel less safe. She pointed out that these two extremes were very much based on the differences between times of day.

Design for Transparency between Inside and Outside

Another way for designers to afford opportunities for informal surveillance is to provide windows so that people can overlook spaces. Newman (1973) discussed the need for transparency in the early 1970s, when he pointed out that most crime in housing complexes occurred in the interior spaces of buildings that were isolated and out of sight. Newman stated that, “it is possible, through the relative juxtaposition of apartment windows with stairs and corridors, as well as with the outside, to ensure that all public and semi-public spaces and paths come under continual and natural observation by the project’s residents” (14). A female student stated that, if the entrance to the back of a building on her site had the same floor-to-ceiling glass, high ceilings, and open vestibule as the entrance to the front of the building, the feeling of safety would likely increase. A male student stated that, since the exit stairs in the building was in a concrete structure and the sides of the building facing the sidewalks were also opaque, more building transparency would create informal surveillance that would enhance the safety of the space. The ability to see people or see the activities inside a building would also help pedestrians outside feel safer. Of course, a disadvantage of transparency between

inside and outside is the possibility that people inside are being watched by people outside or the people on the inside feel uncomfortable because they suspect that they are under surveillance, especially at night when the lights are on inside. A female student wrote that, “a glass walkway may allow you to be observed without knowing who is observing you.” Lastly, a male student suggested that, if the spaces on the ground floor of the residence hall that his team studied could be transformed into a dining hall or a study space that had window walls, this would offer informal surveillance of the surrounding areas, including the moderately lit outdoor space between two of the residences on campus.

Conclusion

The advantages of this assignment are numerous. The assignment provides a public forum for discussion and the validation of perception of fear, women’s fear of violence in public space, as well as a vocabulary through which to discuss these issues. The assignment illustrates the connections between problematic findings and design solutions. The multiple method approach allows for a deep and rigorous analysis of a complex social justice issue. Students also learn the transferability of the issues to other populations who are vulnerable to acts of violence, including people who are homeless and victims of hate crimes such as sexual and religious minorities.

The value of using a safety audit as a tool for teaching male and female architecture students to design for inclusivity and equity has proven to be beneficial in terms of significant learning outcomes. For the most part, many of the students stated that they had never considered safety and security issues in their designs or thought about them as social justice issues. As stated above, many male students remarked that they did not even realize that there was a difference between men and women in terms of perception of fear on campus. The students became aware of the repercussions of not being inclusive of others’ perspectives when designing and the need to envision the space at night in the design process. The students also learned that simple environmental design moves in regards to lighting, sightlines, and programming activity generators can help or hinder the achievement of informal surveillance, which is a key factor in people feeling safe. Students realize that design interventions should be implemented from the beginning of the design process, while at the same time

realizing the benefit of valuing the lived experience of the people they are designing for. One female student wrote that, “architects should think about safety first and then begin their design, but only after conducting a safety audit.” Having informal surveillance in mind as a design strategy benefits many people other than women and works towards a livable city with equal citizenship for all members.

The data from the student research is important in how it encourages students to come up with design recommendations, making a direct connection between the problematic findings discovered through their site analysis and what can be altered in the built environment. The interview responses confirmed their safety audit findings as well as what they read in the required readings. Perhaps one of the most important realizations for the young male designers in the class was that they must think about the design of their buildings and public space from perspectives other than their own, especially if they have the intention of becoming “a more conscientious designer,” which several students claimed they aspire to be. Many of the students talked about wanting to make sure that they did not neglect these issues in future design projects. One of the older male students reflected: “I appreciate that as a designer of public space used by a diverse range of people, I need to take these factors into account if I want to be a responsible contributor to the communities in which I practice.”

Through this assignment, students have come to understand that there exists an integrated system of socially acquired values, beliefs, and rules of conduct that have implications for the design of the built environment and vice versa. A male student wrote that, “I can envision what a stereotypical area might look like where crime might happen, yet never made the connection back to architects. I never realized that the best way to design for a safe environment is to design for the most vulnerable. The most vulnerable, in most cases, being women.” Another male student wrote that architects need to “create solutions that attack the root of the system of oppression” and that this acknowledgment is “crucial for architects to embrace.” As Kanés Weisman (1992) states, “An awareness of how relations among human beings are shaped by built space can help all of us to comprehend more fully the experiences of our daily lives and the cultural assumptions in

which they are immersed. It is within the social context of built space that I believe feminist criticism and activism have a profoundly important role to play... and challenge and change the forms and values encoded in the man-made environment, thereby fostering the transformation of the sexist and racist conditions that define our lives" (2).

The disadvantages of this assignment are that young architects, once having done this assignment, may consider themselves to be the 'experts' and may not value the lived experiences of the people who inhabit the space. The 'experts' could make uninformed assumptions about people's experience in the built environment. Another disadvantage of an assignment of this nature is that it can reinforce negative stereotypes about women being weak, often anxious and afraid as well as paternalistic beliefs that women are in need of protection. Occasionally, when I have conducted this assignment, such as when the percentage of women in this required class was uncharacteristically low at 25 percent, I have seen female students adopt male-defined machismo expressions about being tough and fearless and they viewed women who have safety concerns as being weak. Also, the average age of the second-year students is twenty years old and many of them are very ill-informed about the lack of gender equity in the United States. This is indicated by naïve and unsupported statements made in reflection papers about how women are now equal to men and inequality is a thing of the past. However, the majority of students acknowledged the importance of considering multiple perspectives in design.

Hopefully, these future architects will always consider the consequences of design decisions in terms of safety and security concerns in the built environment and use their new skill set when working with vulnerable populations as well as teach others how to undertake such a study. The intent is that the students will utilize their increased awareness and appreciation for the gendered dimensions of citizenship as it relates to design. It can be transformative in moving towards a built environment in which the boundaries of time, space, and social relations will no longer play such a negative and restrictive role in women's experience of the built environment. New models of change in the built environment can provide for the health, safety, and welfare of all human beings.

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