AN ANALYSIS OF PERCEIVED SAFETY IN THE BUILT 
AND SOCIAL ENVIRONMENT OF AN EDUCATIONAL FACILITY

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ABSTRACT

University and college campuses are, in essence, a “perfect storm” for motivated offenders. Due to a campus’ lack of guardianship, ease of unrestricted site access, and readily available pool of potential victims, administration must attend to the safety concerns of all campus members.

This thesis reports on a research study conducted to test the efficacy of a predictive model for assessing site-specific campus safety. A 56-item online survey was distributed to all members of the Pendleton University population. Three hundred and fourteen full-time equivalent students, staff, and faculty members completed the questionnaire.

The findings indicated that, while the campus was perceived as a relatively safe location, avoidance behaviour was being exhibited by a large proportion of the campus community. Upon further analysis, using the Traditional Fear Index (TFI) and the Extended Fear Index (EFI), eleven individual sites across the Pendleton campus were examined with regards to a number of proximate environmental and social variables. Using linear regression, it was revealed that the EFI—with the addition of traffic as a variable—was the most significant predictor of perceptions of safety.
ACKNOWLEDGEMENTS

Completion of this thesis has been, undeniably, my greatest educational accomplishment thus far in life. This notion is further buoyed by the potential I believe this vein of research has to enact positive change in schools the world over. I must confess, however, that none of this would have been possible had it not been for the incredibly strong, motivated, and inspirational people of whom I worked with throughout this process.

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CHAPTER ONE: INTRODUCTION AND OVERVIEW OF THE PROBLEM

Research Problem

In discussing the nature of education, John Dewey wrote, “Education is a social process. Education is growth. Education is, not a preparation for life; education is life itself” (as cited in James, 2009, p. 2). The intrinsic influence and importance of education is unmistakable. It permeates nearly every aspect of life, commands dedication by all modern societies, and is touted as the defining intellectual quality of our species. As significant and pervasive as education may be, its frailty is remarkable. In the realm of education and schooling, the success of an individual student is neither implicit nor universal. For every student in every school there exist barriers to education: out-dated textbooks, poor nutrition, cognitive or physical exceptionalities, and financial problems are but a short list of the more predominant issues (Brock, 2010; Robles, 2009; Taras, 2005; Wirth & Padilla, 2008). There does exist, however, one barrier in particular which presents perhaps one of the most prevalent hindrances to a student’s education. This barrier involves safety, security, and freedom from fear. Without the basic needs of safety being met, it is nearly impossible for an individual student to grow, learn, socialize, and fully experience what education can provide.

Without safety, or by extension, the perception of safety, the social and cognitive development of students can be significantly inhibited. Unsurprisingly, this educational barrier can, and does, affect students from as early as kindergarten all the way through graduate studies (Boulton, Trueman, & Murray, 2008; Boulton et al., 2009; Lester, 2009). But to what extent does victimization and fear affect students? In his 2007 article, Nogura
reports that while 94% of students at small schools describe feeling safe, only 46% report similar perceptions at large schools. Furthermore, in his landmark study of school violence, Fitzpatrick (1999) notes that as much as 40% of youth violent crime and 60% of theft occurs in the immediate vicinity of school grounds. These findings are extended by a number of recent studies that have shown that students who experience victimization at school are more likely to report feelings of social isolation, depression, frustration, and decreased school attachment (Johnson, 2009; Wei & Williams, 2004). Clearly, both the perceived and actual safety of students, regardless of age or level of schooling, is a primary concern in our education system and should be addressed as such.

To highlight the importance of safety, and, thus, the basic social and physiological prerequisites for sustained learning and positive social interaction (i.e., the arguable sum of education), it behooves us to consult the work of developmental psychologist Abraham Maslow. Maslow’s hierarchy of needs represents the basic requirements of an individual for their positive growth and attainment of self-actualization (see Figure 1; Simons, Irwin, & Drinnien, 1987). As exemplified by Figure 1, safety needs are second only to those of basic physiological sustainment (i.e., food, water, homeostasis, and shelter). According to Maslow, the higher order needs (those towards the top) can only be sought and achieved after those below have been met (Simons et al., 1987). Thus, the freedom from violence and fear is among the most basic of requirements for personal growth, and equally so for education and student growth. Indeed, this work of developmental psychology is readily applied to the context of education and directly to the welfare and best interests of all
students. Sadly for some, however, their educational experience has been overshadowed by a deficit of personal safety and their potential within education has not been achieved.

In fact, decades of research into student victimization can be summarized by the findings of Fisher, Cullen, and Turner’s (2000) study: violent victimization has not been eliminated, it is still vastly underreported, and students’ fear of victimization is increasing. Nowhere is this more evident than the campuses of post-secondary institutions. This is emphasized by reports of violent incidents occurring on college and university campuses that, while troubling, are increasingly commonplace (The Associated Press, 2009; Hauser & O’Connor, 2007). The post-secondary campus, it would seem, is no longer the “ivory tower” it was once believed to have been (Fisher, Sloan, Cullen, & Lu, 1998). It would also appear that a large number of undergraduate and graduate students have had their social lives and educational future damaged due to fear of victimization. When students of any age feel unsafe, their education is restricted and limited (Fisher et al., 2000). It is, therefore, the aim of this paper to address the pervasive issue of school safety with regards to the understudied university campus.

Victimization and the fear of victimization are both equally intriguing social problems that require further study. This research paper aims to do precisely that by examining the perceptions of safety elicited by all members of a university campus community and adding to the growing body of literature concerning the nature and extent of perceptions of safety. Schools are important assets to the communities and students they serve, and, thus, should be characterized as safe public meeting spaces; unfortunately, this is frequently untrue.
Figure 1. Maslow’s Hierarchy of Needs. This pyramid illustrates the five interdependent gradations of psychological and physiological needs for the achievement of self-actualization. The designated title of each level appears inside the pyramid whereas the content of said level appears to the right. Adapted from Maslow’s Hierarchy of Needs as cited in Simons et al. (1987).
Antecedents of the Problem

Setting the Stage for Campus-Based Safety Research

Research into crime, fear, victimization, and the origins of these social ills has been ongoing since at least the mid 1960s. However, only recently have those particular lenses been applied to the college and university campus. The campus is certainly a unique setting in that it provides a large, inherently transient population of young people who are experiencing the thrills of life for the first time on their own. The attractiveness of such a group to motivated offenders—defined as an individual who commits criminal or delinquent acts due to their motivation of self-interest and the importance of their personal desires at the detriment of others—cannot be understated (Tewksbury & Mustaine, 2003).

Still, higher education offers unique opportunities and experiences that foster intellectual growth, a passion for knowledge, and positive social development. In light of this clear dichotomy, Danis (2006) issues a set of questions regarding the general campus setting: “Are university and college campuses sanctuaries wherein individuals are treated with respect and are safe to learn and create? Or are higher education campuses microcosms of the larger society in which respect and safety are not universally enjoyed?” (p. 30). The answers to these questions depend largely on the importance vested in either reported perceptions of safety or in reported crime statistics; the former representing a more holistic and qualitative approach, while the latter represents a decidedly mechanistic, quantitative approach. Even so, Fisher (1995) seemingly addresses the very questions posed by Danis in the opening lines of her treatise on campus safety:
The tranquil college campus, set aside for study and reflection, seems an unlikely place for fear and crime, especially violent victimization. For many years, the reality of campus crime was hidden, passed off as youthful pranks or idiosyncratic events. More recently, however, celebrated cases have drawn a spotlight to campuses and led the media to portray the ivory tower as a dangerous environment: professors slain at Stanford University and the University of Iowa; students murdered at several campuses, including serial killings at the Universities of Florida, Iowa, and Montreal; deaths from shootings; stranger and date rapes; aggravated assaults; and the like. (p. 86)

This is, rather surprisingly, a sentiment echoed by many authors and researchers over the last two decades (Carmen, Polk, Segal, & Bing, 2000; Ekblom, 1995; Jennings, Gover, & Pudrzynska, 2007; Kelly & Torres, 2006; Wilcox, Jordan, & Pritchard, 2007).

Fisher and Nasar (1992) were indeed correct that campus violence, in terms of both magnitude and viciousness, has been increasing. Jennings et al. (2007) note, “[A]s the media focused its attention on several violent crimes that occurred on campuses across the country during the 1980s, researchers took interest in studying campus crime” (p. 191). Likewise, the United States federal government took note as well. A particularly troubling incident involving the sexual assault and murder of Lehigh University student, Jeanne Clery, was the impetus for the most drastic and, thus far, lasting impact on campus security administration (Gregory & Janosik, 2006). With dedication from Clery’s parents, the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, otherwise known as the Clery Act, was passed as a U.S. federal statute in 1990. While unfortunate, the
numerous acts of campus-based violence in the 1980s, as well as those of the 1990s and 2000s, have solidified the grounds for current and future research into this unique, and sometimes disturbing, setting.

**Distinguishing Crime from Fear of Crime**

Crime, deviancy, and violence exemplify the most habitual of fixations exhibited by contemporary society (Duffy, Wake, Burrows, & Bremner, 2008). In truth, this obsession is far from a modern construct, yet its influence is still witnessed in virtually every aspect of life. Media portrayals of criminal events are altogether commonplace, and popular entertainment fixtures employ themes of brutality with abandon (Carmen, 2000; Jackson, 2009). Violence, it would seem, is an intrinsically interesting—yet equally undesirable—aspect of modern life. Noted criminologist, Mark Warr (2000), suggests:

> There is another, perhaps more crucial, reason that crimes generate such acute public interest. Criminal events, at their most elemental level, are frightening events. They are reminders to all that the world is not a safe place, that danger can strike at any time or location, and that life, in the end, is tenuous and precious. (p. 452)

As caustic as crime and violent victimization may be, the reality of criminal activity and rates of victimization are far more optimistic. Aggregate data from the FBI’s Uniform Crime Reporting (UCR) program is used to construct the annual *Crime in the United States* report which, when examined, illustrates a steady decline in violent crime—with minor aberrations—from the mid 1990s (Federal Bureau of Investigation [FBI], 2009). Related statistical research (Duffy, et al., 2008) also indicates a marked improvement in adult awareness of neighborhood criminal activity, a trend that shows no immediate sign of
regression. While these above statistics are indeed promising, the fear of crime has nevertheless increased in spite of these declining rates of violent crime (Fisher et al., 1999). The fear of crime, it seems, is more prevalent than crime itself. Fear of crime is, in fact, more pervasive than crime itself, and in many cases more damaging to the overall quality of life than the crime itself (Warr, 2000). He further argues that, “Fear of crime affects far more people in the United States than crime itself, and there are sound reasons for treating crime and fear of crime as distinct social problems” (Warr, 2000, p. 451).

The truth is that few among us sincerely contemplate our own personal safety on a regular basis. In general, these considerations are left to law enforcement, security personnel, or property owners. That is, until we are, for whatever reason, impelled to take personal safety considerations into our own hands (Kohm, 2008; Rountree & Land, 1996). Whether an elementary student frightened of bullying, a secondary school student afraid of being harassed because of his/her sexual orientation, or the post-secondary student afraid of being sexually assaulted on his/her way home from class, students at all levels of schooling can exhibit anxieties and worries about being victimized (Jackson, 2009).

The prevalence of physical, psychological, and sexual victimization is ubiquitous among post-secondary students throughout North America (Fisher et al., 1999; Jackson, 2009). Few individuals live without some memory of past victimization, but for some the scarring emotional trauma of the past controls and devastates their lives. Due to the now commonplace emotional, physical, psychological, and sexual crime, the places in which we should feel safe can rapidly devolve into prisons of fear. In fact, studies suggest that upwards of 40% of individuals feel unsafe and fearful when walking alone within one mile of
their own home (Fisher & Nasar, 1992). Reports increasingly show that people feel unsafe at work, where they shop, eat, go to school and live (Blöbaum & Hunecke, 2005; Fisher & Nasar, 1992). While common assumption leads many to believe that crime rates, in general, are decreasing, studies are illustrating that roughly three quarters of all public schools have serious violent incidents throughout the span of one school year (Heinen, Webb-Dempsey, Moore, McClellan, & Friebel, 2007). When people feel unsafe in familiar and traditionally friendly situations, there is undoubtedly a problem. Recent studies have illustrated a direct impact of fear on the quality of everyday life (Duffy et al., 2008). Considering the nature of this present research, it is imperative that a distinction be drawn between crime and fear of crime, or more accurately, perceptions of safety.

The Etiology of Fear

Considering the nature of this present research, the fear of victimization, or more accurately, anxiety in relation to perceived victimization requires discussion. Fear and anxiety are among the most basic of human emotions alongside that of love, hostility, disappointment, and happiness (Warr, 1987, 1990, 2000). Fear is a natural and familiar sensation to most people; it is also a sensation that most do not actively seek out, yet appreciate its implications when aroused. In fact, the evolutionary practicality of this ordinarily deleterious emotion is evidenced in our continued existence. Without fear, our safety would be guarded by little else than our logical reasoning abilities. In such a fictional world of fearlessness it would not be unimaginable to witness people walking across busy intersections without an awareness of traffic, rock climbing without harnesses, or dismissing other commonly-practiced, essential safety precautions. Warr (2000) offers
concurrence on this point, stating, “Fear, then, is not intrinsically bad. It is when our fear is out of proportion to objective risk that it becomes dysfunctional” (p. 455).

Irrational, chronic, and unfounded fears characterize a grouping of unhealthy anxieties, otherwise known as *fear of crime*, which can present a profound detriment to the overall quality of one’s life. When fear and anxiety alter our lives or shape our movements, it no doubt illustrates a problem that requires remediation. Yet, there is an undeniable paradox that must be addressed before the fear of crime and victimization can be directly attended to. While fear is natural and intrinsically important to human safety, some authors suggest that it is neither physiologically nor psychologically healthy to allow otherwise healthy fears to devolve into debilitating anxieties (Rountree & Land, 1996; Warr, 1990, 2000). This anxiety is characterized by the cognizant withdrawal from normal socialization, the limiting of public interaction to prescribed times of day (usually those with sunlit hours), and the adoption of the inherently stressful beliefs that they are under constant danger (Jackson, 2009; Krahé, 2005; Stanko, 1995). Similarly, it is also unhealthy to embrace a false sense of security or ignorance of places which may be potentially harmful. In such cases, individuals may adopt a belief that “it can’t happen to me” and engage in activities that promote anonymity and a decreased atmosphere of safety (Tewksbury & Mustaine, 2003; Tseng, Duane, & Hadipriono, 2004). Both extremes offer an unhealthy and inherently damaging option for dealing with daily fear probabilities.

**The Shift towards a Paradigm of Environmental Crime Prevention**

Edward Coke once wrote, “Precaution is better than cure” (as cited in Van Buren, 1939). If ever one statement was to embody the crime prevention movement, it would be
Coke’s assertion. It has been said that crime and victimization can, to a large extent, be designed out of particular built environments through the use of specifically-tailored architectural design techniques, in addition to more readily integrated surveillance systems and social deterents (Johnson, 2009). Fisher and Nasar (1992) put it simply, “In areas such as campuses, where fear and victimization are high, features of the exterior environment could either aggravate or lessen the problem” (p. 36). These design considerations are implemented in two distinct phases: at the initial planning/construction phase, or as part of a renovation/renewal plan for existing structures (Howard, 2010). There are, naturally, benefits and limitations to both. Investing in environmental crime prevention during the initial phases of planning ensures both cost savings and overall uniform design integration, but lacks focus in regards to any specific deterrent. This phase of design integration is ideal for new structures and additions, yet the most prominent areas in need of intervention are largely those that were built without any consideration of environmental crime prevention. Unfortunately, renovations of this nature are frequently prohibitively expensive.

Notwithstanding high implementation costs and tight timeframes, environmental crime prevention represents an intriguing and meaningful concept that offers hopeful optimism for the maintenance of personal safety.

Once little more than a criminological curiosity (see Warr & Stafford, 1983), the shift towards a paradigm of environmental crime prevention has become an international trend in recent decades. Similar in theme and tone to the violence prevention initiatives recently established by the Ontario Ministry of Education (2009), environmental crime prevention initiatives rely on the use of deterents to stop crime and victimization before they occur. In
fact, the unique nature of environmental crime prevention—using the building itself to help intercede and prevent victimization—has grown in popularity due in large part to its immediate and potentially long lasting returns. A number of general studies into environmental crime prevention have illustrated the highly-successful potential of these initiatives in abating anything from trespassing to physical and sexual assault (Brown, 2005; Eckblom, 1995; Karjane, Fisher, & Cullen, 2005). To illustrate this point more clearly, consider the following discussion regarding a variety of environmental crime prevention initiatives.

The general approach and distinct theoretical constructs (crime prevention through environmental design and the prospect-refuge model) examined within this research study have recently seen widespread application at the community and regional levels. Consider for a moment two instances that illuminate the nature of the environmental crime prevention paradigm shift.

The first involves a large high school, Turner-Fenton, in Southern Ontario. A short report published by Cst. Tom McKay of the Peel Regional Police (1996) illustrates the context nicely:

The meeting with Mr. Leverette [school principal] revealed the true extent of the trespass problem. On any given day, the school received between 20-25 trespassers, some travelling a distance of up to 25 kilometers to be with friends and acquaintances. While on school property, the trespassers would gather, loiter and frequently engage in criminal activity, including brandishing a handgun during the playing of a basketball game. This combined with the students' own incidents of
congestion, loitering and vandalism, and an ineffective response by school officials (limited to occasional challenges) resulted in the school developing an unsafe reputation. (p. 1)

Evidently, social deterrents and academic punishments were not adequate to deal with the delinquency issues faced by Turner-Fenton High School. Remediations and renovations were later completed by Turner-Fenton through the recommendations of the Peel Police; the parking lot was redesigned and rebuilt, exterior changes to lighting and visibility of the parking lot were made, and further aspects of school territoriality were established (i.e., improved signage, better upkeep and maintenance, and readily-enforced parking lot rule; Peel Regional Police, 1996). According to the report, the campus has since seen a 47% decrease in police intervention on campus, the students are more respectful of the parking lot areas, and the general climate has improved (Peel Regional Police, 1996).

The small-scale success of environmental crime prevention is evident, but even more interesting is the large-scale adoption of this practice by regional amalgamations. Perhaps the most indelible indication of widespread success of this paradigm is seen in the legal directives of municipal governments to formally sanction the use of environmental crime prevention initiatives as part of new building codes. A number of cities on both the eastern and western coasts of the United States have already drafted city ordinances to make environmental design considerations necessary for all new construction (Everett, 2009; Sarasota, 2000; SeaTac, 2009). Likewise, the Region of Peel has, since 1992, examined all new site plan applications from a Crime Prevention through Environmental Design (CPTED)
perspective and routinely hires consultants in this particular field for large urban developments (Peel CPTED Advisory Committee, 2002).

Certainly, there exists no shortage of suitable urban districts, readily identifiable places of work or leisure, and individual site locations that warrant in-depth research into the safety and perceptions of safety promoted by these unique environments. This current research will, nevertheless, examine one particular setting of intense interest: the college/university campus.

**Purpose of the Research**

The aim of this research is twofold: to apply key aspects of relevant environmental crime prevention theories to the evaluation of campus safety, and, to evaluate the efficacy and appropriateness of the chosen methodologies for examining perceptions of safety at post-secondary institutions. First, however, let us examine the fundamental motivation for this research study.

Twelve years ago, Fisher et al. (1998) provided a timely and still readily applicable, account regarding the state of campus safety research:

First, in some respects, the research into student victimization is still in the infancy stages of scholarly development and thus has many theoretical and empirical gaps. Very few, if any, broad-based studies of student victimization have been published in professional journals (for an exception, see Sloan et al., 1997). Much of the published research on student victimization, for example, has relied heavily on anecdotal evidence, on case studies, or on official crime statistics to describe the incidence and rates of on-campus crime. (p. 672)
Indeed, little is truly known about the nature, causes, and extent of campus and student-based crime; in fact, even less is known about student perceptions of safety and how those perceptions affect socialization, educational achievement, and overall quality of life (Fisher et al., 2000; Jackson, 2009; Jennings et al., 2007). It is, therefore, the principal goals of this study to address present gaps that exist within the literature, replicate the results established in previous student safety studies, and add to the literature on this subject.

**Research Questions**

This research was conducted to examine the relationship between proximate physical features and perceptions of safety in an educational facility. Further questions pertinent to this research study are outlined below.

1. **Is gender a significant variable in reference to personal perceptions of safety?**
   a. Which gender will exhibit the lowest perceptions of campus safety?
   b. Which gender will exhibit the greatest degree of anxiety/avoidance behaviour?

2. **Is age a significant variable in reference to personal perceptions of safety?**
   a. Which age grouping will exhibit the lowest perceptions of campus safety?
   b. Which age grouping will exhibit the greatest degree of anxiety/avoidance behaviour?

3. **Does prior victimization affect perceptions of safety on campus?**

4. **Do negative perceptions of safety produce avoidance behaviour?**

5. **Is the Extended Fear Index (EFI) a more accurate predictor of perceptions of safety than that of the Traditional Fear Index (TFI)?**
6. Is Pendleton University perceived as a safe place overall?

   a. Are there specific sites or features that diminish perceptions of safety and, if so, what are they?

Rationale for the Study

A university setting, regardless of campus affiliation, provides a unique opportunity to study perceptions of safety, victimization, and their interplay with the built environment. The relationship between perceptions of safety and the built environment has been widely studied over past decades. However, limited focus has been applied to the university setting (Loewen et al., 1993). Campuses display a number of characteristics that make them attractive targets for potential offenders; in essence, there is a relationship between the organization and use of the environment and the opportunity for victimization (Fisher & Nasar, 1992; Loewen, Steel & Suefeld, 1993). This freedom of offender opportunity is delineated further by Buhi, Clayton, and Surrency (2009) who argue that victimization predominantly occurs in the presence of motivated offenders, in conjunction with suitable targets, anonymity, and a lack of guardianship. Thus post-secondary institutions present an ideal location for the study of victimization and perceptions of safety due to their small, densely-populated geographic areas, in addition to excessive offender opportunity. Furthermore, the transient nature of students, as well as their lack of defendable space and personal capital, makes for attractive targets (Brown & Altman, 1983). Campuses also tend to have easy access, free movement at all hours, and a high degree of student diversity; all of which lead to offender anonymity and a continued lack of guardianship (Boulton et al.,
As discussed in depth by Fisher et al. (1998), the body of literature in this particular field is still relatively small.

While there exists only a limited body of literature specifically devoted to perceptions of safety on campuses, one can conclude from what research has been conducted that perceptions of safety are a predominant concern of many individuals, student and otherwise, who are to be found on university campuses (Nasar & Fisher, 1991; Nasar & Jones, 1997; Petherick, 2000). Some authors suggest that there is a direct relationship between perceptions of safety, victimization, and the built environment (Jennings et al., 2007; Fisher & Nasar, 1992; Nasar & Fisher, 1993). In essence, these authors suggest that the built environment (anything from colour scheme to interior layout) can be altered to “design out crime and fear” and to alleviate or at least mitigate criminal activity or persistent feelings of fear (McKay, 2004a). Design features of the built environment and alteration of the physical landscape have been shown to provide a less fearful experience for individuals in strictly controlled research settings (Johnson, 2009). However, many of the older environmental design studies evaluated large-scale settings and, thus, neglected the importance of site-specific variables (micro-cues). Because fear and crime are unevenly distributed both spatially and temporally, it is imperative that individual and site-specific analyses be concluded for any areas in question: universities, hospitals, office buildings, inner city housing projects, and so forth. This research study will attempt to perform a site-specific analysis of the Pendleton University campus by using one of the first multifaceted analyses within this area of educational environmental design research.
The study will provide a practical and theoretical analysis of Pendleton University’s built and social environments; the relation between perceptions of safety in an educational environment and the built environment itself. More specifically, it will examine the relationship between perceptions of safety, avoidance behaviour, social factors, and environmental design features (Petherick, 2000). It is hypothesized that an uneven distribution of perceptions of safety will exist between males and females; with females exhibiting a higher degree of anxiety and lower perception of perceived safety. Day (1994) notes that, “In research on fear of crime on campus, gender was highly correlated with fear, with women being significantly more fearful of crime than men” (p. 752). This pronounced fear exhibited by females has also been established elsewhere (see Danis, 2010; Fisher & Nasar, 1992; Fletcher & Bryden, 2009; Petherick, 2000). It is furthermore hypothesized that older individuals—those aged 40 and above—will report lower levels of perceived safety than those of younger age groups. In reference to this particular subject, Warr (1984) explains: “As with sex differences, age differences in sensitivity to risk appear to reflect the greater generality of fear among older individuals, as well as age-related differences in the perceived seriousness of offences” (p. 700).

Additionally, it is hypothesized that participants who report having been a witness to, or victim of, violent crime will exhibit lower perceptions of safety and decreased satisfaction with security services than those who do not have experience with violent crime. Fisher et al. (2000) provides a noteworthy examination of campus-based sexual assault in the United States that supports this particular hypothesis. It is also hypothesized that areas perceived as less safe will be avoided to a greater degree, illustrating avoidance behaviour—this
statement is reinforced by the work findings of Fisher and Nasar (1992), and Petherick
(2000). Last, it is hypothesized that areas exhibiting high levels of prospect and low levels of
refuge (as derived from a “Fear Index” to be discussed later) will exhibit high levels of
safety; and, areas exhibiting low levels of prospect and high levels of refuge will exhibit low
levels of safety as will be discussed in the following chapter through the work of Fisher and
Nasar (1992). From this study, it may be gathered that both victimization and perceptions
of safety are strongly dependent on the built environment. The research will investigate
whether or not the proper design, upkeep, and usage of space can mitigate victimization
and justify perceptions of safety.

Definition of Terms

Too often central concepts are inadequately defined within the locus of educational
literature when related to environmental design (Brower, Dockett & Taylor, 1983; Sloan,
1994; Starkweather, 2007). This may lead to mechanistic and limited approaches to the
study of victimization and perceptions of safety among student populations. According to
Pain (1997), the narrow scope of most environmental design literature is limited only to the
physical world through definition and disregards all psychological and social factors. While
pertinent to particular areas of research, such as the design of correctional institutions
(Goldman, LeFrancois, & Getty, 2004), a working definition that discounts the complexities
of human perception is ultimately misleading in an educational context. While operational
definitions of the following terms exist within other bodies of literature, the approach used
elsewhere is mechanistic and decidedly clinical (e.g., Siegel & Raymond, 1992). Thus, for the
purposes of this research, the following definitions will be considered: fear, built
environment, micro-cues, the prospect-refuge model, and traffic.

**Fear**

Henceforth, *fear*, or more specifically *anxiety dependent upon perceptions of* *victimization*, will be defined as: a negative concern or anxiety aroused by the perception of impending pain, danger, or victimization. For example, a student who embodies the belief that he/she will possibly be attacked while walking to his/her car thus has a fear of that particular situation and perhaps of the general location in which the situation might occur.

**Built Environment**

The term *built environment* is adequately defined as: any manmade structure that humans live in, around, or interact with, including the purposeful layout and upkeep of natural features such as bodies of water and foliage. This study will not discuss or delineate the fundamental subgroups of environmental design, such as vernacular architecture or city planning, since it is beyond the scope of this researcher to investigate those dimensions in relation to an educational setting. Considering the geographically small area in which this study was completed, the Pendleton University campus, it is imperative to elucidate the individual variables that each site affords.

**Micro-Cues**

The site-specific variables and characteristics, such as type, amount, and layout of foliage, and the presence of particular building features, such as alcoves, points of entrance/exit, and lighting, will constitute what will be known as *micro-cues*. For instance, a typical classroom may possess excellent lighting, two entrances/exits, central student
seating, a lecture platform or area, and a number of large windows open to the interior school corridors and the building exterior. Individually, these features illustrate micro-cues; through their confluence, however, these characteristics exhibit larger environmental preference paradigms known as prospect, refuge, and escape.

**Prospect-Refuge Model**

Lastly, a concrete and modern definition for the aspects of the prospect-refuge model is essential to understanding this research study. The three key variables in this model are prospect, refuge, and escape. Prospect represents the degree of open view afforded by an unobstructed line of sight (Stamps, 2008a). For instance, a high degree of prospect is illustrated by an open field in broad daylight; exhibiting a situation where the viewer can clearly see anything within their immediate vicinity. Situations exhibiting low prospect are those where visibility is low, perhaps due to poor design or obstacles, so that the viewer cannot survey their immediate area, such as alley-ways or an unlit corridor. Refuge represents the degree in which an individual can remain unseen in an environment due to proximate micro-cues; note that refuge can be utilized by both offender and victim (Stamps, 2008a). For example, small waist-high bushes along a demarcated walkway can provide a high level of refuge for an offender waiting for a potential victim, since the bush conceals the offender entirely, yet allows him/her to readily view the nearby vicinity without being seen. Last, escape represents the possibility and ease of fleeing or avoiding a motivated offender if the victim were to perceive harm (Stamps, 2008a). This variable is dependent on the perception of escape and the navigation of terrain or obstacles, and is not dependent on physical ability.
Traffic

Traffic is defined as foot traffic (i.e., amount of use by pedestrians), as opposed to vehicular traffic. This term is used solely in regards to the Extended Fear Index (EFI) which employs prospect, refuge, escape, and traffic, as opposed to the Traditional Fear Index (TFI) which employs only the variables of prospect, refuge, and escape.

Theoretical Perspective

This proposed research is being addressed under a critical reconceptualist perspective. The unilateral focus of this area of study is being shed for a more encompassing, albeit experimental, approach using the field of education as a foundation, rather than criminology. This vein of research is, in essence, being reconceptualised as an extended area of education research. Historically, school safety research has been preoccupied with individual aspects of deviancy (e.g., bullying) and remediations thereof—what this research will attempt to do is address school safety, but through an examination of one aspect of the proximate causes of school violence.

The researcher considers there to be substantial issues with the manner in which our elementary, secondary, and postsecondary institutions are built and maintained. In many instances the deviancy and crime that occurs within and surrounding these sites cannot be controlled or mitigated by current social reinforcements. Because of this, police or zero-tolerance policies are instituted under the guise of student safety. What they create is an atmosphere of oppression and distrust. There are additional ways in which the problems of student safety can be addressed, for example through environmental design. Studies have
shown when buildings are properly built, it is possible to create an open, communal-style atmosphere where people help to police themselves (Jacobs, 1961).

This proposed research also utilizes a mixed-methods approach, more specifically an embedded approach that places greater importance on the collected quantitative data. While both CPTED and the prospect-refuge model will be discussed, the methodology of this paper follows the theoretical perspective of the prospect-refuge model rather than CPTED. The similarities and differences will be discussed in detail below.
CHAPTER TWO: REVIEW OF THE LITERATURE

In order to craft a scientific and panoptic study of environmental design and its relation to perceptions of safety, it is important to shed the more antiquated notions of unilateral research within this field. A multifaceted approach to the study of environmental design and fear is paramount if we wish to surpass the limited, albeit groundbreaking, school safety research of recent decades (Fisher et al., 1998). Thus any new study aimed at examining the relationship between the built environment and perceptions of safety must be as inclusive of other literature as possible. However, there is a lack of academic cohesion within this field, and multifactor explanations are relatively rare. Proponents of the prospect-refuge model assert that prospect, refuge, and escape are key to environmental design, yet they neglect the impact of lighting, familiarity, and defensible space. In contrast, proponents of CPTED emphasize the contextual interpretation of environments, defensible space, natural surveillance, and natural access control, yet are unable to deal with ambiguous or multipurpose environments or the criminal behaviour that exists as a result of their misuse. Consequently, no consensus exists within the literature regarding methodological approaches or conclusions. For that reason, this literature review will illustrate the benefits and inclusiveness of a multifactor approach, encompassing major facets of Fisher and Nasar’s (1992) prospect-refuge model, CPTED theory, and a variety of social causes and restraints related to perceptions of safety.

Inception of Environmental Safety Research

The relationship between safety and the built environment has been rather scarcely researched over the decades since its theoretical inception, yet the contributions of these
research studies are highly valuable. Pioneers in this field, such as Jane Jacobs (1961), Oscar Newman (1972), and Jay Appleton (1996), originally published in 1975, were among the first to suggest that the built environment can exhibit cues, such as architectural design and upkeep, which humans may interpret as either safe or dangerous. In her seminal work on urban planning, Jacobs (1961) states:

The first thing to understand is that the public peace—the sidewalk and street peace—of cities is not kept primarily by the police, necessary as the police are. It is kept by an intricate, almost unconscious, network of voluntary controls and standards among the people themselves, and enforced by the people themselves. (pp. 31-32)

To these early authors, the seemingly fundamental relationship between human experience and the built environment had enormous impacts on the social makeup of a community. As later suggested by Newman (1996), the built environment would intrinsically become the harbinger of safety and progressive social change. Studies and monographs produced by these authors completely altered the course of urban and suburban planning, and still very much affect academic studies today (Alfonzo, 2005; Nasar & Jones, 1997; Tseng et al., 2004). Nevertheless, their study areas were large, encompassing block and neighborhood analysis. As a result, these early studies provided little information on the site-specific variables and proximate environmental cues that disrupt perceptions of safety. Not until Jay Appleton’s (1996) interpretation of environmental preference were micro-cues studied more rigorously.

Appleton’s (1975) text, which draws from the notion of environmental preference, was the foundation and establishment of the prospect-refuge theory. In The Experience of
*Landcape*, Appleton (1975) lucidly illustrates the biological desire to “see without being seen” when confronted with a survival situation (for further reference see Kaplan, 1987). According to his thesis, prospect and refuge offer an environmental advantage, and, thus, an improved chance of survival for those who can harness their surroundings. Using text from Lorenz, Appleton (1996) suggests that “before we leave our cover, to gain from it the advantage which it can offer alike to hunter and hunted—namely to see without being seen” (p. 66). He extends this argument by providing the example of the Tlingit Indians, the Washo hunters, and further aboriginal tribes who use their environment and wait until their prey is close enough so that inaccuracy is of little consequence (Appleton, 1975). It is from this “primal” nature that Appleton suggests prospect and refuge were the key determinants to both hunting and survival.

Appleton (1975) further argued that the nature of prospect and refuge was so fundamental to human psychology that judgments of site characteristics could be accurately made within seconds of visually scanning an area. Interestingly, these site judgments could also be accrued by visually interpreting a painting or photograph of a given area while maintaining roughly the same conclusions (Appleton, 1975). It was suggested that this speed and accuracy, especially without visiting an area, could only occur if specialized functions had been developed through human evolution. Recent neurophysiological studies have further supported Appleton’s claims. According to Stamps (2005, 2008a, 2008b), there is a region of the human brain that responds directly to images of enclosure. The existence of a linked physiological response suggests that this is a highly evolved and specialized function of human physiology and psychology. In fact, few other
environmental features have ever been conclusively related to brain functions to the same
were the next researchers to grapple with the prospect-refuge theory, and the first to test
its applicability to crime prevention and environmental design.

**Adaptation and Augmentation of Traditional Safety Research**

The foundational work of Fisher and Nasar (1992) has for the last nearly two decades
proved to be one of the most influential for the study of environmental design. Their
seminal 1992 study furthered the concept of prospect-refuge from a mostly abstract and
theoretical definition, to an innovative and practical framework. The augmentation was
twofold. First, this new model augmented the definitions of key variables: prospect (open
view), refuge (area for an offender to hide), and escape (the ease of fleeing from an
prospect and refuge were places that offered environmental advantage to both offenders
and victims (Fisher & Nasar, 1992). Through Fisher and Nasar’s work, refuge was no longer
defined as an ambiguous facet of one’s surroundings, but rather, clearly defined as a
negative aspect of its built environment. Furthermore, the term “escape” was incorporated
because of the positive influence, and the empowering characteristics it engendered in the
emotions of potential victims. Ultimately, all three variables exhibit profound alterations of
perceived safety in almost any situation; and appear to be of relatively equal influence. In
discussing the overall relevance of their work, Fisher and Nasar (1992) provided this
exposition:
In sum, prospect, refuge, and escape are relevant constructs in relation to fear of crime. They can relate to fears, crime incidents, and, as research has shown, in the case of prospect, to school vandalism. We expected these effects to generalize to fear of crime among passersby in outdoor campus settings. It was our hypothesis that perceived safety would improve with increases in prospect and escape for the victim and decreases in refuge for the offender. (p. 41)

The highlights and uses of their work must now be discussed.

**Establishing a Concerted Methodological Approach**

Besides a change of definitions and an alteration of theory from Appleton’s (1996) work, Fisher and Nasar’s 1992 study contributed to the literature by providing a widely applicable methodological approach that has since been adopted by a number of additional researchers (Loewen et al., 1993; Petherick, 2000). Due to the difficulty in objectively studying human interactions with their environment, Fisher and Nasar relied almost exclusively on pencil and paper survey data derived from 166 students across the Ohio State University campus, which has an approximate student population of 60,000 (1992, p. 49). Their questionnaire and related methodology represented high academic clarity and substance. Utilizing a 1-7 Likert scale and a generalized set of questions, their study and research methods have proven to be universally applicable; unlike many other data collection methods within this particular field (McKay, 2004a; 2004b). The universality of their methods aside, it is my belief that there were a number of areas that their initial study failed to address, thus prompting the design of this current study.
Although influential, Fisher and Nasar’s (1992) study had clearly neglected a number of variables. For example, at the time of publication they did not have the opportunity to include the results of numerous studies that have focused on other micro-cues by authors such as Herzog and Miller (1998), Brantingham and Brantingham (1993), and Stamps (2005). As a result, their study neglects the impact of other physical cues such as lighting, legibility, and visual/locomotor access. Moreover, there is a neglect of nonphysical factors as well including, knowledge, both specific (known crimes that occurred in that area) and general (perception that given areas such as corridors are unsafe), expertise (safety experts); and, personality of the individual (Herzog & Miller, 1998). As is the nature of this research, it can be argued that their work and any focus on the built environment as predictors of behavior, is highly deterministic and too greatly neglects nonphysical factors. However, the role and execution of both this current paper and Fisher and Nasar’s (1992) work is not aimed at environmental determinism; rather, the function and extent of the relationship between the built environment and human social behaviour—the sociospatial dialectic. In addition, their 1993 study involved the observation of movement patterns around their research site during the day and at night. To obtain this data, the researchers observed pedestrian activity using empirical methods and gathered data on group size, gender makeup, and direction of travel (Fisher & Nasar, 1992). Nevertheless, this method has proven to be very suspect in acquiring data on the natural behavior of human movement. Considering that the researchers were observing the patterns of human movement, their presence in the area may have been enough to significantly change the behavioral patterns of those being observed and, therefore, negatively impact the accuracy
of their results. Due to this inherent problem, the present study has chosen to forego the
direct observation of avoidance behavior, as utilized by previous authors, and rather rely on
additional survey questions as illustrated by Petherick’s (2000) study.

Recent Iterations and Application to Educational Settings

Illustrating the impact and widespread applicability of Fisher and Nasar’s (1992)
thories, the (2000) study by Petherick was a direct extension and synthesis of previous
work. Assuming an almost identical methodological approach to that of Fisher and Nasar,
Petherick provides current researchers with a succinct study that offers a refinement of
Fisher and Nasar’s (1992) hypotheses and methodology. Conducting his study at the
University College of Cariboo in Kamloops, British Columbia, Petherick’s study included 167
students drawn from a campus student population of approximately 8,300. Similar to the
methods established by Fisher and Nasar (1992), Petherick’s data collection was also
conducted on-site using traditional pencil and paper survey methods. As mentioned above,
Petherick’s study modifies Fisher and Nasar’s initial study by including direct questions
about avoidance techniques. Furthermore, Petherick suggests a refinement of the Fear
Index as used in previous literature (Fisher & Nasar, 1992; Nasar & Jones, 1997). Instead of
using the averages of each variable (prospect, refuge, and escape) to investigate the link
between site characteristics and fear, he proposes a simplistic ranking system that can be
correlated much more quickly and easily. This current study uses the newly-devised Fear
Index ranking system.

Drawing upon their methods, study area, and hypothetical model, this present
research study has been modeled extensively from the works of Fisher and Nasar (1992),
Nasar and Jones (1997), and Petherick (2000). For example, since statistical data on fear, especially at the micro level, cannot be attained from census data, their use of a questionnaire and site analysis has been adopted for this paper. Furthermore, the use of a university setting by the authors listed above was intriguing for the unique physical and nonphysical aspects of campus life. As mentioned before, little research had been conducted on the university setting, and no published research had been conducted on geographically and demographically small universities. Therefore, this study has also featured the university setting, but involves a significantly smaller campus than those researched by Fisher and Nasar (1992) and Petherick (2000). Lastly, this study prominently uses Fisher and Nasar’s prospect-refuge model as a key determinant of fear on a micro level.

**The “Other” Environmental Safety Measure: CPTED**

As outlined above, there currently exist two important schools of thought regarding environmental design and the geography of fear. This literature review has discussed only the position and methodology of prospect-refuge theorists. The second school of thought, characterized by CPTED, contributes a significantly different, yet equally pertinent, framework to this dialogue. Although characterized by similar study areas, methodologies, and conclusions, both schools are drastically different. In many ways CPTED is a more nuanced, yet convoluted, synthesis of architectural and behavioral theories than is apparent in the prospect-refuge model. Many CPTED theorists discuss environmental characteristics and methodological concerns that have until recently been overlooked by prospect-refuge theorists. It does, however, lack the ability to deal with many socialized
aspects of the built environment at which other models excel; such as ambiguous design within site usage (Lab, 1992; Herzog & Gale, 1996; Herzog & Flynn-Smith, 2001). Take, for instance, the exposition of Tom McKay (2004a) on CPTED limitations:

Potentially, one of CPTED’s greatest limitations is its inability to adapt to behavioural change. . . . This has two major lessons for CPTED. The first is that human behaviour is not static, it is forever evolving. The second is that human behaviour drives physical design which in turn can reinforce desired human behaviour. Any lesser perspective may fail to adapt to change or result in limited success. This has major implications given a society where the respect for property and property rights is losing its traditional influence. (pp. 1-2)

A brief discussion of CPTED studies will now follow.

Although not explicitly stated, CPTED can be seen as an alternative to social methods of deterring crime. Initially defined rather rigidly and environmentally deterministic, Newman’s (1972) introduction of crime prevention methods in Defensible Space: Crime Prevention through Urban Design, established a long tradition in environmental design literature for crime prevention. Essentially, through the creation of defensible space, by altering the environment to reflect specifically private and demarcated property, one could exhibit a greater sense of place and, in turn, feel safer and also add deterrents to potential offenders (Newman, 1972). This approach is different from prospect-refuge primarily because it offers an examination of indoor environments, and an altogether greater detail of examination (Schneider, 2008, 2009). Illustrated by Clarke (1989), CPTED works as a
situational prevention, unlike the prospect-refuge model with its widely-applicable findings but lack of real crime prevention results.

The CPTED method of prevention is defined within opportunity theory in the following way: Through the installation of deterrents and the alteration of the environment, the opportunity for crime is greatly decreased because it then takes much longer for offenders to commit their desired crime (Clarke, 1989). In effect, if the opportunity for crime is diminished the fear will, in turn, subside. However, this raises yet another problem, that of criminal displacement. Some studies have suggested that after remediations are complete on a specific area, the crime that used to occur in that area will simply move to another area with easier opportunities (Clarke, 1989; McKay, 2003, 2004a). This current study will not take criminal displacement into consideration. Because of the long-term analysis that would have to occur, building improvements and their effects on crime would have to be evaluated over a period of at least 2 school years. This does, however, illustrate the need for CPTED as fundamental to the multifaceted nature of this paper. Since CPTED analysis is a long-term and complicated procedure, the prospect-refuge model of survey is ideal for the initial analysis of locations and perceptions of fear and crime. CPTED then illustrates an ideal tool for assessing more long-term findings and thereby offering further suggestions for change (Crowe, 2000). The majority of literature within this field is focused on environmental design and its impact on social behaviour and perceptions of safety, yet many subgroups of this literature are of extreme importance for the remainder of this study. First, neither CPTED nor prospect-refuge offer an adequate explanation for women’s fear of violent crime.
Gender and Campus Safety

Besides the core discussion of this literature review—the evaluation of prominent environmental design theories—the issue of gender must also be considered. When researching and investigating the perceptions of safety on higher education campuses, the issue of gender is rarely overlooked. Both crime and fear are unevenly distributed throughout time and space—a point addressed by all researchers examining the perception of safety issue. Nevertheless, many of the models and hypotheses discussed within this field fail to address the uneven distribution of perceptions of safety between genders. As established previously, it is a key question of this study to see which gender group elicits greater or lesser perceptions of safety, and avoidance behaviour. Historically, significant differences between males and females have been viewed in relation to fear, victimization, perceptions of safety, and avoidance behaviour with the majority of research depicting women as victims and males as offenders (Day, 1994; Fisher & Sloan, 2003; Hall, 2004; Stanko, 1995; Warr, 1984). In her influential piece on gendered safety, Starkweather (2007) challenges the antiquated and overly simplistic notions of the dichotomy of “fearful women and fearless men” by making note,

This article [in reference to the article she was writing] is an attempt to think through a well-worn, familiar question that lies at the core of much feminist geographic work: how can we foster a useful and responsible discussion of gender differences by negotiating a position somewhere between rejection and reification? This is a question that cannot be answered definitively; instead, we must keep returning to it,
picking at it, cycling back, trying to approach it from new directions. Above all, we
must continually work through its implications for our research. (p. 355)

This research study will, therefore, attempt to forgo the establishment of any gendered or
sexist presuppositions about perceptions of safety among the Pendleton University campus
community.

Researchers are, however, presented with a plethora of gender-based research that
reinforces the admittedly stereotypical gender roles (Carr, 2005; Hall, 2004; Kelly & Torres,
2006; Sable, Danis, Mauzy, & Gallagher, 2006; Stanko, 1995; Warr, 1984). This branch of
research is certainly widespread and informative, but a majority of these studies focus on
social and societal causes for women’s lack of perceived safety, and neglect the
environmental causes (Gardner, 1990). First, one must point out the seriousness of the
current topic. From a generalized male view, crime is unfortunate but not seen as a serious
daily threat. Studies report that a majority of women do not feel as ambivalent towards
crime (Fisher & Cullen, 2000; Fisher & Sloan, 2003; Kelly & Torres, 2006; Krahé, 2005; Pain,
1997; Warr, 1990). According to findings reported by Warr (1985), women equate the
seriousness of rape to the seriousness of murder. For women under the age of 35, sexual
assault is the most feared of any crime (Warr, 1985). In fact, the stigma and perceived social
repercussions surrounding these terrible incidents (which occur more predominantly on
post-secondary campuses than anywhere else) is illustrated by Fisher, Cullen, and Turner’s
(2000) national analysis of women’s campus safety. A number of important findings are
presented that mirror those above, but of interest here is the finding that fewer than 5% of
sexual assault incidents that occur on campus are reported to police or campus officials
(Fisher et al., 2000, p. 23). Clearly a significant social problem exists that has yet to be adequately addressed. This point is no more eloquently stated than by Hutchings (1994):

> [T]he real issue is that people perceive themselves to be at risk in particular environments at specific times of the day. The fact remains that whether a fear is justified or not, to a vulnerable person the threat is as frightening as the crime itself.

(p. 33)

It has been suggested that gender is the strongest determinant of negative perceptions of safety, but how can this be adequately addressed? As discussed in the introduction, the most telling way to see if fear is affecting a certain group is to see if their mobility is being restricted or altered. Keane (1998) provides an astonishing discussion on the influence of fear as a restrictor of women’s routine activities and general mobility. In his discussion, he presents the restriction to mobility as a strong example of fear, such as avoiding dark areas or avoiding areas that look unsafe. But these avoidance techniques not only affect the immediate behaviour of women, but can affect further areas of life, leaving some women feeling a sense of victimization or sexual and general insecurity throughout their lives (Keane, 1998). This study will, therefore, be fundamentally inclusive of the literature and notions set forth by women’s fear of crime. With the continued outcry against violent crime on campuses and the rising fear of sexual assaults, it is imperative that this study addresses the growing, yet wholly alterable, fear of violent crime.

**Issues and Concerns Illustrated by the Literature**

So far, this literature review may present the notion that few significant problems exist within this field of study. The truth, however, is not so. One persistently critiqued facet
of this research is the subjective nature and qualitative assessment of the data. Although not completely resolved, this issue has been addressed to varying degrees of success by researchers employing computerized methods of environmental preference research. One such researcher, Arthur Stamps, stands at the forefront of research for this field. With a strictly-controlled set of photos and diagrams from computer generated programs, the methodology at first seems ideal (Stamps, 2004; 2005a; 2005b). The images presented to respondents can be altered very easily for a number of variables such as area enclosure, and height of that enclosure, as well as visual permeability of the enclosure (see Appendix A). Benefiting from a highly-controllable set of variables, Stamps (2005a, 2005b) work has illustrated a significant link between physiological brain response and visual permeability of enclosures and environmental preference. However, his research arguably suffers from the serious limitation of possible simulation effects. Essentially, the results are invalidated because of the altered state of perception a person is in while they are administered this simulated world (Stamps, 2005a). A static simulated field of view encompassing only 74° is simulated for Stamps’ research, while a realistic 180° view aided by head and body movement was not incorporated. It is my opinion that this lack of realism regarding the field of view presents serious limitations. He does, however, suggest that static images present similar findings to on-site evaluations, but neglects to illustrate how his admittedly unrealistic images would hold up to on-site analysis. This review must now discuss the design choice for a number of the questions included in this study’s research survey.

It was important to model this study’s questionnaire after the widely-established model suggested by Fisher and Nasar (1992). But, it was also important to investigate a
number of factors that previous prospect-refuge research had neglected. Take, for instance, the victimization model. The victimization model is the first step to understanding the social causes of fear of crime. According to Rohe and Burby (1988), the victimization model investigates direct and vicarious victimization in the onset of fear. It is suggested that those individuals who have experienced victimization in the past, whether it be physical or property, will be more fearful than those who have not experienced victimization. Similar to other veins of study within this research, conflicting results have found that no causal link exists between the incidence of victimization and perceptions of fear. A number of these studies may be wrongly justified, however. According to Rohe (1988), many of the studies that did not conclude a positive link between victimization and fear were too simplistic and focused too heavily on low-income populations where prior victimization may not have been a powerful predictor.

From this brief review of the research literature that is integral to the current study, we can draw one predominant conclusion: a multifaceted analysis is paramount to the investigation and understanding of the relationships between crime, perceptions of safety, and the built environment. Indeed, many studies have attempted a comprehensive approach to this field, none have as yet attained a truly holistic methodology as yet. Establishing the groundwork for a given subject is vital, but often necessarily one-sided. There is, however, no excuse for masking this field of research as definitive and multifaceted. For the continued evolution of this branch of study, researchers and students must attempt to be highly objective in data collection, and holistic in its interpretation. Although this paper cannot, because of its limitations, justly construct such a grand
synthesis of environmental design theory, it is however a further role of this paper to illustrate the possibility of such research and offer suggestions on how this may be attainable. As evidenced by this literature review, there is presently no consensus as to what variables or hypotheses relate best to the study of perceptions of safety or environmental design, particularly in the context of educational settings. As a result, this report aims to use one of the first multifactor models introduced within this field in an attempt to bridge the academic gap between the two camps of CPTED and prospect-refuge. Both sets of theories are highly complementary to one another. Where the prospect-refuge model allows for a simple, yet effective, analysis of perceptions of safety and the built environment, CPTED offers an added degree of clarity and inclusiveness to the discussion, conclusions, and any recommendations of the analysis.
CHAPTER THREE: METHODS AND MATERIALS

If there were to exist one failing of crime prevention research, it would be the lack of any common methodology, as first illustrated by Fisher et al. (1998; see also Siegel & Raymond, 1992). The splintered and divergent camps that currently predominate within this field exhibit a curious tendency to disregard and dismiss commonly-used methods and materials employed by contrasting groups. For instance, adherents of the prospect-refuge model tend to use mixed-methods designs, incorporating quantitative-based questionnaires and a qualitative interview process (Fisher & Nasar, 1992, 1995; Fisher & Sloan, 2003; Nasar & Fisher, 1993; Nasar & Jones, 1997; Pain, 1997; Petherick, 2000). Advocates of CPTED, on the other hand, rely almost solely on secondary quantitative criminological data retrieved by law enforcement agencies (Atlas, 2008; Crowe, 2000; McKay, 2004a; Newman, 1996). In a sense, CPTED addresses the more pragmatic side of crime prevention research, where prospect-refuge addresses the theoretical—they can indeed be considered as opposite sides of the same coin.

When considering the multidisciplinary focus of this research, bridging the academic gap between the fields of education, social geography, and environmental criminology, it is imperative to identify and adhere to methods established in previous research. While this study has attempted to consult both major bodies of work, the methodology employed is primarily an extension of the research by Fisher and Nasar (1992), Nasar and Fisher (1993), and Petherick (2000). Accordingly, the methodology of this research study most accurately reflects the methods established in the prospect-refuge literature.
Research Design

This research utilized a subtype of the mixed-methods approach known as an embedded design. While quantitative and qualitative data were both collected, the qualitative data (as illustrated by open-ended survey questions and interviews) played more of a supportive role in this research, augmenting and expanding upon the collected quantitative data (Creswell, 2008). As a result, greater emphasis and significance was placed on the analysis of quantitative data.

A mixed-methods design was chosen for this research, in essence, because the use of both quantitative and qualitative data, in combination, would provide a better understanding and more detailed analysis of the research questions (Creswell, 2008). The collection of quantitative data for this research study was necessary for three primary reasons: first, the large sample size anticipated; second, the desire to investigate large and small-scale trends; and third, the necessity of certain statistical analyses to be completed for answer to the research questions. Qualitative data was collected primarily to allow participants to provide their own explanations to questions that could not have been included in a simple quantitative data collection tool, and to more deeply understand the participant’s experiences and points of view.

Data acquisition took place in two independent phases: creation and distribution of the primary instrument (electronic questionnaire) and, subsequent interviews which were conducted with those who identified interest in providing additional information. The electronic questionnaire was distributed to all student, staff, and faculty members of Pendleton University (pseudonym used) in early April 2010 through the university email
system. The interview participants were recruited through a self-selection process as indicated in the final question of the survey. Due to the sensitive nature of the interview questions, interviews were conducted by telephone and email communication from April to June 2010.

The proceeding sections of this chapter will identify and discuss the population, research setting, and individual site selections used for this research. Additionally, the rationale and creation of the Fear Index, primary data collection instrument, and interview process will be discussed in detail.

**Ethical Considerations**

As per regular university protocol, it was necessary to apply for ethics approval from the host university before conducting any research. In addition, participant confidentiality was assured by the distribution of individualized numbers provided to each unique respondent. No compensation was imparted to any participant. This study was granted ethics approval from the Pendleton University Research Ethics Board in February of 2010. A number of subsequent modifications were made to various aspects of this study and approved before research commenced (see Appendix B). For example, modifications included the addition of branching survey questions and ensuring institutional anonymity.

**Population and Sample**

The survey sample included 314 full-time equivalent (FTE) students, staff, and faculty members of Pendleton University (male \(N = 58\), female \(N = 255\), and other \(N = 1\)). Due to the design of the research instrument, a clear delineation between student, staff, and faculty populations could not be determined. The participant age distribution was, 19 and
under (19%) \[ N = 58 \], 20 to 29 (62%) \[ N = 196 \], 30 to 39 (6%) \[ N = 18 \], 40 to 49 (7%) \[ N = 22 \], and 50 and above (6%) \[ N = 20 \] (see Table 1). Previous studies examining levels of safety have been conducted on the campuses of many sizable educational institutions whose student populations alone are in excess of 15,000 FTE members on average (Fisher & Nasar, 1992; Fletcher & Bryden, 2009; Morrison, 2005; Tseng et al., 2004). In contrast, Pendleton University maintains a total population range of between 4,000 and 5,000 FTE students, staff, and faculty members (Council of Ontario Universities, 2010). Only FTE university members who belonged to the main Pendleton campus were included in this population because of their potential familiarity with the selected sites. Pendleton shares a number of communal locations and facilities with a small Canadian college, and while the college student, staff, and faculty population may encounter many of the sites examined in this research, access to their information was limited and, thus, their population was not used.

Due to the relatively small overall population size of Pendleton, it was decided that instead of sampling only a small cross-section of students, as demonstrated by Morrison (2005) and by Nasar and Fisher (1993), this research would attempt a census study of the entire university population (Creswell, 2008). Using valid university email addresses provided by Pendleton administration, a short description of the study and a link to the electronic questionnaire was delivered to all students, staff, and faculty by email in early April 2010 as part of the single-phase survey administration procedure (see Appendix B). The Pendleton University population was not subjected to any advertising or pre-notification for this research. Of the 4000-5000 possible respondents, 394 individuals
Table 1

Gender Distribution by Age

<table>
<thead>
<tr>
<th>Gender</th>
<th>19 and Under</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50 and Above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male [n=58]</td>
<td>10</td>
<td>36</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Female [n=255]</td>
<td>48</td>
<td>160</td>
<td>14</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Other [n=1]</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
accessed the electronic questionnaire, and 314 of those respondents completed the questionnaire and provided enough information to be included in this research. Eighty respondents were not included in the final phase of data analysis due to significant segments of missing data in either the demographic or attitudinal sections of the questionnaire. As such, a response rate of 6% was observed.

In regards to the interview sample, 13 survey respondents (male \( N = 2 \) and female \( N = 11 \)) indicated in a self-selecting question, the final item of the survey (question 3 of section 3), that they would be interested in participating in a subsequent interview by providing contact information. Upon contacting the selected respondents, 4 individuals (male \( N=1 \) and female \( N=3 \)) participated in the follow-up interview.

**Research Setting - Why Pendleton?**

The research setting of this study was located at the main campus and surrounding areas of Pendleton University, a small Canadian university located in a small Canadian city. No previous prospect-refuge or CPTED-based research had been conducted at this campus location prior to this present study. So, the question arises, why choose Pendleton?

Spanning more than 5 decades, research addressing personal safety and perceptions thereof has, at one time or another, been directed at virtually every public and semipublic setting commonly found in Western society: be it schools, shopping malls, housing developments, museums, or general-use commercial spaces (Greenberg, Rohe, & Williams, 1982; Herzog & Flynn-Smith, 2001; Jacobs, 1961; Kaplan, Kaplan, & Brown, 1989; Rohe & Burby, 1988; Roman, Knight, Chalfin, & Popkin, 2005). One particular setting, the college and university campus, is uniquely useful for researchers as it provides additional benefits
not available with other commonly selected locations. Due in large part to its mostly homogeneous population, fluid social landscape, readily accessible facilities, and transitory inhabitants, the postsecondary campus presents researchers with an opportunity to examine aspects of criminal deviancy and perceptions of safety in a unique and extensively structured environment. Additionally, campuses also encompass and exhibit aspects of a community experience. Sloan and Mansour (1992), for instance, suggest that a campus’ fixed geographic location, common ties among inhabitants (students and employees), and social interaction fulfill the three basic components necessary for the establishment of community; an interesting aspect which is mirrored at all levels of the education system. As significant as the aforementioned may be, there are other prominent motivations and reasons for selecting a postsecondary campus.

According to prominent researchers in this field (Fisher & Sloan, 2003; Nasar & Jones, 1997; Scalora, Simons, & Vanslyke, 2010; Warr, 1990), as well as current industry professionals (Schneider, Walker, & Sprague, 2000), campuses present a veritable “perfect-storm” for the cultivation and attraction of motivated offenders. Due to a campus’ lack of personal guardianship, ease of unrestricted site access, and potential for individual anonymity, these diverse settings tend to attract and cultivate motivated offenders not only from the student population, but from surrounding neighbourhoods and communities as well (Fisher et al., 2000). Many campuses are generally located near or within major urban areas that often exhibit the physical and social disorders that may yield motivated offenders (Nasar & Fisher, 1993). According to Nasar and Jones (1997), this pool of outside offenders is highly problematic when examining the campus setting and surveying for perceptions of
safety. Since these individuals are not officially a part of the student body, their presence on campus in any location and at any time cannot be suitably monitored. These potential offenders often have the ability to access campus facilities unimpeded with little to no consideration from any member of the campus community. In spite of these findings, a university campus still presents a highly specialized and unique setting for evaluating personal perceptions of safety.

Furthermore, Pendleton University presents a setting which encompasses unique or rarely-evaluated aspects. Besides the work of Pain (1997), Petherick (2000), and Fletcher and Bryden (2009), no other research has been published regarding perceptions of personal safety on Canadian campuses. Moreover, none of the studies completed in Canada have taken place at a demographically or geographically small university, such as Pendleton. This university was chosen as the site for this research for two principal reasons: first, the relatively small population size of Pendleton; second, the unique geographic location of the university in relation to its host city. Geographically, most university and college campuses in Ontario exist in or within close proximity to the central business district of their host city. These campuses are generally enveloped within an urban landscape and are visually indistinguishable from the surrounding community. In fact, these campuses are both geographically and demographically large, encompassing upwards of multiple kilometres and including in excess of 62,000 full-time equivalent students (Council of Ontario Universities, 2010). Unlike the majority of other campuses in Ontario, Pendleton is located on the outskirts of its host city. The general area includes the main educational facility, residences, student centers, a campus bar, a sporting complex, parking lots, and connective
green spaces. Relatively isolated from the rest of the city, the campus is dominated by students, staff, and faculty.

As previously mentioned, the prospect-refuge model has thus far only been applied to postsecondary campus settings that are both demographically and geographically large; whereas Pendleton is quite the opposite. This research study may incur some degree of criticism regarding the choice of a small university setting due to a lack of architectural distinction, lack of reported crime, exaggerated perceptions of safety, and strong communal ties among other issues. However, regardless of college or university affiliation, socio-economic status of the institution and surrounding populations, religious denomination, or competency of administrative and security personnel, *all campuses* face the possibility of disturbing acts of violence (Fisher et al., 2000; Scalora et al., 2010). To illustrate this point, 15 small American universities (2,000 to 8,000 FTE students) were compared to the reported crime statistics of Pendleton University (see Table 2). While the reported crime statistics are, in fact, quite low, this information extends the impetus for an examination of the perceptions of safety among the members of Pendleton University.

While the data presented in Table 2 do illustrate the occurrence of reported criminal activity at institutions of similar size as that of Pendleton, there is, however, a marked difference in geographic location between Pendleton and the others listed. Whereas Pendleton is located in Canada, each other institution listed exists within the United States. Ideally, the gathered criminological data for Pendleton would have been compared to that of other Canadian institutions. However, it must be noted that attaining crime statistics from Canadian institutions can be a long and difficult process since there are no provincial
or federal mandates obliging Canadian colleges or Universities to publically report such statistics. Conversely, the United States does have a federally mandated policy of uniform criminal statistics reporting, named the Clery Act, as discussed in the introduction of this paper.

**Individual Site Selection**

Throughout the Pendleton campus setting discussed above, there exist a number of well-used and readily-identifiable nodes and pathways; particular areas of interest/congregation and the walkways/paths that connect them (Alfonzo, 2005; Brantingham & Brantingham, 1993; Keast, Carlson, Chapman, & Michael, 2010). In both Petherick’s (2000) study and the present study, a selection of nodes and pathways were chosen as the representative foundation of overall campus safety for use in the Fear Index. The unique interplay between architectural design, refinements of the built environment, and natural landscape create many interesting and varied degrees of prospect, refuge, escape, and traffic throughout. Locations were chosen in parallel to the theoretical justification provided by Fisher and Nasar (1992), Petherick (2000), whereby specific sites were chosen due to their readily identifiable nature rather than the amount and type of reported crimes exhibited by each site.

For the purposes of this research, 11 individual and non-overlapping sites (4 outdoor and 7 indoor) were chosen to represent Pendleton University. All sites were chosen because of their range and diversity of prospect, refuge, escape, and traffic. The individual sites were additionally chosen because of their prominent location within or surrounding
Table 2

**Comparison of Criminal Acts Perpetrated at Pendleton University to those of a Randomized List of Similarly Sized American Universities**

<table>
<thead>
<tr>
<th>Institution</th>
<th>FTE Student Pop</th>
<th>Forcible Sex Offences</th>
<th>Non-Forcible Sex Offences</th>
<th>Robbery</th>
<th>Aggravated Assault</th>
<th>Burglary</th>
<th>Arson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pendleton University</td>
<td>4,500</td>
<td>1</td>
<td>9</td>
<td>8</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Armstrong Atlantic State U</td>
<td>7,067</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Brown U</td>
<td>8,261</td>
<td>4</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>84</td>
<td>1</td>
</tr>
<tr>
<td>Cameron U</td>
<td>5,634</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Columbus State U</td>
<td>8,178</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dalton State C</td>
<td>4,957</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grambling State U</td>
<td>4,988</td>
<td>1</td>
<td>13</td>
<td>15</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ithaca C</td>
<td>6,448</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>N. Carolina Central U</td>
<td>8,500</td>
<td>10</td>
<td>11</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U of Maryland (C. P.)</td>
<td>5,884</td>
<td>17</td>
<td>11</td>
<td>7</td>
<td>152</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>U of Michigan (Flint)</td>
<td>7,773</td>
<td>4</td>
<td>3</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U of North Alabama</td>
<td>7,260</td>
<td>2</td>
<td>2</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U of Richmond</td>
<td>4,250</td>
<td>2</td>
<td>2</td>
<td>29</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U of Texas at Tyler</td>
<td>6,163</td>
<td>1</td>
<td>1</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pepperine U</td>
<td>7,733</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>W. Connecticut State U</td>
<td>6,617</td>
<td>4</td>
<td>2</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: both “Homicide” and “Negligent manslaughter” were removed from the table due to no reported incidents from any institution.
the research setting of this study as well as the populations’ assumed familiarity with these areas. The sites chosen were as follows (see Appendices C-M for site photos):

<table>
<thead>
<tr>
<th>Interior Sites</th>
<th>Exterior Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cafeteria (A)</td>
<td>Outside Walkways (H)</td>
</tr>
<tr>
<td>Classrooms (B)</td>
<td>Parking Lots (I)</td>
</tr>
<tr>
<td>Hallways (C)</td>
<td>Printing Office (J)</td>
</tr>
<tr>
<td>Library (D)</td>
<td>Residence Trail (K)</td>
</tr>
<tr>
<td>Lounge (E)</td>
<td></td>
</tr>
<tr>
<td>Lower Gym (F)</td>
<td></td>
</tr>
<tr>
<td>Main Foyer (G)</td>
<td></td>
</tr>
</tbody>
</table>

As evidenced by the above lists, both interior and exterior sites were chosen to be examined through this research. Few previous studies have placed such importance on interior locations and site features, focusing instead on exterior nodes and pathways (Brantingham & Brantingham, 1993). A variety of indoor and outdoor sites were chosen so as to most accurately represent the use of the Pendleton University facilities and campus by students, staff, and faculty members. An equal distribution of both interior and exterior sites was not achieved since no further readily identifiable, non-overlapping outdoor locations were available.

Of the individual sites listed above, one, in particular, warrants further discussion. The residence trail, site K, is a road/pedestrian walkway that extends from the edge of the main campus to a series of student residences close to the university. Site K is, in fact, the primary pathway for foot-traffic travelling from the lower residences to the main campus.
In addition, it also serves as the only vehicular access point from which to access a campus that houses several programs of study. Unlike sites A-J, however, the residence trail is not wholly under the administration of Pendleton University. Maintenance and upkeep of the main walkway surface of this site is sustained by the host city, not that of the university. So, while Pendleton does retain ownership of the surrounding land, the road/pathway is not considered university property. This site was chosen to remain in this research study for a number of reasons: first, to augment the number of exterior sites; second, to test the hypotheses in a high refuge location; third, because it represents one of the most readily identifiable and highly patronized pathways on the university campus.

**The Fear Index and Judgment of Site Characteristics**

The key research design consideration that allowed this study to relate with prior prospect-refuge literature was the inclusion of the Fear Index. Created by Fisher and Nasar (1992) for use in their innovative article *Fear of Crime in Relation to Three Exterior Site Features: Prospect, Refuge, and Escape*, the Fear Index uses the aggregate appraisal of three site characteristics (prospect, refuge, and escape) to measure the veracity of the hypotheses and predict which areas may be perceived as more or less safe. Their initial research was, in fact, quite successful; their findings supported the hypothesis that an area exhibiting low prospect, high refuge, and difficult escape would be viewed as less safe than areas exhibiting high prospect, low refuge, and relatively effortless escape (Fisher & Nasar, 1992, pp. 18-19).

In order to test the hypotheses established in this paper, a cursory investigation was conducted to explore the specific micro-cues afforded by the individual sites discussed
above. Prior to the creation of the primary data collection instrument, 11 independent and non-overlapping areas throughout the campus were chosen. The sites selected were subject to an initial cursory examination that was used to evaluate and rank each area’s environmental design characteristics for the variables: prospect, refuge, escape, and traffic.

While successful and readily applicable, the Fear Index devised by Fisher and Nasar (1992) included only nonhuman aspects of the environment. In reality, the built environment is populated by varying amounts of people according to place and time; this research study therefore would incorporate that aspect with the previous success of the prospect-refuge model. It was then determined that a new variance of the Traditional Fear Index (TFI) established by Fisher and Nasar (1992) would have to be developed. The Extended Fear Index (EFI), encompassing prospect, refuge, escape, and traffic was therefore created. The significance of the site characteristic traffic, as well as the accuracy of the EFI in comparison to the TFI was tested using Cronbach’s alpha, t-tests, and bi-variate coefficient tests.

In order to capitalize on Brantingham and Brantingham’s (1993) notion of spatial intelligence, each site was evaluated by the researcher and a fellow colleague. Using the form outlined in Appendix N, both investigators separately examined the individual sites, rating each site on a 7-point Likert scale according to the degree of prospect, refuge, escape and traffic afforded by each location. The variables were evaluated by surveying each area from a central stationary position within each site. Specifically, prospect was assessed by openness of the immediate view afforded by each site; on the provided 7-point Likert scale, a rank of 1 exhibited very little to no visual definition of the given location, whereas a rank
of 7 represented a very large amount of visual definition and the ability to easily and completely see virtually every aspect of one’s surroundings. Site design and environmental characteristics—such as blocked pathways, poor lighting, desks, poorly delineated corridors, etc.—generally detracted from the overall prospect of a given location. Refuge was assessed as potential areas for offenders to easily hide and surprise a victim; on the Likert scale, a rank of 1 represented a very small number of potential hiding places—such as corridors, tables, darkened areas—and a rank of 7 indicated a very high number of potential areas for offenders to seek refuge. Escape was measured as the number of exits from the chosen site and approximately how easily accessible they were. As with the previous rankings, a lower rank signified fewer escape routes (generally 2 or less) and a greater potential difficulty in accessing them. A higher rank related to a multitude of easily accessed escape routes. Finally, traffic was measured as a strictly objective value for the sheer number of pedestrians that frequented the given site at the given time. The ranking used is as follows:

1 = 1-5 pedestrians
2 = 5-10 pedestrians
3 = 10-15 pedestrians
4 = 15-20 pedestrians
5 = 20-25 pedestrians
6 = 25-30 pedestrians
7 = 30+ pedestrians
Once per month, for a period of seven months, each site was visited and evaluated during the day and at night. Each site was judged a total of 28 times, thus equaling a total of 308 individual site classifications based on the four variables. The variable of traffic was evaluated in parallel with the other three site features. Traffic was calculated by calculating the amount of foot traffic a particular site saw over the period of 30 minutes during the day and 30 minutes at night.

**Quantitative Data**

**Instrument Design and Data Acquisition**

The primary data collection instrument for this research study was a 56-item online electronic questionnaire (see Appendix O). The overall design and wording of some individual questions was modified from previous surveys conducted in this field (see Nasar at al., 1993; Petherick, 2000). The survey included two questions regarding demographic information, six categorical questions regarding prior victimization and general perceptions of campus safety, 39 Likert-type items—using a scale of 1-5 (1=very unsafe, 2=unsafe, 3=somewhat safe, 4=safe, 5=very safe)—regarding site-specific safety and avoidance, and nine open-ended questions. The two demographic questions (gender and age reporting) were used due to their importance to the research questions. The six non-demographic categorical questions were used to address a number of the research questions as well as to establish a basis for a number of qualitative questions. The 39 Likert-type items were used exclusively to measure perceptions of safety on a general and site-specific basis for varying times of day; their use was also extended to correlations between respondent perceptions of safety and the Fear Indexes. Finally, the nine open-ended questions, which varied
significantly in tone and topic, were used primarily as supportive evidence for the collected quantitative data, but also as a primary tool for investigating key themes of concern as reported by respondents.

Like previous studies (Fisher & Nasar, 1992; Jennings et al., 2007; Nasar & Fisher, 1993; Petherick, 2000; Santucci & Gable, 1993), a questionnaire was chosen as the most accurate and encompassing method of acquiring the essential data. It was an integral aspect of this research study to create, conduct, and analyze an instrument design similar to that established in previous literature. While the creation and design of the survey itself was consistent with that of former prospect-refuge research (Fisher & Nasar, 1992; Petherick, 2000), the method of its distribution was not. Methods of data collection in this field have historically relied upon one of two predominant approaches: telephone interviews (Fisher et al., 2000), and a variant of field study where participants were publically solicited to complete a questionnaire where they may or may not have physically visited the sites being examined (Fletcher & Bryden, 2009; Jennings et al., 2007; Starkweather, 2007). Due to the small total population of Pendleton University (4,900 FTE), it was deemed logistically feasible to forego the previously-used methods and, instead, attempt an online, equal-access survey method for all campus members.

While surveys have become the foundation of safety-based research, no previous studies employing the established prospect-refuge methodology have used an online electronic questionnaire. The rationale for using an online survey was fourfold:

1. It allowed the survey to be easily distributed to the entire population (including only the selected population characteristics).
2. Second, raw data stored online could be easily transferred to any applicable software program (e.g., PASW [formerly SPSS], Excel, etc.).

3. The online nature of the survey meant that it was accessible 24 hours a day for the duration of the data collection period (April–June 2010).

4. Due to the relative novelty of the method, its effectiveness and limitations could be assessed for future research projects in this area.

The survey was hosted online by QuestionPro Survey Software (http://www.questionpro.com). Using their online security tools, unique respondent submission was enabled; in effect, limiting access of the questionnaire to one unique IP address per submission.

The primary instrument was disseminated to the university population through the use of the Pendleton University email system. The population was initially sent an email message discussing, in brief, the nature of the research and providing a direct hyperlink to the online survey (see Appendix P). Appendix Q illustrates the necessary Participant Information Letter that was included as an attachment to the email.

**Quantitative Data Analysis**

The data acquired from the primary research instrument were first retrieved from the online QuestionPro servers in the Microsoft Excel format. There data were then compiled and uploaded to SPSS v. 17.0.1 for Windows. A multitude of descriptive statistics and visuals were derived from these data set including crosstabs, means, frequencies, bar charts, histograms, and scatter plots. In order to examine significant differences, test the hypotheses, and address the research questions, Cronbach’s alpha, Spearman’s rho, Chi-
square, direct correlations, ANOVAs, independent sample t-tests, and paired-sample t-tests were performed.

The t-test is one of the most commonly used and widely applicable statistical analysis tests available. Its strength lies in its ease of use and ability to accurately and specifically test a single, small-sized sample. In essence, the t test is used generally to test the hypothesis outlined in a scientific study. It can easily test whether the mean of a normally-distributed population differs from that of the hypothesis. The function of using a t test with this study will be to test the hypotheses outlined in the introduction (Rogerson, 2001).

The Chi Square test is one of the most common inferential tests used. It can be run as a one, two or multiple sample test that makes it suitable for the purposes of this study. The Chi Square test compares frequency data in defined classes or categories and uses frequency distributions of normal or higher data, therefore it applies to the ordinal data in this study (Rogerson, 2001).

The Spearman’s rho was used to determine if there is a significant association between two variables. For this test, the data being observed must also be ordinal data. One of the requirements for this test is that there must be at least five pairs of observations to be examined (Rogerson, 2001). The Spearman’s rank test was used in this study to test the correlation between the Fear Index and perceived safety levels at each site.
Qualitative Data

Qualitative Data Acquisition

The qualitative data for this research study was collected in two distinct phases: first through the online questionnaire, and, subsequently, through individual telephone and electronic email interviews.

**Questionnaire data.** As previously mentioned, the online questionnaire was comprised of 56 unique items, nine of which were open-ended questions. The information gathered from these questions was primarily used to support the findings of analyses conducted on the quantitative data, such as that of the safest and least safe reported sites (see questions 3 and 5 in section 2 of Appendix O). Four of these nine questions were follow-up branching questions used for attaining additional information on questions regarding satisfaction with security services, overall campus safety, and the like. It was decided to include all open-ended questions so that the participants could best voice their unique perspectives and experiences unconstrained by preset answers (Creswell, 2008).

**Interview data.** Interviewees were recruited by self-selection in response to the final question of the survey which asked:

If you have experienced violent crime or feelings of insecurity while on the Pendleton University campus and would like to be considered for a possible subsequent interview in the study, please type your email address and a brief description of the incident below. You will be contacted by email if chosen for the interview process.
Originally planned as critical sampling—a subset of purposeful sampling—the participants who ultimately provided contact information and completed the entire interview process more accurately represented typical sampling of the respondent sample (Creswell, 2008).

A further alteration of the originally planned procedure included the change of interview type from a semi-structured one-on-one interview process to telephone and email interviews. Upon personal request, one female interviewee was provided with a telephone interview due to her perceived discomfort with discussing personal information with the primary researcher in a formal environment. The further three interviewees were all provided with a structured email interview due to reported time restraints and an inability to conduct a one-on-one interview.

**Qualitative data analysis.** Similar to the data collected for quantitative analysis, the qualitative data collected through the online survey were downloaded and imported into Microsoft Excel for analysis. Once uploaded, each question was analysed independently of one another. The individual responses for each question were reviewed and examined and subsequently coded into themes using deductive coding methods (Creswell, 2008).

**Assumptions and Limitations**

**Assumptions**

All research is associated with some common, or perhaps not so common, assumptions and limitations when particular methodologies are chosen, data collection instruments are created and administered, or findings are interpreted (Creswell, 2008). This study was no different. There are four readily-identified assumptions related to this research study. First, it was assumed that all participants had provided accurate and honest
answers to each of the questions they were responsible for answering. In addition, it was reasonably assumed that the data collection instrument, having been influenced by previous research, was both accurate and pertinent in addressing the research hypotheses outlined above. It was further assumed that the built environment does, in some way, have a calculable effect on perceptions of personal safety as illustrated by a number of previous studies (Fisher & Nasar, 1992; Petherick, 2000; Stamps, 2005, 2008a, 2008b). Lastly, the assumed lack of perceived safety, by whomever reported that perception, must have been caused by human influence and design characteristics of the built environment, and not that of physically dangerous or unstable building design or that of indigenous fauna.

**Limitations**

The underlying limitations that are associated with this study are as follows. When conducting research of this nature, time constraints become a serious limitation. Since this study relied on the thorough consideration and exposition of a large group of transitory individuals, the students, it was imperative to administer the survey during the regularly scheduled 2009-2010 academic year. Unlike previous studies, the primary instrument for data collection was an online survey rather than traditional pen-and-paper surveys administered to passers-by (Fisher & Nasar, 1992; Petherick, 2000). While this new method effectively eliminated many of the previous limitations, such as environmental bias, participant discomfort, and confidentiality issues, it introduced logistical restraints not previously discussed in any literature. Difficulty in achieving both research ethics and administrative approval for this study presented the greatest detriment to this research as a whole. However, considering the large distribution of this survey, as well as the sensitive
nature of the data/findings, it was understood that logical issues may arrive in the approval of the survey. The data collection phase of this research was moved, accordingly, from a proposed timeline of early February to early April. As a result of this shift in the research timeline, the online surveys were distributed to students, staff, and faculty of Pendleton University 2 weeks prior to final exams. The revised response period of this survey, in effect, made advertising infeasible, may have impinged upon the number of responses received, and considerably limited the possibility for additional personal interviews as reported by 8 potential interview candidates.

Logistical restrictions aside, a number of limitations related specifically to the foundation of prospect and refuge research were also encountered. As discussed in the literature review, the effects of nonphysical factors, such as individual personality, experience, limited responses by particular populations, and interpretation of provided questions, may be responsible for the seemingly incongruous differences between varying data sets. For instance, some authors simply disregard the unrepresentative nature of their results and report findings that are disproportionately weighted towards certain data sets, as most commonly instanced in gender differences within criminology research (Day, 1994; Fisher et al., 2000; Morrison, 2005; Starkweather, 2007). Additionally, the selection of, and data gathered at, sites chosen for the creation of the Fear Index were not done in accordance with previous research, since no method had been established for this procedure or for how ranks were provided for prospect, refuge, and escape for chosen sites. Currently, no universal site classification system exists, and due to the time and
financial limitations of this research, such a system could not be created for the purposes of this study. Lastly, participant and researcher bias is likely to be present.
CHAPTER FOUR: RESULTS

The purpose of this research study was to explore the relationship between perceptions of safety and the built and social environment of an educational institution. In addition, this research was conducted to test the applicability of the conceptual prospect-refuge model and subsequent Fear Index in relation to perceptions of safety.

This chapter will present the results derived from the collected quantitative and qualitative data. Since this research study was conducted using a mixed-methods approach, the findings will be presented and interpreted separately as established by Creswell (2008).

Quantitative Findings

While this research study has employed a mixed-methods approach to studying the perceptions of safety among the Pendleton University population, the quantitative results will be presented first as they address a greater number of the research questions and are more integral to this research study.

Gendered Perceptions of Safety and Avoidance

The initial research question of this thesis queried, “Is gender a significant variable in reference to personal perceptions of safety?” It is hypothesized that females will exhibit consistently lower levels of safety as compared to males in relation to reported perceptions of safety and avoidance behaviour. In order to determine the significance of gender in reference to perceptions of safety and potential avoidance behaviours, contingency analysis was performed on the survey data; including cross tabulation, chi-square, t-tests, and MANOVAs. In total, three questions located in the survey reported on perceptions of overall campus safety, 22 reported on site-specific perceptions of safety (which is extended to the
overall campus), and 13 addressed the question of avoidance behaviours. The results will be discussed sequentially as listed above.

**Gender and perceptions of overall campus safety.** Table 3 presents the frequency and percent of each gender group in relation to their reported unsafe feelings while on campus; note that gender group “other” was omitted from statistical testing due to sample size. In agreement with previous literature, females (32%) reported a higher incidence of generally unsafe feelings on campus than that of males (24%). However, with an alpha of .05, a chi-square test revealed nonsignificant associations between gender and insecure feelings on campus \( (X^2(2, N=314) = 1.873, p = .392) \). While the initial findings of gendered perceptions of safety are indeed interesting, a greater depth of analysis is sought; hence the necessity for a more detailed grouping of independent day and night ratings.

Table 4 presents a cross tabulation of the gendered ratings for overall *day-time* campus safety. A MANOVA was conducted between gender and *day-time* perceptions of campus safety, but revealed nonsignificant findings (Pillai’s Trace = .017, \( F(4, 612) = .573, p = .564 \)). Upon subsequent inspection, two aspects are immediately apparent: first, both genders view the Pendleton campus as quite safe (\( M = 4.61, SD = .652 \)); second, the genders are comparatively similar in regards to their overall means (males = 4.54, females = 4.62) and standard deviations (males = .825, females = .609).

Similar to the previous table, Table 5 presents a cross tabulation of the gendered ratings of overall *night-time* campus safety. A MANOVA analysis of the overall *night-time* campus safety ratings produced similar results to those above (Pillai’s Trace = .017, \( F(4, 612) = 1.560, p = .212 \)). Examining Table 5, we again notice similarities between males
Table 3

*Reported Responses of Feeling Unsafe while on Campus (Number of Complete Answers in Parentheses)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Male (n = 58)</th>
<th>Female (n = 255)</th>
<th>Other (n = 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unsafe</td>
<td>Safe</td>
<td>Unsafe</td>
</tr>
<tr>
<td>Frequency</td>
<td>14</td>
<td>44</td>
<td>82</td>
</tr>
<tr>
<td>Percent of Gender</td>
<td>24.1%</td>
<td>75.9%</td>
<td>32.2%</td>
</tr>
</tbody>
</table>

*Note.* Unsafe means that the respondent reported that they had felt unsafe while on campus; Safe means that the respondent reported that they had not felt unsafe on campus. The data reported in this table are derived from question 5 section 1 of the primary survey instrument. The question asked: Have you ever felt unsafe while on the Pendleton University campus?
Table 4

*Likert-Type Rating of Reported Overall Campus Safety During the Day (Number of Complete Answers in Parentheses)*

<table>
<thead>
<tr>
<th>Campus Rating</th>
<th>Male (n = 57)</th>
<th>Female (n = 253)</th>
<th>Other (n = 1)</th>
<th>Total (n=311)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Very Unsafe</td>
<td>2</td>
<td>3.5</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Unsafe</td>
<td>0</td>
<td></td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Somewhat Safe</td>
<td>0</td>
<td></td>
<td>8</td>
<td>3.2</td>
</tr>
<tr>
<td>Safe</td>
<td>18</td>
<td>31.6</td>
<td>72</td>
<td>28.5</td>
</tr>
<tr>
<td>Very Safe</td>
<td>37</td>
<td>64.9</td>
<td>171</td>
<td>67.6</td>
</tr>
</tbody>
</table>

*Note.* Under the female % column, the total does not equal 100% due to rounding errors. The total number of completed answers reported above does not coincide with the sample size of this research; 3 respondents left this question blank. The data reported in this table are derived from question 1 section 2 of the primary survey instrument. The question asked: How safe do you feel on campus during the day? Independent campus ratings were displayed as a ranked scale as follows: very unsafe (1); unsafe (2); somewhat safe (3); safe (4); very safe (5).
(M = 3.67, SD = 1.123) and females (M = 3.55, SD = .885). As may be expected, a significant difference (t(308) = 21.08, p < .001) between total day-time ratings (M = 4.61) and night-time ratings (M = 3.57) are evident.

**Gender and perceptions of site-specific safety.** The results presented above are not only intriguing in respect to recent feminist and gendered safety research (Fisher & Sloan, 2003; Kelly & Torres, 2006), but provide impetus for a more thorough investigation of site-specific perceptions of campus safety. A more detailed cross-section of the Pendleton campus and its most identifiable locations will now follow.

**Day ratings.** Table 6 presents the individual day-time site ratings for each on-campus location as reported by male respondents. Two points of interest are immediately observable with this cross tabulation. First, males evidently view the campus during day-time hours as a very safe place (M = 4.21)—a similar result to the overall day-time campus safety rating provided by males (M = 4.54). Furthermore, while the overall mean rating of individual sites was certainly high, three sites were rated below the threshold of safe and into somewhat safe: lower gym (M = 3.81); parking lots (M = 3.74); residence trail (M = 3.33). This second point is particularly interesting in relation to the overall campus safety results as the site-specific ratings have illustrated three potential problem areas not evident in the more general analysis.

Upon viewing Table 7, a definite pattern between the gendered site ratings has begun to appear. Similar to the cross tabulation above, Table 7 also exhibits two distinct points of interest. Like the male respondents, the mean site rating reported by female
Table 5

*Likert-Type Rating of Reported Overall Campus Safety at Night (Number of Complete Answers in Parentheses)*

<table>
<thead>
<tr>
<th>Campus Rating</th>
<th>Gender</th>
<th>Male (n = 57)</th>
<th>Female (n = 252)</th>
<th>Other (n = 1)</th>
<th>Total (n=310)</th>
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<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Very Unsafe</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>1.6</td>
<td>8</td>
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<tr>
<td>Unsafe</td>
<td>4</td>
<td>7</td>
<td>24</td>
<td>9.5</td>
<td>28</td>
</tr>
<tr>
<td>Somewhat Safe</td>
<td>12</td>
<td>21.1</td>
<td>85</td>
<td>33.7</td>
<td>97</td>
</tr>
<tr>
<td>Safe</td>
<td>24</td>
<td>42.1</td>
<td>108</td>
<td>42.9</td>
<td>132</td>
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<tr>
<td>Very Safe</td>
<td>13</td>
<td>22.8</td>
<td>31</td>
<td>12.3</td>
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</table>

*Note.* The total number of completed answers reported above does not coincide with the sample size of this research; 4 respondents left this question blank. The data reported in this table are derived from question 2 section 2 of the primary survey instrument. The question asked: How safe do you feel on campus at night? Independent campus ratings were displayed as a ranked scale as follows: very unsafe (1); unsafe (2); somewhat safe (3); safe (4); very safe (5).
Table 6

**Perceptions of Individual Site Safety as Reported by Male Respondents (Day Rating)**

<table>
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<tr>
<th>Measure</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<tbody>
<tr>
<td>(1) Very Unsafe</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
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<td>2</td>
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<td>2</td>
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<td>4</td>
<td>3</td>
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<td>4</td>
<td>3</td>
<td>5</td>
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<td>13</td>
<td>7</td>
<td>9</td>
<td>13</td>
<td>11</td>
<td>18</td>
<td>18</td>
<td>10</td>
<td>14</td>
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<td>D</td>
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<td>17</td>
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<td>9</td>
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<td>74</td>
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<td>101</td>
<td>87</td>
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<td>89</td>
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</tbody>
</table>
respondents ($M = 4.10$) was similar to, but noticeably lower than, their overall campus score ($M = 4.62$). Unlike the males, however, five sites were rated as somewhat safe: lower gym ($M = 3.81$), outside walkways ($M = 3.96$); parking lots ($M = 3.66$); printing office ($M = 3.75$); residence trail ($M = 3.01$). Note that three sites (lower gym, parking lots, and residence trail) overlap between genders and exhibit similar mean ratings. Evidently, some sites demonstrate universally displeasing characteristics for both males and females as indicated by their similar ratings. Also note that the residence trail exhibited the lowest overall mean score by both males ($M = 3.33$) and females ($M = 3.01$), with the females’ rating nearly classified as unsafe during the day. With an alpha of .05, repeated MANOVA analyses revealed nonsignificant associations between gender and individual day-time site ratings (Pillai’s Trace = .052, $F(22, 570)=.69$, $p=.852$).

**Night ratings.** Table 8 presents the individual night-time site ratings from male respondents. While the independent site ratings between genders illustrated no significant differences in relation to the earlier time of day, we will now see if those results also extend into the night-time ratings. As initially illustrated by the overall campus safety ratings above, the overall mean score for the individual site ratings also saw a significant decrease in perceived safety when shifting to night-time; day ($M = 4.21$), night ($M = 3.55$). At night, a number of sites are now reported as somewhat safe (hallways, lower gym, outside walkways, and printing office). Most interesting, however, are the two sites now rated as unsafe; parking lots ($M = 2.93$), and residence trail ($M = 2.37$). It is a fascinating finding that males, who have been historically perceived as “fearless” (Day, 1994; Warr, 1984), have rated these sites as such potentially fearful and unsafe areas.
<table>
<thead>
<tr>
<th>Measure</th>
<th>A</th>
<th>B</th>
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<th>H</th>
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<th>J</th>
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</tr>
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<tbody>
<tr>
<td>(1) Very Unsafe</td>
<td>2</td>
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<td>1</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>12</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
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<td>1</td>
<td>2</td>
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<td>5</td>
<td>3</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(3) Somewhat Safe</td>
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<td>8</td>
<td>11</td>
<td>7</td>
<td>8</td>
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<td>15</td>
</tr>
<tr>
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<td>15</td>
<td>12</td>
<td>11</td>
<td>13</td>
<td>18</td>
<td>14</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>(5) Very Safe</td>
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<td>25</td>
<td>24</td>
<td>27</td>
<td>28</td>
<td>18</td>
<td>26</td>
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<tbody>
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<td>N</td>
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<td>52</td>
<td>52</td>
<td>51</td>
<td>51</td>
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<td>53</td>
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<td>48</td>
</tr>
<tr>
<td>M</td>
<td>4.11</td>
<td>4.02</td>
<td>3.94</td>
<td>4.11</td>
<td>4.02</td>
<td>3.22</td>
<td>4.06</td>
<td>3.30</td>
<td>2.93</td>
<td>3.02</td>
<td>2.37</td>
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<td>1.281</td>
<td>1.295</td>
<td>1.266</td>
<td>1.38</td>
<td>1.808</td>
<td>1.22</td>
<td>1.341</td>
<td>1.399</td>
<td>1.807</td>
<td>1.558</td>
</tr>
</tbody>
</table>
Table 9 reports the individual *night-time* site ratings from female respondents. A MANOVA was performed to examine the effect of gender on perceptions of *night-time* safety for each individual site (Pillai’s Trace = .086, $F(22, 554)=1.131, \ p=.308$). Subsequent ANOVAs did, however, reveal significance between gender and *night-time* locales. Interestingly, the two lowest ranked sites exhibited the greatest significance between genders; parking lots ($F(2, 10.732)=3.665, \ p=.027$), and the residence trail ($F(2, 13.529)=4.264, \ p=.015$). Interestingly, especially in light of the reported historical gender differences, the similarity between overall site-specific ratings for males ($M = 3.55$) and females ($M = 3.41$) is remarkable, while still maintaining the stereotypical gender inequality of reported safety. Also, similar to male respondents, females rated the majority of sites as *somewhat safe* or below. Most importantly, the residence trail—rated lowest by males ($M = 2.37$)—was also rated lowest by females, exhibiting a startling *very unsafe* mean rating ($M = 1.91$). While some significant results have been illustrated between genders and a trend has emerged revealing consistently lower female perceptions of safety, these initial results indicate that gender is not a significant factor regarding perceptions of campus safety.

**Gender and avoidance behaviour.** Active avoidance behaviour is one of the more accurate indicators of potential problem areas as it directs the respondents to clearly indicate areas in which they will not visit due directly to safety concerns. Together with the perceptions of personal safety discussed above, these two variables may prove crucial to the understanding and, possibly, rapid identification of current and future problem areas.

**General avoidance behaviour.** Table 10 reports the frequency and percent of responses by gender to reported avoidance behaviour. Performing a chi-square test
Table 9

*Perceptions of Individual Site Safety as Reported by Female Respondents (Night Rating)*

<table>
<thead>
<tr>
<th>Measure</th>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Very Unsafe</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>30</td>
<td>41</td>
<td>18</td>
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<tr>
<td>(2) Unsafe</td>
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<td>8</td>
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<td>4</td>
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<td>8</td>
<td>54</td>
<td>72</td>
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<td>75</td>
</tr>
<tr>
<td>(3) Somewhat Safe</td>
<td>43</td>
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<td>55</td>
<td>37</td>
<td>33</td>
<td>52</td>
<td>38</td>
<td>79</td>
<td>84</td>
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<td>55</td>
</tr>
<tr>
<td>(4) Safe</td>
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<td>101</td>
<td>100</td>
<td>102</td>
<td>110</td>
<td>73</td>
<td>109</td>
<td>58</td>
<td>31</td>
<td>59</td>
<td>15</td>
</tr>
<tr>
<td>(5) Very Safe</td>
<td>88</td>
<td>92</td>
<td>78</td>
<td>97</td>
<td>81</td>
<td>65</td>
<td>91</td>
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<th>N</th>
<th>M</th>
<th>SD</th>
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<td>3.98</td>
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<td>247</td>
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</tr>
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<td>246</td>
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<td>.962</td>
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<td>240</td>
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<td>240</td>
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<td>1.727</td>
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<td></td>
<td>221</td>
<td>1.91</td>
<td>1.186</td>
</tr>
</tbody>
</table>
Table 10

Reported Avoidance Behaviour on Campus (Number of Complete Answers in Parentheses)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Male (n = 57)</th>
<th>Female (n = 255)</th>
<th>Other (n = 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Frequency</td>
<td>11</td>
<td>46</td>
<td>97</td>
</tr>
<tr>
<td>Percent of Gender</td>
<td>19.3%</td>
<td>80.7%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Note. Yes = respondent actively avoids areas on campus; No = respondent does not avoid areas on campus. The total number of completed answers reported above does not coincide with the sample size of this research; 1 respondent left this question blank. The data reported in this table were derived from question 6 of the primary survey instrument. The question asked: Do you avoid any areas on campus because of safety concerns?
revealed highly significant findings between males and females ($\chi^2(2, N=314)=7.769, p=.021$). Question number 6 in section 1 of the primary instrument addressed the aspect of general avoidance behaviour directly by questioning: “Do you avoid any areas on campus because of safety concerns?” Respondents were provided with the possible answers “yes” and “no.” Note that while the gender grouping “other” was included in Table 10, it was not included in any subsequent statistical calculations due to low sample size. As evidenced by Table 10, males (20%) reported an 18% lower incidence of avoidance behaviour on campus in comparison to females (38%). According to these results, females report a higher incidence of avoidance behaviour, in general, than that of males. From these results alone it would appear that the mobility and quality of life of female members of Pendleton University have been adversely influenced.

**Site-specific avoidance behaviour.** While ascertaining the general consensus of avoidance behaviours used by Pendleton University campus members is highly valuable, an analysis of multiple individual sites provides a more accurate understanding of avoidance behaviour on campus. Expanding upon the previous table, Table 11 presents the frequency of active avoidance behaviour for each of the eleven individually chosen sites. Performing a chi-square test on the individual sites presented no statistically significant difference between gender and avoidance behaviour related to site: cafeteria ($\chi^2(4, N=275)=4.682, p=.321$); classrooms ($\chi^2(4, N=274)=2.552, p=.635$); hallways ($\chi^2(4, N=274)=5.541, p=.236$); library ($\chi^2(4, N=271)=9.191, p=.056$); lounge ($\chi^2(4, N=275)=3.652, p=.455$); lower gym ($\chi^2(4, N=278)=3.238, p=.519$); main foyer ($\chi^2(4, N=274)=7.845, p=.097$); outside walkways ($\chi^2(4, N=279)=1.687, p=.793$); parking lots ($\chi^2(4, N=280)=2.133, p=.711$); printing office ($\chi^2(4,
Further examination revealed that males reported avoiding site I (the parking lots) most frequently \((n = 12)\), whereas site B (classrooms) were reported as the least avoided areas on campus \((n = 0)\). Female respondents, on the other hand, reported avoiding site K (the residence trail) most readily \((n = 115)\), whereas site G (the main foyer) was reported as the least avoided area on campus \((n = 1)\). When examining Table 11 it is evident that, in terms of both frequency and percentage of respondents, females tend to avoid areas on campus to a larger extent (with little statistical significance) than males; a result mirrored by the reporting of general avoidance behaviour above. The only significant aberrations occur on sites H (the outside walkways) and K (the residence trail). According to the results in Table 11, women avoid these areas much more readily than their male counterparts. Where 7.8% of men reported avoidance of the outside walkways, 22.3% of women responded in kind. Furthermore, where 15.5% of males reported avoiding the residence trail, almost half, 45.1%, of females reported avoiding that area. To better illustrate this trend, please see Figure 2. According to these findings, it is clear that females do, to some extent, exhibit a greater degree of avoidance behaviour in comparison to males.

**Age and Perceptions of Safety**

The second research question inquired whether age would be a significant variable in reference to perceptions of safety; it was hypothesized that respondents 40 years and older would exhibit the lowest levels of perceived safety. Besides gender, age represents the second key demographic variable for which this research was designed to study. It is important for safety researchers—especially in the case of unified locations such as
<table>
<thead>
<tr>
<th>Gender</th>
<th>A</th>
<th>B</th>
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<th>F</th>
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<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>f</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>12</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>1.7</td>
<td>3.4</td>
<td>3.4</td>
<td>1.7</td>
<td>5.1</td>
<td>1.7</td>
<td>7.8</td>
<td>20.6</td>
<td>8.6</td>
<td>15.5</td>
</tr>
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<td>f</td>
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<td>7</td>
<td>2</td>
<td>6</td>
<td>20</td>
<td>1</td>
<td>57</td>
<td>75</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>2.3</td>
<td>1.9</td>
<td>2.7</td>
<td>.07</td>
<td>2.3</td>
<td>7.8</td>
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<td>4</td>
<td>7</td>
<td>23</td>
<td>2</td>
<td>61</td>
<td>87</td>
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</tr>
<tr>
<td></td>
<td>%</td>
<td>2.2</td>
<td>1.5</td>
<td>2.8</td>
<td>1.2</td>
<td>2.2</td>
<td>7.3</td>
<td>.06</td>
<td>19.4</td>
<td>27.7</td>
<td>12.7</td>
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</tbody>
</table>

Table 11

*Reported Incidents of Avoidance Behaviour as Reported by Site*
Figure 2. Site-specific avoidance behaviour as reported by gender. The data for this question were derived from question 9 of section 2 of the survey instrument.

Site A–Cafeteria
Site B–Classrooms
Site C–Hallways
Site D–Library
Site E–Lounge
Site F–Lower gym
Site G–Main Foyer
Site H–Outside walkways
Site I–Parking lots
Site J–Printing office
Site K–Residence trail
campuses—to establish if any particular cohort is exhibiting lower perceptions of safety in relation to others. Where gender presented few significant differences, with the exception of avoidance behaviour, age may exhibit greater variances among datasets. It should be noted that for ease of analysis and representation of the results, age has been broken into two sub-groups; again using the dichotomy of males and females. MANOVA testing revealed nonsignificant results when using only age as a factor.

**Age and overall campus safety.** Repeated MANOVAs were completed for the age cohorts presented in the survey instrument (ages: 19 and under; 20-29; 30-39; 40-49; 50 and above). None of the tests presented significant findings for any age group or gender sub-group (male day, $F(4, .634) = 1.337, p = .27$; male night, $F(4, .211) = .163, p = .956$) (female day, $F(4, .281) = .722, p = .578$; female night, $F(4, .335) = .425, p = .790$) related to overall perceptions of campus safety.

**Age and site-specific safety.** MANOVAs were also completed for the various age/gender cohorts in relation to site-specific perceptions of safety. For the male sub-group only the library during daylight hours posed a significant difference between ages $F(4, 1.99) = 2.661, p = .044$. Unfortunately, this result is likely the product of the male group’s small sample size ($n=54$), as younger males—age 29 and below—displayed lower perceptions of safety than their older counterparts. No other significant results were observed for males in either day or night situations.

In relation to males, the female results are quite interesting. A number of sites presented significant results in both day and night situations, and were not likely disrupted by the sample size. For the *day-time* ratings, both the lounge ($F(4, 11.249) = 7.784, p < .001$)
and the residence trail \( (F(4, 4.834) = 2.482, p = .045) \) exhibited significant results. For the night-time ratings, the cafeteria \( (F(4, 2.647) = 2.585, p = .038) \), classrooms \( (F(4, 1.807) = 2.503, p = .043) \), and lounge \( (F(4, 7.570) = 4.822, p = .001) \) all presented significant results.

For each, younger females – aged 29 and below – reported lower perceptions of safety than their older counterparts. Curiously, females aged 40-49 presented some of the lowest perceptions of safety overall, but their weight was significantly less than that of younger females due, again, to the small sample of that particular age group.

**Age and avoidance behaviour.** Similar to the site-specific analyses discussed above, MANOVAs were also used to test the significance between age and reported avoidance behaviour. Repeated testing revealed four sites where age was a significant factor in avoidance: library \( (F(4, .393)=4.044, p=.004) \), lounge \( (F(4, 1.653)=5.25, p<.001) \), outside walkways \( (F(4, .756)=3.403, p=.010) \), and the residence trail \( (F(4, 1.554)=3.889, p=.005) \). Figure 3 illustrates, in greater detail, the relationship between age, avoidance behaviour, and the eleven individual sites surveyed for this research.

**Victimization and Perceptions of Safety**

The third research question looked into what effect prior victimization would have on perceptions of safety; it was hypothesized that those who have experienced or witnessed victimization would report lower perceptions of safety. Though age and gender represent the most readily employed independent variables used in this area of research, the importance of prior victimization should not be undervalued. The primary data collection instrument included two questions addressing the matter of prior victimization. These questions asked: “have you ever been a victim of violent crime?”, and “Have you ever been
Figure 3. Site-specific avoidance behaviour as reported by age. The data for this question were derived from question 1 of section 1 (age) and question 9 of section 2 (site-specific avoidance behaviour) of the survey instrument.

Site A–Cafeteria
Site B–Classrooms
Site C–Hallways
Site D–Library
Site E–Lounge
Site F–Lower gym
Site G–Main Foyer
Site H–Outside walkways
Site I–Parking lots
Site J–Printing office
Site K–Residence trail
Experiencing victimization and perceptions of safety. The experience of victimization can be negatively influential on the development of normal socialization routines, but to what degree have the members of Pendleton University experienced prior victimization and to what extent does that shape their perceptions of safety?

Table 12 presents a cross tabulation of gender differences illustrated by prior victimization. It is clear that males (26%) are victimized at a significantly higher rate than that of females (11%). This particular result is interesting in that females, while only marginally, did report lower levels of perceived safety, and yet are victimized to a much lesser extent than males.

A MANOVA was conducted with gender and prior victimization as the independent variables, and with the ratings of overall and site-specific campus safety as the dependent variables. Findings revealed significant associations between having been victimized and perceptions of campus safety (Pillai’s Trace = .167, $F(24, 246)=2.053, p=.003$). Interestingly, whereas gender alone resulted in nonsignificant associations, the factors of gender and prior victimization together revealed highly significant findings (Pillai’s Trace = .163, $F(24, 246)=2.002, p=.005$). Figure 4 illustrates a comparison of percentage values between and within genders in which prior victimization is the central factor. As we can see, for each dependent variable (unsafe feelings on campus, avoidance behaviour, changing of social plans, and perceptions of security) the incidence of prior victimization within the genders
Table 12

*Gender Differences of Reported Victimization (Number of Complete Answers in Parentheses)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Male (n = 57)</th>
<th>Female (n = 254)</th>
<th>Other (n = 1)</th>
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<tr>
<td>Yes</td>
<td>15</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>42</td>
<td>224</td>
<td></td>
</tr>
<tr>
<td>Percent of Gender</td>
<td>26.3%</td>
<td>11.8%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note. Yes = have been a victim of violent crime; No = have not been a victim of violent crime. The total number of completed answers reported above does not coincide with the sample size of this research; 2 respondents left this question blank. The data reported in this table were derived from question 3 section 1 of the primary survey instrument; the question asked: Have you ever been a victim of violent crime?
Figure 4. Effect of prior victimization on dependent factors of campus safety.
produces a notable increase in negative perceptions. According to Figure 4, both male and female respondents who have experienced prior victimization: (a) feel less safe on campus, (b) avoid areas more readily, (c) more commonly change social plans due to safety concerns, and (d) have a lower satisfaction with campus security services. According to these results, the incidence of prior victimization does, indeed, manifest itself as inhibited perceptions of safety.

**Witnessing victimization and perceptions of safety.** Table 13 presents a cross tabulation of gender differences in relation to the *witnessing of victimization*. Performing a MANOVA with gender and witnessing victimization as IVs and the individual day/night site ratings as DVs did not present any significant results (Pillai’s Trace = .093, $F(22, 252)=1.177$, $p=.269$). In comparison to the factor of prior victimization discussed above, the respective gendered rates are roughly doubled when considering having witnessed victimization. Within the table itself as well, males, evidently, witness victimization at a rate double that of females.

**Perceptions of Safety in Relation to Avoidance Behaviour**

As previously discussed, avoidance behaviour is strongly linked to gender; but, is it correlated only to the gender of the respondent, or, does it correlate more accurately with overall perceptions of safety? It was hypothesized earlier that perceptions of safety and avoidance behaviour would be positively correlated. The distinction may appear minute, yet it provides both a stabilizing of factors, in addition to the contribution of a gender neutral and non-sexist discussion—a rapidly developing trend in the literature.
Table 13

**Reported Gender Differences of Witnessing Victimization (Number of Complete Answers in Parentheses)**

<table>
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</thead>
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<td>Male (n = 58)</td>
<td>Female (n = 254)</td>
<td>Other (n = 1)</td>
<td></td>
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<tr>
<td>Frequency</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>No 34</td>
<td>No 202</td>
<td>No 1</td>
<td></td>
</tr>
<tr>
<td>Percent of Gender</td>
<td>41.4%</td>
<td>20.5%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Yes = have witnessed violent crime; No = have not witnessed violent crime. The total number of completed answers reported above does not coincide with the sample size of this research; 1 respondent left this question blank. The data reported in this table were derived from question 4 section 1 of the primary survey instrument; the question asked: Have you ever been a witness to violent crime?
Using the results from questions one and nine in section two of the survey instrument, MANOVA analysis for the effect of overall *day-time* perceptions of campus safety did not reveal any significant findings in relation to avoidance behaviour (Pillai’s Trace = .221, \( F(44, 992) = 1.317, p = .083 \)). However, upon further analysis using ANOVAs, five individual sites did display significant results: lounge (\( F(4, 1.052) = 3.342, p = .011 \)); lower gym (\( F(4, 2.157) = 4.304, p = .002 \)); outside walkways (\( F(4, 2.588, p = .037 \)); printing office (\( F(4, 1.120) = 2.418, p = .049 \)); and the residence trail (\( F(4, 1.099) = 2.652, p = .034 \)). The perceptions of *day-time* safety are, therefore, not a reliable predictor of (overall and site-specific) avoidance behaviour.

Conversely, MANOVA analysis for the effect of overall *night-time* perceptions of campus safety did reveal significant findings in relation to overall avoidance behaviour (Pillai’s Trace = .426, \( F(44, 988) = 2.673, p < .001 \)). Additional ANOVA analyses also revealed significant findings for seven of the eleven individual sites used in this study: cafeteria (\( F(4, .360) = 2.793, p = .027 \)); hallways (\( F(4, .385) = 3.618, p = .007 \)); lower gym (\( F(4, 2.376) = 4.862, p = .001 \)); outside walkways (\( F(4, 2.466) = 12.726, p < .001 \)); parking lots (\( F(4, 3.07) = 11.361, p < .001 \)); printing office (\( F(4, 2.946) = 6.773, p < .001 \)); and the residence trail (\( F(4, 4.027) = 10.906, p < .001 \)). According to these results, perceptions of *night-time* safety do indeed relate strongly to avoidance behaviour.

**Overall Measures of Campus Safety**

As demonstrated above, some subgroups of the Pendleton University population exhibit drastically different perceptions of safety than do others. Thankfully, these groups are largely part of the main research population and not a relegated group of outliers. Still,
it is imperative that the measures of campus safety also be broadly applied to the entire sample collected, in addition to the individual subgroups that have already been examined. What follows below is a presentation of the results for each of the prominent measures used above, focusing instead on the entire sample.

**Perceptions of overall campus safety.** We will first look at the general measures of safety (unsafe feelings and reported perceptions of safety) before examining the more exact, site-specific results. As reported by all respondents ($N = 314$), 31% have experienced personal safety concerns while on campus. While this result includes a minority of respondents, it indicates that problems at some level of the campus built/social infrastructure do likely exist—as will be expanded upon when examining avoidance behaviour.

A further, and perhaps more encompassing, measure of overall campus safety is illustrated by the mean rankings for overall day/night ratings as reported by respondents. Overall, the *day-time* rating of Pendleton University was quite high exhibiting a mean of 4.61 (derived from scale data where the maximum rank of 5 was measured as “Very Safe”). For *night-time* ratings, the results were again reasonably high considering the negative perceptions of safety regularly associated with nightfall, exhibiting a mean of 3.57 (“Safe”).

As above, the site-specific rankings provide a deeper analysis of the perceptions of safety exhibited by Pendleton University members. Table 14 reports the individual *day-time* site scores for all respondents. It comes as no surprise that again the same five sites, as shown above, occupy a distinction as “Somewhat Safe”: lower gym, outside walkways, printing office, parking lots, and the residence trail. An overall mean of 4.1 was observed as
<table>
<thead>
<tr>
<th>Measure</th>
<th>A</th>
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</tr>
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<td>1</td>
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<td>1</td>
<td>1</td>
<td>19</td>
<td>22</td>
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</tr>
<tr>
<td>(3) Somewhat Safe</td>
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<td>21</td>
<td>13</td>
<td>9</td>
<td>34</td>
<td>12</td>
<td>55</td>
<td>80</td>
<td>43</td>
<td>95</td>
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<td>86</td>
</tr>
<tr>
<td>(5) Very Safe</td>
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<td>189</td>
<td>166</td>
<td>193</td>
<td>192</td>
<td>129</td>
<td>193</td>
<td>107</td>
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<td>45</td>
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<td>M</td>
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<td>4.53</td>
<td>4.44</td>
<td>4.55</td>
<td>4.33</td>
<td>3.81</td>
<td>4.57</td>
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<td>3.67</td>
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<td>SD</td>
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<td>0.68</td>
<td>0.69</td>
<td>0.7</td>
<td>1.25</td>
<td>1.55</td>
<td>0.61</td>
<td>0.99</td>
<td>1.17</td>
<td>1.41</td>
<td>1.42</td>
</tr>
</tbody>
</table>
an aggregate of all eleven sites. Still, these rankings are all reasonably positive, and altogether similar to the findings revealed by previous research in this area (Fisher & Nasar, 1992; Petherick, 2000). Carrying forward, Table 15 reports on the individual \textit{night-time} site ratings for all respondents. Again, as illustrated above, three sites were ranked as “Unsafe,” and one (the residence trail) was ranked as “Very Unsafe.” The aggregated mean across all eleven sites for night-time ratings is recorded as $M = 3.4$. This value is not only similar to the overall rating derived from question six of the survey instrument, but relatively positive as well.

\textbf{Overall avoidance behaviour.} Perhaps one of the more interesting results of this section relates to that of avoidance behaviour. A total of 35\% of the sample reported active avoidance of areas on campus due to safety concerns. While a minority, this is still a shockingly large group considering the entire sample. Table 11 presents the avoidance behaviour information for each of the eleven independent sites used in this research study. As evidenced by this table, a vast majority of the sites exhibit very low avoidance rates—a pleasantly surprising result in view of the general avoidance rate discussed immediately above. Four areas in particular do, however, present a substantial degree of avoidance behaviour; outside walkways, parking lots, printing office, and the residence trail. A reasonable threshold for avoidance behaviour, as established by this current paper, is approximately 10\% of the sample population—the sites listed above all exhibit higher percentages, reaching a maximum of roughly 40\% as exhibited by the residence trail.
Table 15

Perceptions of Individual Site Safety as Reported by All Respondents (Night Rating)

<table>
<thead>
<tr>
<th>Measure</th>
<th>A</th>
<th>B</th>
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<td>9</td>
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<td>80</td>
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<td>(3) Somewhat Safe</td>
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<td>44</td>
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<tr>
<td>(4) Safe</td>
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<td>85</td>
<td>122</td>
<td>77</td>
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<td>4.06</td>
<td>3.96</td>
<td>4.13</td>
<td>3.86</td>
<td>3.25</td>
<td>4.12</td>
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<td>2.56</td>
<td>2.92</td>
<td>1.99</td>
</tr>
<tr>
<td>SD</td>
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<td>0.98</td>
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<td>0.91</td>
<td>1.24</td>
<td>1.22</td>
<td>1.73</td>
<td>1.27</td>
</tr>
</tbody>
</table>
Qualitative Data

The qualitative data used in this research study, collected from the primary survey instrument and interviews, aim to extend the findings presented by an analysis of the quantitative data. The quantitative results discussed above are certainly significant as well as central to the crux of this research, yet their analysis lacks a context only provided by qualitative inquiry. What follows is a presentation of the most pertinent qualitative findings that are related to the research questions. A thematic framework was developed for classification and summary of this data, with headings and classifications that reflected the original matters of enquiry in this component of the research, any new themes emerging from these transcripts, and important findings from other components of the overall research.

Campus Safety

Perceptions of personal safety are both the foundation and key architect of this present research. Hence, the following section will reveal the perceptions of safety as well as avoidance behaviour as reported by the survey participants themselves.

Perceptions of campus safety. A variety of open-ended questions touched on the overall perceptions of campus safety.

Most safe. Let us view, for a moment, the responses given for question 14: the safest place on campus. A total of 277 participants responded to this question. Of those, the following points developed: library (25%), cafeteria (18%), main foyer (10%), classrooms (9%), residences (8%), and the ambiguous definition of “inside” (21%). By this cursory analysis alone it is promising to see a very similar comparison to the overall safest rated
places according to the quantitative data (see Tables 6-9). Some interesting points from each theme are presented below. Typical responses for library included the following information: “[B]ecause there are so many people there” [female]; “[T]he library because there are always people around, regardless of what time it is” [female]; and “In or around the library because it is staffed during most student frequented hours” [female].

The cafeterias were also mentioned prominently in this question, in addition to further sections of the survey, as being one of safest areas on campus. Characteristic responses from participants included the following: “The Cafeteria because there are many exits” [female], “Main cafeteria because there are always people around” [female]; “Cafeteria because it is very open” [female]; and “The large cafeteria or just outside the Tim Hortons by the large cafeteria. It’s open and you can see and hear easily from all directions” [male].

While ranked as the safest area by both males and females in the individual site-ranking section of the survey, the main foyer, in this instance, ranks as the fourth most mentioned site. This can, perhaps, be attributed to some prompting effect exhibited by later questions of the survey instrument. Nevertheless, some emblematic statements regarding the perceived safety of this area are as follows: “[B]usier areas with lots of people around like the front entrance” [female]; “[A]t the front entrance when there is a lot of students waiting for their bus” [female], “The main lobby of the main building” [female]; and “[F]ront entrance = more people” [male].

Perhaps most interesting is the number of respondents who, instead of identifying any particular site as the safest, commented that “inside” the university facilities is the
safest area. Note that this theme was differentiated from the other interior sites by the express inclusion of the vocabulary “in/inside” the “school/university.” This distinction was necessary since an inclusion of all interior sites under this theme would have then totalled roughly 92% of the participant responses. Some common responses for this theme are provided here: “Inside the school basically anywhere” [female]; “Inside the university” [female]; and “[l]inside the school during the day” [female].

**Least safe.** Let us now take a look at question 16: the least safe place on campus. A total of 276 participants responded to this question. Some interesting themes emerged that, like the safest reported sites, differed slightly from the quantitative data. The themes that emerged are as follows: parking lots (37%), residence trail (25%), and outside walkways (19%).

By a large extent, the parking lots were reported to have been the least safe area on campus, outpacing the residence trail—which had been revealed as the least safe area by the quantitative results—by 12%. The vast majority of respondents highlighting the parking lots for this question did so without any explanation as to why they chose this site as the least safe. Some, however, did; and from those who did, the accounts were relatively similar throughout. Two statements, which are representative of the sample, are as follows: “[P]arking lots—especially those most remote from the building” [female], and “[T]he parking lots late at night” [male].

The residence trail was the second most commonly mentioned site, with 68 respondents, or one fourth of the sample, noting this site. It is interesting to see that this site, which was clearly reported as least safe in the quantitative results (see Tables 14 and
15), now occupies a secondary position. Similar to the explanations provided for the parking lots, a minority of respondents included detailed information as to why this site was chosen as their least safe area. However, those who did provide additional information commonly indicated this area as least safe at night and that the lighting was inadequate along the trail: “The path down to res is creepy at night. Especially when not along the actual paved road” [female], and “The [residence trail]; sometimes the street lights turn off when people are walking down the road and it is a safety concern” [female].

Lastly, the outside walkways were identified as being a prominent area producing lower perceptions of safety in campus members. The ranking of third most unsafe area is consistent with the results derived from the quantitative data. Unfortunately, too few respondents provided enough detailed information as to why they chose this site, to be representative of the sample.

In direct relation to the least safe places on campus, question 6 asked participants who had felt unsafe on campus to relate where exactly they had felt unsafe. A total of 97 participants responded to this question. Only two areas were highlighted as major themes: parking lots (46%) and the residence trail (28%). One female respondent noted that coping with her fear of the parking lots still was not enough: “Some of the parking lots are very far away from campus. Walking to my car, even with others (which I do frequently) still feels unsafe” [female]. Another student explained a tangible reason for her worry: “The lights in the parking lot are often off at night and walking to the car seems dangerous and scary” [female]. Yet another exemplified the visceral experience of traversing the parking lots: “The new visitors parking lot does not have any lights and leaving an evening class to walk
that far in the dark is an awful experience” [female]. While these above quotations exemplify the more negative perceptions of safety generated by the parking lot areas, it is important to note that a small number of respondents, with six total notations spanning each open-ended question, opposed the above viewpoints stating that, “[T]he parking lot areas are very well lit” [male].

A cursory analysis of the qualitative data in relation to specific site preference shows a clear correlation to the collected quantitative data. Among the various descriptions and discussions of sites by respondents, one particularly interesting subtheme has begun to emerge: the importance of lighting.

**The Emergence of Significant Themes**

While definite themes emerged for each individual open-ended question, a number of larger, more extensive themes also developed. Analysis of the six open-ended survey questions exposed three predominant themes: a concern and desire for improved lighting, issues concerning security services, and the widespread use of coping techniques and fear management strategies. Each will be discussed sequentially below.

**Lighting.** The issue of inadequate lighting and the general concern for improved lighting was, undoubtedly, the most prominent item discussed among the various open-ended questions. Of the eight negatively weighted open-ended questions—ones that prompted respondents to provide information related to low perceptions of safety—lighting contributed as a significant aspect of the discussion in six of the questions. Of those six, lighting was mentioned by as low as 20% of respondents and as high as 59%, depending
upon the question. One female student rather boisterously characterized the overall concern by many Pendleton campus community members:

Have lights that work! We pay thousands of dollars to come here, and it would be nice for the school to show that they cared enough about their students to ensure easy and safe access to the parking lot. [female]

This sentiment was echoed by another student: “Ensure good lighting! Make sure light posts are in place and properly functioning” [female]. A male student followed this trend by stating: “I TRY to avoid any unlit areas after dark” [male].

Not only were general comments provided, but a number of respondents identified specific locations and instances of concern in regards to lighting. Interestingly, the parking lots were identified most readily as the area needing improved lighting. One female student felt her personal safety was compromised due to poor lighting in the parking lots: “I think better lighting in the parking lots (especially Lot 9) would be beneficial—I am always hesitant walking to my car alone after a night class” [female]. One female campus member noted:

Crossing from the main building to a parking lot late at night. There is very little activity on campus, it is dark, and I feel vulnerable. I often call my husband on my cell and keep him on the phone until I am safely in my car. [female]

Evidently, significant issues have existed for some time in regards to the parking lot lighting situation:
At the beginning of the school year up until mid-December they were not turning on the lights in the far parking lots. Being a younger female I did not feel safe walking to my car in the dark not even able to see 3 feet in front of me. [female]

This sentiment was reiterated by another young female:

When I am trying to walk to my car after evening classes and there are no lights on in the parking lots which has been a problem multiple times this year. I felt unsafe because I could not see at all and I felt at risk of injury. [female]

Another Pendleton University member stated: “I hold a parking spot in the farthest lot from the school doors (Lot 11 I think). The thought has crossed my mind that this would be an ideal spot for predators who lurk in the bushes after hours” [female]. One young female student succinctly summarized the concern for lighting in the parking lots: “Some of the parking lots are not well lit, and that made me feel very uncomfortable” [female].

While the parking lots were clearly the central concern for most Pendleton University members, one additional location drew a significant amount of attention from respondents. Although not a direct responsibility of the university since it lies on city property, the residence trail proved to be a significant area of concern for many campus members. One student opined:

Provide better lighting along the [residence trail], there is one light that has been out since the beginning of the fall semester (from what I have noticed) and one light that has constantly flickered since then as well. I feel like the lack of lighting, in certain areas of the trail, as well as the faulty lighting in other areas is a safety concern. [female]
One young female student felt particularly unsafe along this walkway due to a startling incident that, she felt, could have been mitigated with improved lighting:

I was walking home along the [residence trail] one night, with a friend, which I noticed one of the path lights were out, and another one was flickering. A truck was sitting beside the road not moving for a good five minutes (the amount of time it took for me and my friend to see the truck and walk to approximately where it was). The truck’s headlights came on as we approached, and the engine started. This initially freaked me out, and made me feel unsafe, the truck left a minute later. I personally feel that I wouldn’t have felt so unsafe if the trial lights were properly working, lighting has a large impact on my feeling of safety. [female]

Altogether, concerns of lighting proved significant for each of the six open-ended questions. According to this evidence, lighting—particularly in relation to the parking lots and residence trail, is one of the most significant factors to perceptions of personal safety among the members of Pendleton University.

Security Services. Issues concerning security services, while not as pervasive as lighting concerns, were still prevalent among the members of this university. Of those who answered the question specifically concerning Pendleton security services (question seven of section one), 58% explicitly identified items that pertained directly to aspects of security services—discounting lighting as a factor. So much so, in fact, that two prominent
subthemes were derived from the qualitative analysis. These sub-themes include:

*professionalism* of security services, and the minimal *presence* of security services.

**Professionalism.** This is one area that has dominated the general discussion of campus-based security services in the respondent’s remarks. While unfortunate, and potentially undeserving, a large number of respondents did report that they were altogether unsatisfied with the professionalism of Pendleton security services. As evidenced through the numerous responses, campus security services are commonly viewed as:

“Unapproachable and they don’t seem like they actually do anything” [male]; “[I]t seems all security does is lock and unlock doors and give out parking tickets. There needs to be a change” [male]; and, “[In reference to security services] I really don’t feel that there are any. Other than the safety walk. . . I don’t really feel that [Pendleton] really does anything more than that” [female].

This highly negative reaction to current security services is troubling. If campus members were to be engaged in any violent or criminal incident, it may be conceptually difficult for them to contact or immediately seek out help from those they do not trust. Tangible interactions with individuals that are perceived as negative may also diminish perceptions of confidence with people in positions of power. One young female provided a specific instance to frame her lack of confidence in security at Pendleton:

Lately I have found the security personnel to be ‘lack lustre’. I was double parked in lot 3 and when I discussed the situation with security they only responded by saying ‘well I saw that and hoped they would have driven away before anyone got back from class.’ That vehicle was still parked in the
middle of the lot the next day with no ticket on it... I found this very
frustrating as I had to resolve the situation on my own. [female]

Another example is provided by a female faculty member:

Several times I have tried to call Security for non-security related issues, and
have been unable to reach anyone. The call goes to voicemail, which says to
call another number, which also goes to voicemail. Same also happened
when a colleague used one of the security emergency phones. What would
happen if I had been calling because of a security issue? [female]

In fact, these common stories regarding a lack of competence and care for campus
members only exacerbates the problem by creating rumour, dissent, and distrust between
the campus community and security. This notion is readily illustrated by the various harsh,
yet perhaps unfounded, criticisms directed at campus security: “Security guards at the
school are lazy, and only enforce rules when they feel like it” [male]. Another young male
student voiced his opinion regarding security: “[There is a] lack of security involvement.
They just care about their jobs and not the well-being of other people” [male]. This
admittedly negative sentiment was reported by approximately 20% of all respondents.

**Presence.** Besides the general confidence in security services at Pendleton, the degree
of presence of such services were also highly criticized. In fact, a perceived lack of presence
may, in part, be contributory in the observed low confidence levels. This sentiment is
largely characterized by the response of one student: “Not enough visual presence of
security guards or advertisement of walk-home or ride programs, lack of emergency poles
or alarms outside” [female].
In this case, visibility is closely linked to the awareness of security and more general security services. It is clear that a number of Pendleton University members do not believe security personnel exhibit enough positive physical presence throughout the campus. This point is suggested by one male student: “Awareness of security is low. They need to frequent popular areas as much as low-traffic areas to ensure people know they are there” [male]. This notion is again reiterated by a number of other students who state: “There needs to be a more visible presence of security in the evenings” [female], and “[T]here are no security walking around at night, that’s the only time I feel unsafe, walking to my car at night after a late class” [female].

Interestingly, this perceived lack of visibility of security personnel is also applicable to general security services such as the campus walk program and student cell phones. A number of students commented similarly: “I am not aware of the safety services and do not know how to go about accessing them” [female]; “The services aren’t broadcasted very well” [female]; “[I believe that there needs to be more awareness and campus-friendly programs” [female]. In sum, these sentiments were echoed by roughly 25% of the sample. Finally, one faculty member noted:

Beyond concerns for myself and other members of faculty, I think increased efforts need to be made to offer safety services for students—e.g., increased lighting on campus, transportation along the [residence trail], Security Services who are immediately available to respond to alarms or ‘panic’ buttons should they be called upon. [female]
In light of these present findings, it is important to note that a large majority of respondents did not express any negative concerns with Pendleton security services. Furthermore, the reader is reminded that these critical responses are based upon personal experience and perceptions, and are not necessarily representative of reality; and, that the voluntary sample population of 314 represents only 6% of the total possible respondents. Nevertheless, these results present compelling evidence that a sizable minority of the voluntary sample population of Pendleton University members do believe, correctly or otherwise, that significant safety issues exist on their campus.

Coping Techniques and Fear Management

In addition to avoidance behaviour, negative perceptions of personal, situational, or environmental safety can elicit further fear management techniques. Such techniques involve grouping strategies (i.e., safety in numbers), temporal awareness (i.e., being cognizant of the time of day), and schedule management (i.e., attending classes or other social situations at nonthreatening locations and times of day) among others. No single question addressed this particular area of interest, yet a surprising number of respondents did, however, note various techniques and personally developed strategies to manage and cope with their fear of victimization on campus. Grouping strategies and schedule management were the most commonly used techniques exhibited by members of the Pendleton University campus.

Grouping strategies. Simply put, grouping strategies are employed by individuals when they believe that they are either legitimately or perceivably safer within the company of one or more people. It is, in fact, the common concept of safety in numbers and is
regularly employed by both males and females as a personal protective strategy to augment feelings of safety. It is not surprising that many members of Pendleton University use this particular strategy to manage fear and safety. It is, however, unfortunate that these strategies need to be employed at all. One staff member recounts a personal instance where she utilized a grouping strategy: “There was an after-hours event that I could have attended until later in the evening, but I left with the majority of the crowd at an earlier time, rather than be by myself with fewer people (Safety in numbers)” [female]. Another, more alarming instance of grouping strategies is recounted by a female student who claims to have been sexually assaulted on campus:

I was sexually assaulted, so I . . . no longer use the [Pendleton] trail system freely. I only utilize the system in a larger group (6+ people) during day hours (8:30am-4:30pm); no longer take evening classes that end after 6:30pm, as I’d have to walk to a remote parking lot in limited lighting; no longer participate in a number of evening seminars, events, et cetera for the same reasons (later, darker, more remote parking). [female]

Whether or not this individual actually reported the offense, thereby allowing security services to better understand the nature of violent crime on campus, is unknown.

Indeed, this general strategy of grouping behaviour is both widespread and socially acceptable. This is especially true for the time periods lacking significant sunlight. The following participant responses are indicative of the most common responses regarding grouping behaviour: “I don’t walk by myself around any part of the campus during nightfall. . . particularly near the town houses, and that side of the university building and the back
near the pond” [female]. Another student expressed her aversion to areas after nightfall that lack significant numbers of people: “I also don’t like to walk by myself around the campus (inside or outside the buildings) after hours, when there are limited numbers of people around” [female]. And lastly, another young female student commented: “At night, I would not venture on campus alone, especially in the residence areas” [female].

**Schedule management.** A large number of Pendleton community members also reported performing schedule management, essentially limiting mobility to certain areas to predetermined times of day that are perceived as safer. One female student epitomizes this behaviour in her response:

- I would not go out after 5 p.m. because that would mean returning when it was dark and I would need to walk to my house (TRC) in the dark from my parking lot which is located rather far from my house (Lot 3) and is a long walk that is not sufficiently lit, is very icy in the winter months, and has forested areas surrounding it where individuals and wild animals could potentially hide and jump out to attack me. [female]

The following participant responses represent a cross-section of the most readily reported uses of schedule management: “I try not to take night classes or stay unnecessarily at the school after hours” [female]. An older male faculty member noted: “I especially avoid the nights where there is a Pub night as this is awkward to run into students who are under the influence” [male]. And lastly, a young female student offered her own unique schedule: “I don’t drive to school for my late class, I take the bus so that way I can walk in the light” [female].
The Fear Index

Judgment of Site Characteristics

In order to test the hypotheses and address the research questions of this study, an initial exploratory investigation of the Pendleton University campus was conducted to create both the Traditional Fear Index (TFI) and the Extended Fear Index (EFI). The preliminary examination of the 11 individual sites (A-K) found cursory variations in prospect, refuge, escape, and traffic at each of the previously discussed sites. Table 14 presents the day-time judgment of site characteristics and Table 15 presents the night-time judgement of site characteristics. Using Chronbach’s alpha, the inter-rater reliability scores were as follows; cafeteria (.85), classrooms (.84), hallways (.81), library (.85), lounge (.86), lower gym (.89), main foyer (.90), outside walkways (.81), parking lots (.87), printing office (.93), residence trail (.95). Note that an average of .93 was observed by Fisher and Nasar (1992). Observations found that all areas offered varying degrees of prospect, refuge, escape, and traffic. Considering the conceptual interplay between the four environmental variables, an examination of Tables 16 and 17 reveals an interesting pattern between the variables on a site-by-site basis. It appears that when prospect, escape, and traffic are at their extremes (either high or low), refuge tends to occupy the opposite extreme. Take, for instance, a visual representation of the variable data for the highest ranked site (site G the main foyer, see Figure 6) and the lowest ranked site (site K the residence trail, see Figure 7). It is clear, at least at the extremes, that refuge tends to occupy an opposite ranking to that of the other variables. A more detailed visualization of these phenomena can be found in
Figure 7 which depicts *day-time* observations of the eleven sites, and Figure 8 which displays the *night-time* observations.

**Construction of the Fear Index**

From the abovementioned judgment of site characteristics, both the TFI and EFI were constructed. As evidenced by Table 18, 19, 20, and 21, the Fear Indexes were produced by ranking each site within a given site characteristic dataset (i.e., prospect, or refuge individually among their group rating). The “Fear Index” ranking represents an aggregated number of the individual ranking of site characteristics for that particular site. It is important to note that higher Fear Index scores are hypothesized as safer areas in relation to the lower ranked sites that present less safe areas within the dataset.

**Construction of the traditional fear index (day)—Table 18.** The results from the constructed *day-time* TFI presented a linear progression from a Fear Index of 5 to that of 31. On the lower end of the Fear Index, the residence trail (K), library (D), and printing office (J) occupy the lowest three positions and are thus hypothesized to present the lowest levels of perceived safety from respondents when ranking daytime scores. Conversely, the three highest rated sites on the Fear Index were the cafeteria (A), lounge (E), and the main foyer (G). Therefore, it is hypothesized that these three sites will present the highest levels of perceived safety from respondents when ranking daytime scores. Using linear regression, significant results were revealed when testing the *day-time* TFI with the reported mean overall perceptions of safety for individual sites ($R^2 = .382$, $F (1, 9)=5.567$, $p=.043$).
Table 16

Judgment of Site Characteristics (Day)

<table>
<thead>
<tr>
<th>Site</th>
<th>Prospect 1=Limited, 7=Open</th>
<th>Refuge 1=None, 7=Much</th>
<th>Escape 1=Limited, 7=Effortless</th>
<th>Traffic 1=Limited, 7=Large Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Cafeteria</td>
<td>6</td>
<td>2.8</td>
<td>5.3</td>
<td>6.8</td>
</tr>
<tr>
<td>(B) Classrooms</td>
<td>6.3</td>
<td>1.6</td>
<td>3.4</td>
<td>6.5</td>
</tr>
<tr>
<td>(C) Hallways</td>
<td>5.4</td>
<td>3.7</td>
<td>2.3</td>
<td>5.4</td>
</tr>
<tr>
<td>(D) Library</td>
<td>3.6</td>
<td>5.7</td>
<td>3.1</td>
<td>6.7</td>
</tr>
<tr>
<td>(E) Lounge</td>
<td>6.2</td>
<td>1.5</td>
<td>5.7</td>
<td>6.4</td>
</tr>
<tr>
<td>(F) Lower Gym</td>
<td>3.9</td>
<td>5.2</td>
<td>3.5</td>
<td>5.8</td>
</tr>
<tr>
<td>(G) Main Foyer</td>
<td>6.4</td>
<td>2.2</td>
<td>6.1</td>
<td>6.4</td>
</tr>
<tr>
<td>(H) Outside Walkways</td>
<td>4.7</td>
<td>5.4</td>
<td>4.4</td>
<td>3.1</td>
</tr>
<tr>
<td>(I) Parking Lots</td>
<td>5.8</td>
<td>4.7</td>
<td>4.8</td>
<td>5.9</td>
</tr>
<tr>
<td>(J) Printing Office</td>
<td>2.8</td>
<td>3.8</td>
<td>2.6</td>
<td>3.2</td>
</tr>
<tr>
<td>(K) Residence Trail</td>
<td>2.1</td>
<td>6.4</td>
<td>2.7</td>
<td>2.3</td>
</tr>
</tbody>
</table>
Figure 5. Comparison of site characteristics and reported safety—main foyer (day).
Figure 6. Comparison of site characteristics and reported safety—residence trail (night).
Figure 7. Judgment of site characteristics (day). The data for this figure were derived from question 8 of section 2 of the survey instrument and the judgment of site characteristics illustrated in Table 14.

Site A–Cafeteria
Site B–Classrooms
Site C–Hallways
Site D–Library
Site E–Lounge
Site F–Lower gym
Site G–Main Foyer
Site H–Outside walkways
Site I–Parking lots
Site J–Printing office
Site K–Residence trail
Figure 8. Judgment of site characteristics (night). The data for this figure were derived from question 8 of section 2 of the survey instrument and the judgment of site characteristics illustrated in Table 15. Site A–Cafeteria Site B–Classrooms Site C–Hallways Site D–Library Site E–Lounge Site F–Lower gym Site G–Main Foyer Site H–Outside walkways Site I–Parking lots Site J–Printing office Site K–Residence trail
Construction of the traditional fear index (night)—Table 19. The results from the constructed night-time TFI also presented a clear linear progression, displaying a Fear Index range of 3 to 33 with no overlapping ratings. Curiously, both the day and night-time TFIs exhibit an identical order of sites listed. Using linear regression, significant results were revealed when testing the night-time TFI with the reported mean overall perceptions of safety for individual sites ($R^2 = .762, F(1, 9)=28.760, p<.001$).

Construction of the extended fear index (day)—Table 20. Akin to the results presented by the TFIs, the day-time EFI also presented a clear linear progression, displaying a range from 6 to 39 with two overlapping rankings between sites D and F. Unlike the TFI results, however, the EFI ranking order was notably different. On the lower end of the EFI Fear Index were the residence trail (K), the parking lots (I), and the outside walkways (H) – a more logical ranking of poorly ranked sites. On the higher end were the cafeteria (A), lounge (E), and the main foyer (G) which represents an identical ranking to that of the day-time TFI. Using linear regression, significant results were revealed when testing the day-time TFI with the reported mean overall perceptions of safety for individual sites ($R^2 = .516, F(1, 9)=9.587, p=.013$).

Construction of the extended fear index (night)—Table 21. The results from the constructed night-time EFI also presented a clear linear progression, displaying a Fear Index range from 4 to 43 with no overlapping ratings. Curiously, both the day and night-time TFIs exhibit an almost identical order of sites listed. While the lower rated sites maintained their order, the higher rated sites did not. At the higher end were lounge (E), classrooms (B), and the main foyer (G). Using linear regression, significant results were revealed when testing
<table>
<thead>
<tr>
<th>Site</th>
<th>Prospect 1=Limited, 7=Open</th>
<th>Refuge 1=None, 7=Much</th>
<th>Escape 1=Limited, 7=Easy</th>
<th>Traffic 1=Limited, 7=Abundance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Cafeteria</td>
<td>3.8</td>
<td>4.4</td>
<td>3.5</td>
<td>3.9</td>
</tr>
<tr>
<td>(B) Classrooms</td>
<td>5.6</td>
<td>3.4</td>
<td>3.6</td>
<td>4.5</td>
</tr>
<tr>
<td>(C) Hallways</td>
<td>4.5</td>
<td>5.3</td>
<td>3.1</td>
<td>2.6</td>
</tr>
<tr>
<td>(D) Library</td>
<td>3</td>
<td>5.7</td>
<td>3.2</td>
<td>5.8</td>
</tr>
<tr>
<td>(E) Lounge</td>
<td>5.5</td>
<td>2.4</td>
<td>4.9</td>
<td>3.3</td>
</tr>
<tr>
<td>(F) Lower Gym</td>
<td>2.9</td>
<td>6.1</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>(G) Main Foyer</td>
<td>6.4</td>
<td>2.3</td>
<td>6</td>
<td>5.4</td>
</tr>
<tr>
<td>(H) Outside Walkways</td>
<td>1.3</td>
<td>6.7</td>
<td>1.6</td>
<td>1.4</td>
</tr>
<tr>
<td>(I) Parking Lots</td>
<td>1.2</td>
<td>6.8</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>(J) Printing Office</td>
<td>1.9</td>
<td>5.7</td>
<td>1.5</td>
<td>1.4</td>
</tr>
<tr>
<td>(K) Residence Trail</td>
<td>1.2</td>
<td>7</td>
<td>1.2</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 18

*Construction of the Traditional Fear Index (Day)*

<table>
<thead>
<tr>
<th>Site</th>
<th>Prospect</th>
<th>Refuge</th>
<th>Escape</th>
<th>Fear Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>2.1 <em>(1)</em>*</td>
<td>6.4 (1)</td>
<td>2.8 (3)</td>
<td>5I</td>
</tr>
<tr>
<td>D</td>
<td>3.6 (3)</td>
<td>5.7 (2)</td>
<td>3.1 (4)</td>
<td>9</td>
</tr>
<tr>
<td>J</td>
<td>5.8 (7)</td>
<td>4.7 (5)</td>
<td>4.8 (8)</td>
<td>10</td>
</tr>
<tr>
<td>F</td>
<td>3.9 (4)</td>
<td>5.2 (4)</td>
<td>3.5 (6)</td>
<td>14</td>
</tr>
<tr>
<td>C</td>
<td>5.4 (6)</td>
<td>3.7 (7)</td>
<td>2.3 (1)</td>
<td>14</td>
</tr>
<tr>
<td>H</td>
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<td>5.4 (3)</td>
<td>4.4 (7)</td>
<td>15</td>
</tr>
<tr>
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<td>4.7 (6)</td>
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</tr>
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<td>25</td>
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<tr>
<td>A</td>
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<td>2.8 (8)</td>
<td>5.3 (9)</td>
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<tr>
<td>E</td>
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<td>1.5 (11)</td>
<td>5.7 (10)</td>
<td>30</td>
</tr>
<tr>
<td>G</td>
<td>6.4 (11)</td>
<td>2.2 (9)</td>
<td>6.1 (11)</td>
<td>31</td>
</tr>
</tbody>
</table>

*Mean derived from judgment of site characteristics

** Rank related to overall ranking within the characteristic data set

Ɨ Fear Index was derived by adding individual ranks together

Note: each site and characteristic was judged on a 7 point Likert-scale. Prospect, escape, and traffic were measured positively; whereas a higher score indicated a potentially “safer” area. Refuge was measured negatively; whereas a higher score indicated a potentially “less safe” area for offenders to hide.

Site A—Cafeteria
Site B—Classrooms
Site C—Hallways
Site D—Library
Site E—Lounge
Site F—Lower gym
Site G—Main Foyer
Site H—Outside walkways
Site I—Parking lots
Site J—Printing office
Site K—Residence trail
Table 19

*Construction of the Traditional Fear Index (Night)*

<table>
<thead>
<tr>
<th>Site</th>
<th>Prospect</th>
<th>Refuge</th>
<th>Escape</th>
<th>Fear Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>1.2* (1)**</td>
<td>7 (1)</td>
<td>1.2 (1)</td>
<td>31</td>
</tr>
<tr>
<td>D</td>
<td>3 (6)</td>
<td>5.7 (6)</td>
<td>3.2 (7)</td>
<td>7</td>
</tr>
<tr>
<td>J</td>
<td>1.9 (4)</td>
<td>5.7 (5)</td>
<td>1.5 (2)</td>
<td>10</td>
</tr>
<tr>
<td>F</td>
<td>2.9 (5)</td>
<td>6.1 (4)</td>
<td>3 (5)</td>
<td>11</td>
</tr>
<tr>
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<td>5.3 (7)</td>
<td>3.1 (6)</td>
<td>14</td>
</tr>
<tr>
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<td>1.6 (4)</td>
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<td>6 (11)</td>
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</tr>
</tbody>
</table>

*Mean derived from judgment of site characteristics

** Rank related to overall ranking within the characteristic data set

Ɨ Fear Index was derived by adding individual ranks together

Note: each site and characteristic was judged on a 7 point Likert-scale. Prospect, escape, and traffic were measured positively; whereas a higher score indicated a potentially “safer” area. Refuge was measured negatively; whereas a higher score indicated a potentially “less safe” area for offenders to hide.

Site A–Cafeteria
Site B–Classrooms
Site C–Hallways
Site D–Library
Site E–Lounge
Site F–Lower gym
Site G–Main Foyer
Site H–Outside walkways
Site I–Parking lots
Site J–Printing office
Site K–Residence trail
<table>
<thead>
<tr>
<th>Site</th>
<th>Prospect</th>
<th>Refuge</th>
<th>Escape</th>
<th>Traffic</th>
<th>Fear Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
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<td>2.3 (1)</td>
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<td>4.7 (6)</td>
<td>4.8 (2)</td>
<td>5.9 (3)</td>
<td>13</td>
</tr>
<tr>
<td>H</td>
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<td>5.4 (3)</td>
<td>4.4 (7)</td>
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<td>3.1 (4)</td>
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<td>J</td>
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<td>4.8 (8)</td>
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<td>26</td>
</tr>
<tr>
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<td>3.4 (5)</td>
<td>6.5 (9)</td>
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<td>2.2 (9)</td>
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<td>6.4 (8)</td>
<td>39</td>
</tr>
</tbody>
</table>

*Mean derived from judgment of site characteristics
** Rank related to overall ranking within the characteristic data set
Ɨ Fear Index was derived by adding individual ranks together

Note: each site and characteristic was judged on a 7 point Likert-scale. Prospect, escape, and traffic were measured positively; whereas a higher score indicated a potentially “safer” area. Refuge was measured negatively; whereas a higher score indicated a potentially “less safe” area for offenders to hide.

Site A–Cafeteria
Site B–Classrooms
Site C–Hallways
Site D–Library
Site E–Lounge
Site F–Lower gym
Site G–Main Foyer
Site H–Outside walkways
Site I–Parking lots
Site J–Printing office
Site K–Residence trail
Table 21

Construction of the Extended Fear Index (Night)

<table>
<thead>
<tr>
<th>Site</th>
<th>Prospect</th>
<th>Refuge</th>
<th>Escape</th>
<th>Traffic</th>
<th>Rank</th>
</tr>
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<td>1 (1)</td>
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<td>6.8 (2)</td>
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<td>1.2 (2)</td>
<td>9</td>
</tr>
<tr>
<td>H</td>
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<td>6.7 (3)</td>
<td>1.6 (4)</td>
<td>1.4 (3)</td>
<td>13</td>
</tr>
<tr>
<td>J</td>
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<td>5.7 (5)</td>
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<td>15</td>
</tr>
<tr>
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<td>5.3 (7)</td>
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<td>26</td>
</tr>
<tr>
<td>D</td>
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<td>5.7 (6)</td>
<td>3.2 (7)</td>
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<tr>
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<td>4.9 (10)</td>
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<tr>
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<td>6 (11)</td>
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<td>43</td>
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</tbody>
</table>

*Mean derived from judgment of site characteristics
** Rank related to overall ranking within the characteristic data set
Ɨ Fear Index was derived by adding individual ranks together

Note: each site and characteristic was judged on a 7 point Likert-scale. Prospect, escape, and traffic were measured positively; whereas a higher score indicated a potentially “safer” area. Refuge was measured negatively; whereas a higher score indicated a potentially “less safe” area for offenders to hide.

Site A–Cafeteria
Site B–Classrooms
Site C–Hallways
Site D–Library
Site E–Lounge
Site F–Lower gym
Site G–Main Foyer
Site H–Outside walkways
Site I–Parking lots
Site J–Printing office
Site K–Residence trail
the *day-time* TFI with the reported mean overall perceptions of safety for individual sites 
\(R^2 = .860, F(1, 9)=55.210, p< .001\).

**Comparison of the TFI and EFI**

As discussed above, the various Fear Index iterations (TFI day/night and EFI day/night) were subjected to tests of linear regression. Significant differences were revealed with each test. In comparison of the two *day-rated* indexes, we first see that both offer a reliable and significant predictor of *day-time* perceptions of safety (TFI \(p=.043\), EFI \(p=.013\)). Most interestingly, however, is the comparison of the multiple correlation coefficient values. While still significant, the correlation coefficient of the TFI (\(R^2=.382\)) is significantly lower than that of the EFI (\(R^2=.516\)), signifying that the EFI, in this instance, is a much more suitable predictor of perceptions of safety than that of the TFI. Since the \(R^2\) value accounts for the variance in the Fear Index explained by the predictors, a higher value indicates that the variance exhibited by the individual sites is being accurately accounted for by the variables (predictors) of the Fear Indexes.

While the comparison between the two indexes using *day-time* factors provides some positive results, the comparison of *night-time* ratings is truly noteworthy. In comparison of the two *night-rated* indexes we, similar to the *day-time* ratings, see highly significant results. When tested with the mean reported site-specific *night-time* ratings, both indexes reported a statistical significance of \(p< .001\). Again, the most intriguing aspect of this comparison is evident when examining the correlation coefficient values. While dramatically higher than that achieved with the *day-ratings*, the TFI (\(R^2 = .762\)) again performed markedly lower than the EFI (\(R^2 = .860\)). These results, in addition to the results
of the *day-rating* scores, strongly indicate that the EFI is, in fact, a more reliable and accurate predictor of perceptions of safety than that of the TFI.
CHAPTER FIVE: DISCUSSION AND CONCLUSION

Discussion

This study has, through the examination, interpretation, and implementation of the prospect-refuge model, examined the influence of the built environment on the perceptions of personal and overall campus safety. During the course of this research study the initially outlined hypotheses have been confirmed—that the built environment does shape perceptions of safety—and the research questions have each been addressed, with some providing the impetus for additional inquiry. This exploratory research has shed light on the unique interplay between human and environment, and has revealed a number of findings that may help improve the relationship between the two. Of particular note are the findings regarding gender, avoidance behaviour, the influence of lighting, and the Fear Index.

The Significance of Gender

Contrary to previous research (Day, 1994; Fisher & Sloan, 2003; Krahé, 2005; Warr, 1984), gender exhibited virtually no significant differences in relation to perceptions of safety. These results are interesting as they challenge the stereotypical beliefs of late 20th century safety research. This is not to say, however, that no differences were observed—simply that the observed differences were generally insignificant. For instance, Tables 3 and 6-11 illustrate the perceptions of overall and site-specific safety as reported by respondents. Upon comparison, both genders typically reported similar means and standard deviations. Moreover, the almost identical perceptions of safety reported in Tables 4 and 5 demonstrate that environmental variables, in this case time of day, provide
uniform influence across genders—indicating again, the seeming unimportance of gender as a causal factor. Indeed, the similarity of reported safety between males and females cannot be understated. These findings suggest that perceptions of safety are, in fact, more closely linked to external factors, such as environmental variables and social interaction, than that of gender as previously understood. These results are similar to the findings of Fisher and Nasar (1992) that describe “[N]o significant difference in the scores of males and females for daytime safety. [But,] for nighttime, females reported feeling significantly (t=4.7, p<.001) less safe (x=4.2) than did males (x=3.0)” (p. 51).

Of course, the reporting of gender similarities was not universal. As illustrated by Figure 2, females reported the use of avoidance behaviour to a significantly larger extent than that of males. So much so, that females consistently reported higher levels of avoidance of sites than males, particularly for the sites reported as least safe on campus (sites F, H, I, J, K). This may lead some to believe that females are more frightened of certain areas on campus; but a more reasonable explanation might be that females likely recognize potentially dangerous areas more easily and take preventative action more readily.

Altogether, the similarities of reported perceptions of safety between the genders are particularly noteworthy in this research. Perhaps the dissimilarity between the results of this study and those of previous work can be attributed, in large part, to the nature of the questions—inquiring about perceived safety rather than fear of violence (Fisher & Nasar, 1992; Petherick, 2000). One male interview participant provided the following example that certainly reinforces the notion of gender neutrality in safety studies:
After walking to a back parking lot late at night, I stumbled upon a man walking his dog. He was no threat, but it was so dark I did not notice the man until I was right on top of him. This made me feel very unnerved. If a 6’4” 240-lb man feels uncomfortable walking to his car, how do other members of the university community feel? [male]

This notion of a fearful gender and a fearless gender raises a number of questions about the use and operation of safety initiatives on campuses. Intriguingly, one respondent seemingly addressed this very issue:

The ‘safety committee’ at [Pendleton] is called the ‘Women’s Safety Committee’.

While I recognize that this is because the external source of the funding requires that it be called this, it sends a number of clear messages: 1) That the committee is only concerned with safety issues of women, and not those of men on campus. 2) That women are the only individuals who have safety issues on campus. 3) That men are a danger to women on campus, thereby reinforcing the feminist stereotype that all men are victimizers, and that women are only capable of being victims. [female]

The Significance of Lighting

According to the results, lighting appears to be the most significant variable in relation to perceptions of campus safety. When considering the sheer number of open-ended responses that mentioned lighting as a significant determinant of perceived safety, it is clear that lighting would come to be a substantial issue. Whether discussing avoidance behaviour, feelings of dread, the overall campus, or specific sites, lighting was always a key topic.
Figure 9. Mean reported perception of overall campus safety by time of day.
In terms of the quantitative results, we recognize the impact of lighting in two key ways. First, illustrated by Figure 6, we see that time of day—and, therefore, ambient lighting—negatively affects the overall perception of campus safety for both genders. The decreased perceptions of safety evident after nightfall are, however, unsurprising. To observe the largest and therefore most significant impact of lighting we must next look to the site-specific ratings. Figure 7 provides a breakdown of the mean reported perceptions of safety by indoor and outdoor locations. From this graph we see that five areas, in particular, exhibit lower safety ratings (sites F, H, I, J, K). Most interestingly, these five areas are those in which respondents identified as the most in need of lighting improvement. A clear divide between interior and exterior sites is also evident. From this analysis it is reasonable to argue that the outdoor sites—those generally ranked the lowest—are those that suffer from a lack of acceptable lighting fixtures. One male student noted in regards to lighting: “The dark nether regions of campus—Back parking lots and trails that are poorly lit or not lit at all. It is an invitation to predators” [male].

The Significance of Proximate Social Factors

Besides lighting and other environmental determinates, proximate social factors also appeared to be of significance to the members of Pendleton University. When in times of need there are few people we trust with our problems and invest in them power to find a resolution. In the case of campus safety, the local campus security services are those individuals we look to. It appears, however, that many—approximately 40% of all respondents—do not feel entirely confident in the security services provided by Pendleton. Issues concerning competence of personnel, ambiguity of service providers and
Figure 10. Comparison of interior and exterior sites by mean reported perceptions of safety.
Site A—Cafeteria
Site B—Classrooms
Site C—Hallways
Site D—Library
Site E—Lounge
Site F—Lower gym
Site G—Main Foyer
Site H—Outside walkways
Site I—Parking lots
Site J—Printing office
Site K—Residence trail
administration, and presence of said personnel were the most common themes that developed. While dissimilar in site, population, and content, the following quotation from Janosik and Gregory (2009) does elucidate an extreme case of this particular situation:

In all of the studies mentioned in this article, a small but important number of respondents believe that college administrators are not candid and intentionally hide information from the public. Infrequently reported incidents such as the one that occurred at Eastern Michigan University, where university officials failed to notify the university community that a murder had occurred on campus, lend credence to those views among students, parents, legislators, and the general public. These cases become fodder for the popular press and reinforce this conventional wisdom. Such behavior is, of course, abhorrent and cannot be tolerated. It is counterproductive and could lead to more onerous legislation and unfunded mandates. In addition, the hiding of campus crime by college and university officials, particularly for the purposes of preserving some image of safety and pristine ivy-covered sanctuaries, is short-sighted and will lead to increased liability. (p. 223)

Extension of the Fear Index

Perhaps the most important findings to be derived from this research relate to the augmentation of the TFI and creation of the EFI. In parallel to previous research (Fisher & Nasar, 1992; Heft & Nasar, 2000; Nasar & Fisher, 1993; Nasar, Fisher, & Grannis, 1993; Nasar & Jones, 1997; Petherick, 2000), this study’s findings have replicated the results indicating that particular aspects of the built environment (micro-cues) do have a significant role in perceived safety. It is, therefore, concluded that higher levels of perceived safety will
follow from high prospect, low refuge, multiple/open routes of escape, and high levels of foot traffic; the opposite can be said for low perceptions of safety. Furthermore, the addition of traffic to the Fear Index has further extended and enriched the original findings in reference to the prospect-refuge model. Using tests of linear regression, it was revealed that the EFI created for this study was, in fact, a significantly more accurate and reliable predictor of perceptions of safety than that of Fisher and Nasar’s (1992) TFI. The predictive qualities of the EFI appear remarkable. Accordingly, these findings indicate that both the built environment and proximate social factors, in addition to myriad personal variables, are strongly linked to negative perceptions of safety and are, thus, a detriment to overall quality of life. The closing remark of Jennings’ et al. (2007) article provides us with a thoughtful rejoinder:

Indeed, the research evidence appears to be mounting in the direction indicating that institutions of higher learning are not as safe as once perceived; therefore, there is a need for a concerted effort from the campus community to help reduce the collective levels of campus victimization and also to increase perceptions of safety and use of constrained behaviour in an effort to reduce individual susceptibility to campus crime.

(p.206)

The findings of this research study suggest that campus safety concerns are indeed a significant issue among members of the Pendleton University community. Considering both reported perceptions of safety and reported avoidance behaviour, it is fascinating that such a clear and unambiguous topography of fear developed from these findings—particularly in light of the remarkable gender similarities. It is with confidence that this paper can,
therefore, recommend not only avenues of future research, but policy considerations, and, perhaps most importantly, sound remediations to the built environment of an educational institution. Applying the findings of this research will not only directly benefit a university itself, but the overall safety and quality of life of an entire surrounding university.

**Recommendations for Future Research**

Given the results of this study, in addition to similar reports (Nasar & Fisher, 1992; Nasar & Fisher, 1993; Nasar et al., 1993; Nasar & Jones; 1997; Petherick, 2000; Stamps, 2006, 2008a, 2008b), it is prudent that the built environments of educational facilities be examined in greater depth. It is clear that environmental variables do impact the perceptions of safety engendered by the students, staff, and faculty of post-secondary institutions. It is not clear, however, to what extent these micro-cues impact the perceptions of safety exhibited by elementary and secondary students. Conceptually, the context and scope of future research at these younger levels of schooling is similar enough that the methodology and models employed by this present study could be easily utilized. The inherent differences that undeniably exist among the various levels—namely, the space usage, cohort age, and prevalent modes of crime—may, in fact, reveal aspects of the built environment previously unstudied by researchers in this area.

It is also suggested that a similar study be conducted on further aspects of Pendleton University’s setting in order to achieve a panoptic understanding of the fearscape present at this institution. For instance, identifying and studying facets of the main Pendleton campus may have precluded a large number of respondents from fully and accurately participating due to a possible lack of familiarity with the areas mentioned, a lack of
territorality, or ambivalence towards public spaces, to name a few (Fletcher & Bryden, 2009; Nasar & Fisher, 1993; Santucci & Gable, 1997). It is suggested that further studies attempt to narrow their research focus to individual residences on the Pendleton campus. There exist a number of reasons why these sites pose an equally interesting setting for study in comparison to the main campus. Not only could the sample be controlled in a more rigorous way, but with strict security for the entrance and exit of all apartment residences, it is unlikely that non-residence members would be of significant influence. Furthermore, the return rate may be significantly higher if conducted in multiple phases and while utilizing the additional communication and mailing systems available only to those students living on residence. A more detailed study and accurate measurements may be the product of such research.

Future research should also endeavor to further explore the implications of social factors in regards to campus safety—both perceived and physical. Interestingly, the qualitative aspect of this study illuminated a number of unexpected social themes that directly impacted the respondents’ perceptions of safety. Perhaps the perceptions of security services are much more important to overall perceptions of campus safety than that of proximate environmental variables? This relationship must be further investigated.

Furthermore, the implications of the Fear Index must not be understated. Few iterations of this conceptual model have been developed since its inception in 1992, yet the addition of traffic illustrated a remarkable improvement in the predictive qualities of the Index. This result alone provides impetus for further investigation into the mechanisms of the Fear Index. First, considering the implementation of traffic, a more comprehensive
analysis of this variable should be attempted. While the use of traffic in the experimental EFI model was indeed quite successful, its use was admittedly simplistic. Perhaps a more deeply examined and delineated qualification of traffic is necessary. Consider, particularly in the context of elementary and secondary facilities, the prevalence of gang and group-based violence—the classification of traffic as used in this study would suggest that individuals will naturally feel safe in the presence of 15 or more other individuals. This may, however, be counterintuitive if those classified as “other” are members of a cohesive and potentially violent group.

Lastly, future research into this area must test combinations of environmental variables in order to cultivate a more accurate Index. It is suggested that lighting, venue, usage of space, upkeep/maintenance, isolation, and distance to emergency support be considered as potential variables. Of the findings presented by this research study, this area, in particular, warrants extensive future study.

Closing Comments

The fear of victimization is an issue all schools must address. As illustrated by Nasar and Fisher (1993), campuses are highly susceptible to crime and fear due to the largely impersonal atmosphere, relative lack of guardianship, and presence of motivated offenders. It is critical that all institutions act vigilantly to respect and support the safety of their students and staff. Furthermore, it is important that reported crime and victimization rates not be used as the sole measure of campus safety. The results of this study have clearly illustrated the presence of avoidance behaviour and mobility limiters which speak to the
existence of particular campus safety issues that have yet to be addressed. According to Fisher and Nasar (1992), the central issue of this problem remains fairly clear:

Whether it applies to actual crime or not, we see value in understanding effects of the proximate environment on fear of crime. Even though fears may be inaccurate in terms of the actual risk, they can influence behavior and have profound negative psychological effects, making individuals feel powerless, vulnerable, and impotent in the face of their fears. (p. 62)

The object of this research has been to provide a reliable predictive model for campus security and administrative personnel to more accurately assess the overall safety and potential problem areas of their given campus; which, in turn, will greatly improve the perceptions of safety engendered by the campus community. Though previous studies have successfully demonstrated the effectiveness of the prospect-refuge model, in addition to novel iterations of the Fear Index, it was the Extended Fear Index—developed for this research—that proved to be the most significant findings of this research. While further research should be conducted to verify the most accurate physical and social variables to be used with the Fear Index, the results of this research strongly indicate that particular environmental variables (i.e., prospect, refuge, and escape), with the critical addition of proximate social factors, can accurately predict reported perceptions of safety. The results are indeed promising, demonstrating how the Fear Index could be seamlessly integrated with current safety audits conducted at institutions to develop a more accurate understanding of any problem areas. As Fletcher and Bryden (2009) point out, “[T]he university community needs to be made aware of the negative consequences of violence,
and actively engage in activities to ensure the university is a safe environment for both genders” (p. 1161). The Extended Fear Index provides professionals and those inexperienced in security administration with the means to rapidly identify and accurately address those areas which may be more susceptible to incidents of victimization.

As work is continued in this field, no doubt a closer synthesis between aesthetics and function will evolve within architecture and the resulting built environments. A safe environment is not inherently a bleak and sterile one. Success at the elementary and secondary levels has illustrated the remarkably positive use of the built environment in fostering not only improved safety, but community integration, staff/student collegiality, improved academic performance, and a greater sense of responsibility and ownership by all members of the school community. With further refinement and exploration, the Extended Fear Index could very well be a critical element of safe school planning for use within any level of schooling.
References


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doi:10.1177/0093854803252354


doi:10.1061/(ASCE)0887-3828


Appendix A

Tests of Computer Generated Visual Permeability and Prospect-Refuge Modelling Software

Stamps (2005), p. 604
Greetings [Pendleton] Students, Staff, and Faculty,

My name is Robert Hendy and I am conducting a study on the perceptions of campus safety.

Your thoughts, opinions, and experiences are all uniquely valuable - and I want to hear them. I am conducting this research as part of my M.Ed thesis related to the perceptions of safety on university campuses. Below there is a link that will take you to a short (5 minute) online survey where you will provide your personal opinions on campus safety here at [Pendleton] University. Your input is greatly appreciated and highly valued. Participation in this research is completely voluntary, and confidentiality is absolutely assured.

For more information about this research including contact info, please read the attached Participant Information Letter.

Please click the following link for access to the [Pendleton] University Campus Safety Survey: http://nucampussafety.questionpro.com/

Thank you for your time,
Robert Hendy
Appendix C

Photographic Presentation of the Cafeteria (Site A)
Appendix D

Photographic Presentation of the Classrooms (Site B)
Appendix E

Photographic Presentation of the Hallways (Site C)
Appendix F

Photographic Presentation of the Library (Site D)
Appendix G

Photographic Representation of the Lounge (Site E)
Appendix H

Photographic Presentation of the Lower Gym (Site F)
Appendix I

Photographic Presentation of the Main Foyer (Site G)
Appendix J

Photographic Presentation of the Outside Walkways (Site H)
Appendix K

Photographic Presentation of the Parking Lots (Site I)
Appendix L

Photographic Presentation of the Printing Office (Site J)
Appendix M

Photographic Presentation of the Residence Trail (Site K)
Appendix N

Judgment of Site Characteristics Form

Date: ________________________________

**Day**

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<th>Site</th>
<th>Prospect</th>
<th>Refuge</th>
<th>Escape</th>
<th>Traffic</th>
<th>Comments</th>
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Note: All variables are listed on a bi-polar scale from 1-7.

**Night**

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Appendix O

Sample of the Online Questionnaire used for this Study

Pendleton University

“Your Opinion About Campus Safety”

Section 1: Basic Demographic and Attitudinal Information

1. Age
   - 19 and Under
   - 20 to 29
   - 30 to 39
   - 40 to 49
   - 50 and Over

2. Gender
   - Male
   - Female
   - Other

3. Have you ever been a victim of violent crime?
   - Yes
   - No

4. Have you ever been a witness to violent crime?
   - Yes
   - No

5. Have you ever felt unsafe while on the Pendleton University campus?
   - Yes
   - No

   i. (If YES) Please describe where you were on campus and what made you feel unsafe (Open field)
6. Do you avoid any areas on campus because of safety concerns?
   o Yes
   o No
      i. (If YES) What areas on campus do you tend to avoid? (Open field)

7. Have you ever changed social or school plans because of safety concerns?
   o Yes
   o No
      i. (If YES) Please describe what safety concerns you had that promoted you to change your plans related to the Pendleton campus (Open field)

8. Are you satisfied with the safety services provided by Pendleton and the local college?
   o Yes
   o Somewhat
   o No
      i. (If SOMEWHAT or NO) Please describe the issues you have with the safety services provided by Pendleton and the local college (Open field)

Section 2: Site-Specific Information

For the following questions please rate each using the scale provided.

NA = Not Applicable
1= Very Unsafe
2= Unsafe
3= Somewhat Safe
4=Safe
5= Very Safe

1. How safe do you feel on campus during the day? (1 to 5)

2. How safe do you feel on campus at night? (1 to 5)

3. Where would you say is the SAFEST place on campus? (Open field)
4. How would you rate the SAFEST area:
   a. During the day (1 to 5)
   b. At night (1 to 5)

5. Where would you say is the LEAST safe place on campus? (Open field)

6. How would you rate the LEAST safe area:
   a. During the day (1 to 5)
   b. At night (1 to 5)

7. Please rate the following locations on campus according to how safe you feel during the DAY.
   o Lounge
   o Cafeteria
   o Classrooms
   o Hallways
   o Library
   o Lower gym
   o Outside walkways
   o Parking lots
   o Pendleton main foyer
   o Printing office
   o Residence trail

8. Please rate the following location on campus according to how safe you feel at NIGHT. (Same list as above)

9. Do you tend to avoid any of the locations listed? (Same list as above)

Section 3: Open-Ended Questions
1. What could be done to improve your overall safety and comfort while on campus? (Open field)

2. If there are any other comments or information that you feel is necessary to include, please feel free to include it here. (Open field)

3. If you have experienced violent crime or feelings of insecurity while on the [Pendleton] University campus and would like to be considered for a possible
subsequent interview in the study, please type your email address and a brief description of the incident below. You will be contacted by email if chosen for the interview process. (Open field)
Appendix Q

Participant Information Letter

INSTRUCTIONS TO THE RESEARCHER: Use this form if the participants’ identity will NOT be known to you or anyone else involved in the research.

In order to signify completion of your REB application, you must complete all sections of this form.

Participant Information Letter for Anonymous Participants

You are asked to participate in a research study entitled An Analysis of Perceived Safety in the Built and Social Environment of an Educational Facility conducted by Robert Hendy (Names of all investigators) from the School of Graduate Studies (Department affiliation) at Nipissing University. The results of this study will contribute to a Master's thesis (student senior project or thesis; faculty research; etc.).

If you have any questions or concerns about the research, please feel free to contact Robert Hendy at either (705) 478-6661 or rdhendy895@community.nipissingu.ca, or Daniel Jarvis at either (705) 474-3461 or danj@nipissingu.ca (Contact persons: Faculty Researcher or Faculty Supervisor. Include daytime phone numbers and email addresses).

The purpose and objectives of this study are to investigate the contextual interplay between the built environment of an educational facility and the perceptions of safety illustrated by members of said environment.

Participation Procedures

If you volunteer to participate in this study, we would ask you to:

Describe in detail the role of the research participants, including all procedures in which they will be involved (paper and pencil tasks, interviews, surveys, questionnaires, physical or physiological tests, note if recording devices will be used).

As a participant it is your role to accurately and completely answer all questions that you feel comfortable answering. You will be asked a series of yes/no questions, as well as some open-ended questions. Please answer each to the best of your abilities. You are not asked to include your name, specific date of birth, hometown, ethnicity, or occupation unless you feel that information will support your answer in some way. After completing the online
survey please remember to retain your individualized reference number, as there is no way to remove you from the study if you do not poses that number.

Provide a length of time that will be taken by individual procedures, their frequency and overall duration, including the time associated with follow-up studies. Also indicate where this will take place.

The survey you are about to participate in will take approximately 5-10 minutes to complete. The survey is entirely digital, so once you have confirmed that all information is correct and you have pressed the "submit" button, all you are left to do is record your personal identification number for future reference.

Describe the measures which you propose for providing feedback to research participants concerning the outcome of the research and any foreseeable secondary uses of the data (e.g., other studies, publications etc.).

There will be no direct feedback from the primary researcher (Robert Hendy) to any participant. If you are interested in the results of this study, please contact Robert Hendy via phone or email.

Describe any known risks (physical risks, discomforts or inconvenience as well as any psychological or social discomforts) that may be associated with participation in the research, or a statement that there are no known risks to participation in the study.

When participating in this study you will be asked questions of a highly personal nature that you may find discomforting to remember or discuss. The questions pertaining to past incidents are rather broad and do not ask for you to provide extensive details. If you feel comfortable providing thorough details, please provide as much information as you would like. If, however, you are uncomfortable answering any questions, please feel free to leave them blank. Also, if for any reason you feel the need to withdraw from the study during its completion, please feel free to do so. Furthermore, if after completing the survey you feel the need to have your information withdrawn from the study, please feel free to contact Robert Hendy up to and including one month after your completion of the survey - withdrawal will not be allowed after one month.

If, at any point, you feel upset or distressed in any way due to the questions within this survey, you may wish to contact either the [counselling centre] at [centre phone number] or the [local hospital] at [hospital telephone number]. Furthermore, if you feel that your safety has been compromised while on campus, you may wish to contact Security Services at [security phone number].
Describe any potential benefits to the research participants from their participation in the project?

This research may help change the awareness of safety related to the built environment of [Pendleton] University.

Describe any potential benefits to society or to the advancement of knowledge from their participation?

From your participation in this study, a significantly greater understanding of the perceptions of safety throughout [Pendleton] University will evolve. As well, the findings of this study may prove beneficial for the research community as a whole and illuminate future possibilities for the structural, aesthetic, and social design of educational facilities.

If remuneration or compensation will be offered to participants, provide details.

Describe the level of privacy, confidentiality and anonymity promised to participants. It is expected that participants will remain anonymous unless they explicitly give their permission otherwise.

The anonymity of participants is of the utmost importance. You will not be asked to provide your name, specific date of birth, occupation, or hometown.

Any information that is obtained from research participants in connection with this study is anonymous.

Participation in this study is voluntary and you are free to withdraw at any time. You have the right to refuse to answer any question(s) that you find objectionable or which make you feel uncomfortable.

Completion of this survey signifies your informed consent. Please keep a copy of this information letter for your records.

This study has been reviewed and received ethics clearance through Nipissing University’s Research Ethics Board.