A Cognitive Behavioral Perspective of Drivers of Threat of Victimization Involving Local and International Tertiary Students

A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy

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Statement of Authorship

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of this thesis is the result of work which has been carried out since the official commencement date of the approved research program; and, any editorial work, paid or unpaid, carried out by a third party is acknowledged.

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October 2011
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SUMMARY

The present thesis incorporates two inter-related studies involving international and local tertiary students. Study 1 aims to develop and test a cognitive behavioral-based nonrecursive model, explicating key personal and community-related factors driving tertiary students’ threat of victimization. Extending Study 1, Study 2 compares international and local students, testing measurement equivalence on eight latent constructs investigated in Study 1.

The present thesis argues that it is preferable to adopt a higher order construct termed threat of victimization (May et al., 2010; Rader, 2004; Rader et al., 2007) that encompasses cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance) components (Clark, 2003; Gabriel & Greve, 2003) as a way of investigating this disparate topic and reducing operational ambiguity. Excluding anyone of these dimensions increases the likelihood of biasing results and not reflecting the richness and complexity of this phenomenon (Jackson, 2004, 2005; Warr, 2000). A review of the pertinent literature (Farrall et al., 1997; Warr, 2000) suggest that most if not all studies of fear of crime have failed to recognize aetiological differences between fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations, contributing to long-standing problems associated with operational ambiguity (Kury et al., 2004), definitional confusion (Lee, 2001), invalid and inconsistent measurement (Farrall, 2004; Farrall et al., 1997), uncertainty regarding causal linkages between variables (Rader, 2004), and consequently inconclusive findings (Acierno et al., 2004; Wicox et al., 2007).

This thesis was undertaken for six important reasons. First, there is a pressing need to conceptually and empirically distinguish between fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations (Gabriel & Greve, 2003; Rader, 2004). Second, it appears that no psychologically-based epistemologies underpin fear of crime investigations, particularly, when examining relationships between these four theoretical components. Paradigms from ecology (Skogan, 1990) and sociology (Ferguson & Mindel, 2007) are ascendant. Third, recursive causal frameworks (Melde,
2009) predominate. However, *in many cases it is unrealistic to assume that no two variables in a model are reciprocally related* (Berry, 1984, p. 8). There are only a limited number of studies (Liska et al., 1988; Rader et al., 2007) that have adopted nonrecursive propositions, the reciprocal relationships of which are tested mainly between bivariate dependent variables (DV).

Fourth, there is a dearth of studies (Fisher & May, 2009; Fisher & Wilkes, 2003) on tertiary students’ threat of victimization, with adult resident participants predominating. Fifth, investigations (Forbes-Mewett & Nyland, 2008; Marginson et al., 2010) on international students’ threat of victimization are highly underrepresented, despite intensive and worldwide media coverage of crimes perpetrated against this population (Das et al., 2009; Levett, 2008; Mercer, 2010). Finally, from a statistical perspective, there is a clarion call for the application of multivariate modelling techniques, including the adoption of structural equation modelling (SEM), in the fear of crime area. The following sections provide a description of these two investigations.

**STUDY 1**

Despite ongoing efforts to explore the key determinants of fear of crime since the early 1970s (Furstenberg, 1971; Skogan & Klecka, 1977), it appears that no studies have accommodated personal and community-related factors within a nonrecursive model, which simultaneously investigates reciprocal relationships between fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior. This investigation addresses three key research questions: How do cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance) components of threat of victimization reciprocally influence each other? Within this nonrecursive model, how do personal characteristics (i.e., age, gender, direct & indirect victimization, protective ability) affect tertiary students’ threat of victimization (i.e., fear of crime, perceived risk, perceptions of unsafety, avoidance behavior)? And how do community-related factors (i.e., social disorder, social integration, confidence in police) drive tertiary students’ threat of victimization?
Theoretical Conceptualization

Cognitive behavioral theory (CBT) (Beck, 1964, 1976), the victimization model (Skogan & Maxfield, 1981), the incivilities thesis (Taylor, 1998, 2001), and Garofalo’s (1981) fear of crime model underpin Study 1. CBT provides a conceptual rationale for reciprocal relationships between fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior; filling an apparent theoretical lacuna in the literature that has been driven largely by logic and/or common sense (Mesch, 2000a; Rader et al., 2007). Framed by a nonrecursive proposition, the victimization model and the incivilities thesis accommodate tertiary students’ threat of victimization to a personal and community frame of reference. These two conceptualizations demonstrate validity and reliability in understanding fear of crime. Despite a lack of empirical and theoretical support, Garofalo (1981) provides conceptual support for integrating CBT with models adopted in the fear of crime area, leading to the development of the present conceptual framework that exhibit comprehensive and enhanced explanatory power.

![Figure 1. Hypothesized Model of Threat of Victimization](image)

On the basis of theory and an in-depth review of the pertinent literature, 26 hypotheses were developed and subsequently tested, two hypotheses of which are related to tests of reciprocal relationships between cognitive, emotional, and behavioral dimensions of threat of victimization. The remaining 24 hypotheses are associated with testing of the
impact of personal characteristics and community-related factors on threat of victimization within a nonrecursive model (Figure 1).

Method

Participants. Participants are 1170 tertiary students across four Melbourne-based universities. For the purposes of this thesis, tertiary students refer to those individuals currently undertaking undergraduate or postgraduate programs either full-time or part-time at either government or private institutions. 82.5% of respondents are under the age of 25 years. 58.2% are female and 81.1% of students are undergraduates.

Instruments. Based on an extensive literature search, the Threat of Victimization questionnaire incorporates validated and reliable scales: fear of crime (Ferraro, 1995; Moore & Shepherd, 2007), perceived risk (Ferraro, 1995), perceptions of unsafety (Killias & Clerici, 2000; Schafer et al., 2006), avoidance behavior (Gates & Rohe, 1987; Giblin, 2008), social disorder (Evans & Fletcher, 2000; Katz et al., 2003), social integration (Adams & Serpe, 2000; Gibson et al., 2002), protective ability (Adams & Serpe, 2000; Wurff et al., 1989), confidence in police (Evans & Fletcher, 2000), and direct and indirect victimization (Evans & Fletcher, 2000; Katz et al., 2003). Socio-demographics (i.e., age, gender) and social desirability (Reynolds, 1982) were also tested for.

Data collection procedures. The present procedures involve the use of both an online survey and hand-out hardcopy questionnaires to on-campus students. 263 students participated online. Of 1200 questionnaires distributed, 887 students returned their questionnaires immediately upon completion. 20 students mailed back within 3 weeks.

Statistical procedures. Data analyses involve four principal stages: data screening, exploratory factor analyses, confirmatory factor analyses, and structural model estimation (SEM). SPSS 18.0 and AMOS 18.0 were utilized. Issues relating to convergent and discriminant validity, common method bias, and nonrecursive model identification are also assessed.
Results

The model fits the data well (Figure 2). Goodness-of-fit indices exceed acceptable levels: $\chi^2=1357.34$, $df=444$, $\chi^2/df=3.057$, TLI=.937, CFI=.947, RMSEA=.043 with 90% confidence interval (.041, .046), SRMR=.037, and stability index=.196. In terms of explanatory power, the present model accounts for 50.5% of the variance in perceptions of unsafety, 30.1% of the variance in fear of crime, 24.6% of the variance in avoidance behavior, and 26.2% of the variance in perceived risk, all of which are sufficiently high to make the examination of path coefficients practically meaningful. With respect to structural paths, 20 out of 26 hypothesized relationships are supported (Figure 2).

Figure 2. Final Full Structural Model

Notes. ** $p<.01$. *** $p<.001$. $p$ values are based on two-tail tests. The reported parameters are standardized regression weights. In order to avoid a cluttered figure, indicators for each construct and nonsignificant paths are omitted.

Figure 2 reveals positive and significant reciprocal relationships between cognitive, emotional, and behavioral components of threat of victimization. Specifically, perceived risk and perceptions of unsafety facilitate fear of crime which influences avoidance behavior positively. In turn, behavior intensifies both perceived risk and perceptions of unsafety, heightening fear of crime. With respect to community-related factors, positive causal relationships between social disorder, fear of crime, perceived risk, and
perceptions of unsafety are confirmed. Social integration is associated negatively with fear of crime and perceived risk, but has a nonsignificant impact on avoidance behavior. Confidence in police is related negatively to perceptions of unsafety, but is associated nonsignificantly with fear of crime and avoidance behavior.

In terms of personal antecedents, younger students express significantly higher levels of fear of crime and perceptions of unsafety than their older peers. However, age is related nonsignificantly to perceived risk and avoidance behavior. Females tend to report significantly elevated levels of fear of crime and avoidance behavior. Surprisingly, male students report significantly higher levels of perceived risk than females. Both direct and indirect victimization are related significantly to perceived risk and perceptions of unsafety, but have no direct impact on fear of crime. While indirect victimization significantly inhibits, direct victimization influences avoidance behavior nonsignificantly. Protective ability significantly inhibits students’ perceptions of unsafety and avoidance behavior. These findings demonstrate that fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior are distinct, involving unique sources of variance.

**STUDY 2**

As noted in the Introduction, the intent of Study 2 is to test the measurement equivalence of eight latent constructs investigated in Study 1, across local versus international cohorts of tertiary students. It is imperative to test measurement invariance when undertaking cross-cultural/ethnic comparisons or multiple group analyses. Comparisons are meaningless when measurement invariance is not fulfilled. A review of the salient literature (Pauwels & Pleysier, 2008) suggests that testing of measurement equivalence has been largely ignored in the fear of crime field. Two research questions underpin Study 2: Do international and local tertiary students differ on their levels of threat of victimization? Alternatively, are the latent constructs tested in Study 1 invariant across two cohorts? If constructs are not invariant, where do these differences across lie?

Theoretical Conceptualization
The culture shock thesis (Oberg, 1954, 1960), the group position model (Blumer, 1958), and the subcultural-diversity thesis (Merry, 1981) drive Study 2. The culture shock thesis has been used widely to investigate international students’ psychological, social, cultural, and academic adjustment in host countries. This thesis posits that those who have been suddenly transplanted abroad are precipitated by the anxiety resulting from losing all familiar signs and symbols of social intercourse (Oberg, 1954, p. 1), manifesting through a wide range of signs including heightened fear of being cheated, robbed, or injured; and fear of physical contact with people. While focusing on the dominant group’s beliefs about status and entitlements, the group position model has been extended to propose that members of a racial group who feel alienated and oppressed are more likely to regard other racial groups as competitive threats to their own group’s social position (Bobo & Hutchings, 1996, p. 956). The subcultural-diversity thesis advocates that fear of crime results primarily from individuals’ worries about people from different cultural and ethnic backgrounds (Merry, 1981). These three models provide a broad-based theoretical rationale for undertaking the present comparative investigation. Although the culture shock thesis has not been applied in the fear of crime area, the other two models provide demonstrable explanations for understanding levels of threat of victimization involving different ethnic groups.

**Method**

**Participants.** Building upon Study 1, 1170 tertiary students are grouped into international (n=591) and local (n=579) cohorts on the basis of their self-reported student visa status.

**Instruments.** Given that the focus of Study 2 is on the examination of measurement equivalence, eight latent constructs tested in Study 1 were utilized. These measures are fear of crime (Ferraro, 1995), perceived risk (Ferraro, 1995), perceptions of unsafety (Schafer et al., 2006), avoidance behavior (Giblin, 2008), social disorder (Evans & Fletcher, 2000), social integration (Adams & Serpe, 2000; Gibson et al., 2002), protective ability (Adams & Serpe, 2000), confidence in police (Evans & Fletcher, 2000),
**Data collection procedures.** The same data collection procedures were adopted as that of Study 1.

**Statistical procedures.** A number of tests (e.g., $t$ test, Chi-square) were run to assess for any differences between groups on socio-demographics and levels of direct victimization. Multiple group confirmatory factor analyses with covariance and mean structures were used to test whether the same constructs are measured across cohorts (Byrne, 2010; Vandenberg & Lance, 2000). A five-stage approach was undertaken, involving baseline model development, omnibus tests, and testings for configural, metric, and scalar invariance.

**Results**

As expected, international students differ significantly from their local counterparts on length of residence, $t(924.51)=31.58$, $p<.05$; English proficiency, $t(742.94)=14.82$, $p<.05$; and educational levels, $t(989.08)=-6.153$, $p<.05$, with a significantly higher number of international students undertaking postgraduate qualifications (7.3% versus 1.6%). There are nonsignificant differences between cohorts on age, gender, and self-reported health. Perhaps not surprisingly, crosstabulations show that significantly, more local students report having their car stolen or things stolen from their car (5.0% versus 10.0%); and having been attacked, threatened, or verbally abused owing to ethnic origin (18.4% versus 27.1%).

Baseline models relating to eight constructs were developed for both cohorts. Omnibus tests of equality of covariance matrices for all constructs are significant. Models for configural invariance fit data adequately for each construct, suggesting that unidimensional congeneric measurement models are plausible across cohorts. Comparisons of models for configural and metric invariance indicate that factor loadings are fully invariant across groups on all constructs. Comparisons between metric and scalar invariance models show that except for confidence in police, intercepts differ significantly across cohorts for all constructs. Specifically, intercepts are higher for international students than their local counterparts on all tested items of fear of crime, perceptions of unsafety, avoidance behavior, and five of the six items of
perceived risk. By contrast, intercepts for social disorder, social integration, and protective ability are significantly higher for local than international students on all tested items. These differences reveal that international students tend to express higher levels of threat of victimization, but lower levels social integration, social disorder, and protective ability than their local counterparts. Nonetheless, cohorts do not differ on their self-reported levels of confidence in police.

CONCLUSION
The present thesis explores key personal and community-related determinants of tertiary students’ threat of victimization within the context of a nonrecursive model, and subsequently tests differences between international and local students on personal characteristics, their perceptions of community-related factors, and measures of threat of victimization. The most important findings emanating from Study 1 are positive reciprocal relationships between fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior, demonstrating that CBT is an appropriate theory for grounding investigations of threat of victimization. The presence of feedback loops challenge leading causal recursive models (Melde, 2009) and extend reports focusing on reciprocal relationships between only bivariate DVs (Rader et al., 2007), providing a theoretical and empirical support for Garofalo (1981), promulgated over 30 years ago.

Findings of Study 1 show that personal characteristics and community-related factors, as antecedents, impact dynamically on fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior, demonstrating that these four constructs involve important and significant etiological differences (Ferraro, 1995; Rountree & Land, 1996b). Thus, a strong argument can be mounted to treat these four factors as constructs in their own right rather than as an amalgam. Study 1 reveals that female and younger students report significantly higher levels of threat of victimization than their male and older counterparts. Furthermore, regulating social disorder, improving protective ability, and increasing levels of social integration and confidence in police serve effectively in reducing levels of threat of victimization.
Study 2 assessed measurement equivalence of eight latent constructs tested in Study 1, across international and local tertiary students. Consistent with the literature (Delone, 2008; Melde, 2009), findings show that despite nonsignificant differences on reported levels of victimization, international students report significantly higher levels of threat of victimization than their local counterparts. These findings highlight the important role of ethnicity when understanding threat of victimization, supporting the group position model (Blumer, 1958) and the subcultural-diversity thesis (Merry, 1981). In terms of other constructs, international students express significantly lower levels of social integration, social disorder, and protective ability than their local counterparts. Drawing upon the culture shock thesis and the pertinent literature, international students’ elevated levels of threat of victimization can be attributed to a wide range of factors, such as their so-called outsider status (Lee, 2006; Marginson et al., 2010), poor English communication skills (Bonazzo & Wong, 2007; Poyrazli & Lopez, 2007), unfamiliarity with the legal system (Forbes-Mewett & Nyland, 2008), concerns about loss of face (Marginson et al., 2010), fear of losing financial support or being deported back to their home country (Lee, 2006; Lee & Rice, 2007), and experiences of racism, ethnic tension, economic jealousy, cultural friction, or political instability (Lira & Andrade-Palos, 1993; Teferra, 2007). Future studies would benefit from exploring key drivers of international students’ threat of victimization.

The present thesis culminates in a number of important implications for research, policy, and practice. First, this is the first study to utilize CBT to understand threat of victimization, leading to positive reciprocal relationships between fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior. Second, this investigation demonstrates that these four theoretical concepts are distinct, with their own unique sources of variance. This is the first piece of research that simultaneously tests the impact of personal and community-related factors on these four concepts within a nonrecursive model, challenging leading recursive models (Melde, 2009) and nonrecursive frameworks (Rader et al., 2007) involving bivariate DVs in the fear of crime literature, and thus, enriching the ongoing debate on determinants of threat of victimization. Third, this thesis utilizes a sample of tertiary students, extending the literature that focusing predominately on adult resident participants. Understanding
tertiary students’ feelings of threat of victimization is of special interest because they are integral for the future economic development of most countries. Fourth, the present positive reciprocal framework provides new insights for police and policy-makers. Behavioral adaptation, in actual fact, appears to intensify people’s fear; while changing people’s cognitive belief and assessment serves to reduce emotional fear. Fifth, this is the first study comparing international and local students on their levels of threat of victimization, highlighting the important role of ethnicity in understanding this phenomenon. Finally, the present thesis employs structural equation modelling procedures, developing sound constructs with associated multi-items that have high levels of validity and reliability. Testing for measurement equivalence, when undertaking a cross-cultural analysis, is another distinguishing feature of this thesis.

In closing, this thesis provides a first step towards understanding how fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior reciprocally and positively influence each other; and how personal characteristics and community-related factors influence threat of victimization within a nonrecursive frame of reference, laying the groundwork and advancing conceptual foundations upon which threat of victimization can be assessed. By comparing international and local students, the current thesis makes a clarion call to researchers and practitioners to pay increasing attention to investigate the disposition of international students’ threat of victimization from different perspectives, including academia, practice, public policy, and universities.
CHAPTER 1
INTRODUCTION

Chapter 1 provides an overview of the reasons for undertaking the present thesis. Research questions are outlined, along with a summary of the thesis structure.

Utilizing a quantitative research design, the present thesis aims to investigate tertiary students’ threat of victimization, involving fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior. A review of the pertinent literature (Farrall et al., 1997; Gabriel & Greve, 2003; Rader et al., 2007) suggest that most if not all studies of fear of crime have failed to recognize conceptual differences between these dimensions, contributing to long-standing problems associated with operational ambiguity (Kury et al., 2004; Wicox et al., 2007). This limitation has led to definitional confusion (Garofalo, 1981; Lee, 2001), invalid and inconsistent measurement (Farrall, 2004; Farrall et al., 1997), uncertainty regarding causal linkages between variables (Mesch, 2000a; Rader, 2004), and consequently inconclusive findings (Acierno et al., 2004; Rader et al., 2007). Furthermore, it appears that research on tertiary students (Fisher & May, 2009; Fisher & Nasar, 1992; Fisher & Sloan, 2003), in particular, international students’ (Forbes-Mewett & Nyland, 2008; Marginson et al., 2010) threat of victimization is highly underrepresented.

To fill this gap, this dissertation argues that it is preferable to adopt a higher order construct labelled threat of victimization (May et al., 2010; Rader, 2004; Rader et al., 2007) as a way of investigating this disparate topic and reducing operational ambiguity. Threat of victimization is viewed as a multidimensional phenomenon, encompassing cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance, prevention) components (Clark, 2003; Gabriel & Greve, 2003), the dimensions of which are associated with each other by complex triggers and feedback processes (Gabriel & Greve, 2003; Garofalo, 1981; Rachman, 1990). Excluding anyone of these dimensions raises the likelihood of biasing results and not reflecting the richness of this complex phenomenon (Jackson, 2004, 2005; Warr, 2000).
The current thesis incorporates two inter-related studies. Drawing upon Beck’s (1976) cognitive behavioral theory/therapy (CBT), Garofalo’s (1981) fear of crime model, the victimization Model (Gates & Rohe, 1987; Skogan & Klecka, 1977), and the incivilities thesis (Taylor, 1998, 2001), Study 1 aims to develop and test a cognitive behavioral-based nonrecursive model, simultaneously investigating reciprocal relationships between cognitive, emotional, and behavioral components of threat of victimization, and explicating the impact of individuals’ personal characteristics (i.e., age, gender, victimization, protective ability) and their perceptions of community characteristics (i.e., social disorder, social integration, confidence in police) on these dimensions. This model challenges leading recursive frameworks (Ferguson & Mindel, 2007; Melde, 2009) and reciprocal relationships proposed to occur between bivariate facets of threat of victimization (Rader, 2004; Rader et al., 2007) adapted for adult populations.

Study 2 takes a first step to explore potential differences between international and local cohorts. The culture shock thesis (Oberg, 1954, 1960), the subcultural-diversity model (Merry, 1981), and the group position thesis (Blumer, 1958) underpin this investigation. Testing for measurement equivalence on eight latent constructs (i.e., fear of crime, perceived risk, social disorder) investigated in Study 1 across groups is the main focus of research. Measurement equivalence is an essential precondition for undertaking cross-cultural, ethnic, or multiple-group analyses (Chen & West, 2008; Pauwels & Pleysier, 2008). Only when constructs across groups are invariant, can comparisons be regarded as valid (Byrne, 2010; Vandenberg & Lance, 2000). Study 2 highlights the importance of ethnicity in understanding threat of victimization and testing for measurement equivalence when involving comparative investigations.

An in-depth review of the literature (Marginson et al., 2010; Melde, 2009) on three research streams: fear of crime, higher education, and international education, suggests six important reasons for undertaking the current thesis. These reasons are: a pressing need to conceptually and empirically distinguish between cognitive, emotional, and behavioral facets of threat of victimization; a lack of convincing psychological theory underpinning fear of crime investigations; the predominance of recursive causal frameworks; a dearth of studies on tertiary students’ threat of victimization; a limited
focus on international students’ threat of victimization; and a clarion call for the application of multivariate modelling statistical techniques in the fear of crime area. The following section provides an in-depth discussion of these reasons.

**A Pressing Need to Conceptually Distinguish Between Cognitive, Emotional, and Behavioral Facets of Threat of Victimization**

A review of literature (Clark, 2003; Gabriel & Greve, 2003) suggests that there are compelling reasons to conceptually clarify definitions, operationalizations, and distinctiveness between perceived risk, perceptions of unsafety, fear of crime, and behavioral adaptations. Not infrequently, fear of crime has been measured by the standard National Crime Survey (NCS) question: *how safe do you or would you feel being out alone in your neighborhood at night.* This question has been criticized for emphasizing only feelings of anxiety and perceptions of safety relating to a neighborhood, and for not adequately considering perceived risk and emotional elements associated with fear of crime (Farrall et al., 1997; Ferraro, 1995). To address this deficiency, a growing number of studies (Ferraro, 1995; Ferraro & LaGrange, 1992; Rountree & Land, 1996b) utilized scales associated with fear relating to specific crimes, highlighting a distinction between the emotional components of fear and the cognitive assessment of risk or danger.

Despite a tightening of conceptualizations and measurement, an apparent lack of clarification and differentiation between these constructs remains. Definitions appear overlapping (Ferguson & Mindel, 2007; Schafer et al., 2006), and measurements have been interchangeable (Roman & Chalfin, 2008; Xu et al., 2005). At times, these four constructs have been amalgamated, with a composite variable being labelled as fear of crime (Delone, 2008; Pauwels & Pleysier, 2008). In psychology, it has been widely accepted that the emotional state of fear is related highly to cognitive and behavioral reactions (Gabriel & Greve, 2003; Rachman, 1990). Gabriel and Greve (2003) applied psychological concepts of emotions, the state/trait distinction and the notion of emotions as involving multiple components, to fear of crime research. Gabriel and Greve (2003) defined situational fear of crime as a tendency (motive) to interpret
situations as threatening and to behave fearfully, consisting of cognitive assessments of being threatened, corresponding affective experiences, and appropriate action.

In an attempt to obviate problems associated with terminology and meaning, Clark (2003) first utilized a hyphenated term fear-of-crime to overarch multidimensional (i.e., cognitive, emotional, and behavioral) phenomena associated with fear of crime. However, it was not until 2004 when Rader reconceptualized and relabelled this broad-based multidimensional phenomenon as threat of victimization (p. 689). Rader (2004) subsumed fear of crime under threat of victimization, arguing that fear of crime has equal footing with the cognitive and behavioral dimensions of perceived risk and constrained behavior. Nonetheless, it appears that the dimension of perceptions of unsafety was overlooked as an important cognitive dimension.

Extending Gabriel and Greve (2003), and Rader (2004), this thesis argues that it is most appropriate to use threat of victimization to refer to multidimensional phenomena, encompassing cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance, prevention) components. An argument for including perceptions of unsafety is the view that the NCS question has been used widely since the time of formative research on fear of crime (Garofalo, 1979; Xu et al., 2005). Conceptually, a general assessment of environmental safety differs from a judgement of the likelihood, probability, and severity of potential negative events. It appears that there are a limited number of studies (Ferguson & Mindel, 2007; Rader et al., 2007) that have simultaneously investigated cognitive, emotional, and behavioral components of threat of victimization. This thesis takes a first step to concurrently investigate these dimensions, contributing to our knowledge regarding the multidimensionality, causes, and consequences of threat of victimization, presenting new insights which hitherto have not been investigated in this field.

**A Lack of Psychological-based Theory Underpinning Fear of Crime Investigations**

According to Wurff et al. (1986), and Gabriel and Greve (2003), most fear of crime research has been undertaken with limited or no theoretical underpinning, particularly, a theoretical lacuna created by the limited application of conceptualizations derived from
psychology (Jackson, 2009). Gabriel and Greve (2003) concluded that interpretations of empirical results on fear of crime lack the theoretical background necessary for sensitive conclusions to be drawn... [and] are often seen through the wrong spectacles (p. 600). Fear of crime is a psychological and social phenomenon; however, epistemologies from ecology (Skogan, 1990) and sociology (Ferguson & Mindel, 2007; Houts & Kassab, 1997) predominate.

It appears that researchers (Mesch, 2000a; Rader et al., 2007) specify causal association between cognitive, emotional, and behavioral facets of threat of victimization based on common sense or logic, rather than proposing testable relationships derived from relevant theories. For example, Mesch (2000a) subjectively advocated that when considering only night time leisure activities that are voluntary in nature, it is reasonable to expect a link from perception of risk to routine activities, rather than the reverse (p. 52). It should be noted that, relatively recently, Gabriel and Greve (2003), and Clark (2003) applied psychological concepts of emotions, cognitions, and behaviors to an understanding of fear of crime phenomena, specifying fear of crime as an emotional responses, rather than as a composite variable that integrates with cognitive and behavioral reactions to crime.

In order to fill this long-standing theoretical gap, the present thesis is underpinned by seven robust conceptualizations: the victimization model (Gates & Rohe, 1987; Skogan & Maxfield, 1981); the incivilities thesis (Taylor, 1998, 2001), CBT (Beck, 1964, 1976), Garofalo’s (1981) fear of crime model, the culture shock thesis (Oberg, 1954, 1960), the group position thesis (Blumer, 1958), and the subcultural-diversity model (Merry, 1981). The first four theories drive Study 1; while the latter three frameworks support Study 2. In terms of epistemology, CBT originates from psychology, whereas the culture shock thesis emanates from anthropology. The remaining five conceptualizations are adapted from the fear of crime literature, having demonstrated sound levels of validity in understanding this phenomenon. Embracing theories from different disciplines can contribute to the development of sound theoretical frameworks, valid instruments, conceptual clarification, and the preclusion of arbitrary transpositions of dependent and independent variables (Wurff et al., 1989; Wurff et al., 1986).
**Mediated Recursive Causal Frameworks Predominant**

A review of literature on fear of crime shows that mediated recursive path models (Ferguson & Mindel, 2007; Melde, 2009) are ascendent, with relatively few studies (Liska et al., 1988; Rader et al., 2007) having tested nonrecursive conceptualizations. Investigations involving reciprocal relationships include those of Defronzo (1979) who examined bidirectional relationships between handgun ownership and fear of crime; Markowitz et al. (2001) who assessed nonrecursive associations between disorder, crime, neighborhood cohesion, and fear of crime; and Jackson and Stafford (2009) who investigated reciprocal interrelationships between mental and physical health, and fear of crime.

Despite ongoing efforts to explore key determinants of fear of crime since the early 1970s (Clemente & Kleiman, 1977; Erskine, 1974; Furstenberg, 1971), it appears that no studies have accommodated personal and community-related factors within a nonrecursive model, which simultaneously investigates reciprocal relationships between fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations. Predominately, fear of crime is treated as a sole DV, with perceived risk and behavioral responses functioning as predictors (Ferraro, 1995; Melde, 2009; Mesch, 2000a). Notwithstanding, over 25 years ago, Berry (1984) noted that in many cases it is unrealistic to assume that no two variables in a model are reciprocally related (p. 8). Garofalo (1981), and Gabriel and Greve (2003) stated that cognitive, emotional, and behavioral facets of threat of victimization influence each other in a reciprocal function.

It is noteworthy that a number of studies (Garofalo, 1981; Liska et al., 1988; Rader, 2004) have conceptually proposed or empirically explored the reciprocal interplay between the four theoretical constructs. However, these reciprocal relationships have been conceptualized to occur mainly between bivariate variables (e.g., fear of crime & constrained behavior), and have neither been supported fully (Ferraro, 1995; Rader et al., 2007) nor theoretically (Rader, 2004). Garofalo (1981) conceptually developed a nonrecursive model involving risk assessment, fear of crime, and individual responses to crime; however, the framework of which lacks empirical support. Drawing upon CBT, this thesis proposes that cognitive, emotional, and behavioral dimensions of threat...
of victimization influence each other reciprocally, providing new insights into causes and consequences of threat of victimization and implications for theory, research, police, and practice.

**A Dearth of Studies on Tertiary Students’ Threat of Victimization**

Criminal activities and victimization of young adults is an established and specialized topic within research, public policy, and police practice (Salmi et al., 2004). It has been widely recognized that crime rates and risk of victimization are significantly higher in juvenile and youth populations than in adult cohorts (Lane, 2009). Adolescents learn emotions (e.g., fear) in much the same way they learn criminal behaviors (Melde, 2009). Young people go through developmental stages that can lead them to commit crime or behave in troublesome, delinquent, or risk-taking manner when compared with those with higher levels of maturation (Salmi et al., 2004). Studies (Lanier & Dietz, 2009; Lauristen, 2003; Melde, 2009) reveal that peak levels of personal victimization in adolescence and early adulthood are related highly to risk of victimization, time spent away from home, and involvement in delinquency and crime. Those most likely to be victimized are those who have been most involved in crime (Jensen & Brownfield, 1986).

Fear of crime has been investigated widely in adult resident populations (Beck & Travis, 2004; Ferguson & Mindel, 2007; Whitley & Prince, 2005). Research involving tertiary students (Beck & Travis, 2004; Stretesky & Hogan, 2001; Wicox et al., 2007), and for that matter adolescents under the age 16 years (May & Dunaway, 2000; Melde, 2009), is notably sporadic but also highly underrepresented. A review of the pertinent literature (Fisher, 1995; Fisher et al., 1998; Kelly & Torres, 2006) suggests that research on tertiary students’ threat of victimization can be classified into on- and off-campus related, with studies (Barberet & Fisher, 2009; Fisher & May, 2009; Fisher & Wilkes, 2003) within the on-campus context predominating. Investigations on tertiary students’ threat of victimization in off-campus environment are scarce. Furthermore, female college students who have been victims of sexual assault are the main focus of research (Cubbage & Smith, 2009; Fisher et al., 2010; King, 2009). From a geographical perspective, tertiary students’ safety and security issues receive heightened levels of
research interest in the US (Brinkley & Laster, 2003; Fisher et al., 2002a; Fisher & May, 2009; Fisher & Sloan, 2003), with a limited number of studies (Cubbage & Smith, 2009; Fisher & Wilkes, 2003; Marginson et al., 2010) being conducted outside of North America.

Growing evidence (Carmen et al., 2000; McConnell, 1997) demonstrates that a substantial number of college students, particularly females, feel unsafe on campuses, expressing accentuated levels of fear of victimization and perceived risk, and avoiding open campus areas at night. Tertiary students face the risk of victimization both on- and off-campus (i.e., public or domestic). Their lifestyle (i.e., partying, drug- & alcohol-related participation) and friendship with delinquent peers are associated significantly with high levels of risk of victimization (Fisher et al., 1998; Sloan et al., 2000; Weerman, 2011) and threat of victimization (Barton et al., 2010; Sudo & Yamauchi, 2010). Therefore, there is a pressing need to investigate and even monitor tertiary students’ threat of victimization. The current thesis recruits tertiary level students across four Melbourne-based universities, investigating how their personal characteristics and perceptions of community influence their levels of threat of victimization.

A Limited Focus on International Students’ Threat of Victimization

When compared with the number of studies (Cemalcilar & Falbo, 2008; Fritz et al., 2008) on the psychological (Wei et al., 2007), social (Sawir et al., 2007), and cultural (Shupe, 2007) adjustment of international students, it appears that there is a dearth of investigations (Forbes-Mewett & Nyland, 2008; Marginson et al., 2010) on their reported levels of victimization and threat of victimization. International students are a unique and important population owing to their substantial contributions to the culture and economies of host countries. The number of students enrolled outside their country of citizenship has risen dramatically, from 0.6 million worldwide in 1975 to 2.9 million in 2006 (OECD, 2008). In 2008/09, international students spent US$17.8 billion in the US, most of which was derived from sources outside of North America (Vistawide, 2010). In Australia, international education was ranked the largest service export industry in 2009/10 (AEI, 2010a).
Despite the economic, social, cultural, and personal significance of this sector, crimes perpetrated against international students have increased dramatically, raising public and academic awareness, questions about racially-oriented victimization, and a need for appropriate preventative strategies (Rao, 2010; Teferra, 2007). These crimes are often racially-oriented, culminating in murder (Green & Rood, 2005), physical attack (Millar, 2009; Millar & Doherty, 2009), theft (Allen, 1999), sexual assaults (Robby, 2005), and discrimination (Poyrazli & Lopez, 2007). Undoubtedly, such victimizations heighten levels of threat of victimization among on-shore and prospective international students, adumbrating a host country’s international educational reputation and image (Rao, 2010). In 2009 and 2010, international students’ visa applications to Australia dropped by 50% mainly because of a series of racially-oriented attacks against subcontinent Indian international students (Das, 2010; Rao, 2010).

It appears that a limited number of studies (Katz et al., 2003; Lane & Meeker, 2000) have explored causal linkages between ethnicity and threat of victimization, focusing predominately on comparisons between whites and blacks (May & Dunaway, 2000). Investigations among other ethnic-minority groups are significantly underrepresented (Lee & Ulmer, 2000). Gabriel (1999) and Carmen et al. (2000) stated that ethnic origin is a salient feature in discrimination, racially-oriented victimization, and threat of victimization. Studies (Carmen et al., 2000; Wayne & Rubel, 1982) find that ethnic-minority students tend to express significantly higher levels of fear of crime and perceived risk than their local counterparts. Following this lead, the present thesis compares international and local tertiary students on their levels of threat of victimization.

A Clarion Call for the Utilization of Multivariate Modelling Statistical Techniques, and Valid and Reliable Measures

A review of literature (Ferguson & Mindel, 2007; Rader et al., 2007) on fear of crime suggests that the application of second-generation multivariate tests (Fornell & Larcker, 1981; Hair et al., 2010), such as structural equation modelling (SEM), seems to be remarkably absent. A majority of studies (May et al., 2010; Taylor, 2002) appear to rely heavily on conventional statistical techniques; failing to report instrument validity,
measurement equivalence when involving multiple group comparisons, and common method bias when using self-reported data. In response to Rader et al. (2007), the current thesis utilizes SEM as a principal analytical tool, incorporating a three stage approach: Exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and path analysis. When compared to regression, SEM has a number of advantages, including the consideration of measurement error; application of multiple indicators per latent variable; testing of congeneric and structural models rather than only individual coefficients; and facilities to handle complex data, to assess models with multiple DVs, and to compare coefficients across multiple groups (Garson, 2009; Hair et al., 2010).

Partly in response to Taylor (1998, 2002) and Worrall (2006), the present constructs are examined for content, construct, and discriminant validity. Cronbach’s alpha (Cronbach, 1951) is widely reported in the fear of crime field, which is easily mistaken for construct validity. Construct validity focuses on the measurement of individual constructs while internal validity emphasizes alternative explanations of the strength of links between constructs (Hair et al., 2010). Without solid validation of instruments, findings and interpretations are open to serious criticisms of bias (Straub et al., 2004).

In the light of self-reported scales, it is not uncommon for participants to create a favorable impression (Leeuw et al., 2008; Tourangeau et al., 2000). As well, respondents might not be willing or able to accurately recall or reconstruct information from memory (Gabriel & Greve, 2003). Their responses might be modified or distorted by mood. Consequently, common method bias and availability bias occur (Gabriel & Greve, 2003). Tests for common method bias is becoming standard in the social sciences (Ganster et al., 1983). Self-administered questionnaires are used widely in the fear of crime research; however, it appears that only a limited number of studies (Sutton & Farrall, 2005) have reported tests for common method bias. Because the present thesis utilizes a large scale survey, testing for common method bias is regarded as an imperative.

When it comes to cross-cultural and multiple-group analyses, testing for measurement equivalence should be viewed as essential. When assumptions of measurement
equivalence/invariance are not fulfilled, comparisons between groups can no longer be interpreted in a unbiased way (Byrne, 2010), owing to cross-cultural differences and divergent sensitivity to instruments. There is an extensive body of comparative studies in the fear of crime literature contrasting men and women (Schafer et al., 2006), youngsters versus older people (Moore & Shepherd, 2007), and residents from different cities or neighborhoods (Meško et al., 2008). Nonetheless, it is surprising to find only one study (Pauwels & Pleysier, 2008) that assessed measurement equivalence, the focus of Study 2.

Given these six imperatives, five principal research questions (RQ) overarch the present thesis. Specifically, Study 1 addresses three key RQs:

**RQ1**: How do cognitive (perceived risk, perceptions of unsafety), emotional (fear of crime), and behavioral (avoidance) components of threat of victimization reciprocally influence each other?

**RQ2**: Within this nonrecursive model, how do personal-related characteristics (i.e., age, gender, direct & indirect victimization, protective ability) affect tertiary students’ threat of victimization (i.e., fear of crime, perceived risk, perceptions of unsafety, avoidance behavior)?

**RQ3**: Within this nonrecursive model, how do community-related factors (i.e., social disorder, social integration, confidence in police) drive tertiary students’ threat of victimization (i.e., fear of crime, perceived risk, perceptions of unsafety, avoidance behavior)?

Extending Study 1, Study 2 addresses two main RQs:

**RQ4**: Do international and local tertiary students differ on their levels of threat of victimization? Alternatively, are the latent constructs tested in Study 1 invariant across two cohorts?

**RQ5**: If constructs are not invariant, where do these differences across cohorts lie?

The present thesis makes significant contributions to research and practice, extending ex ante literature (Ferguson & Mindel, 2007; Melde, 2009) in six salient ways. First, utilizing a convenience sample of local and international tertiary students across four
Melbourne-based universities, this thesis integrates three research streams: fear of crime, higher education, and international education. Second, this investigation adopts a multidimensional construct named threat of victimization, clarifying meaning and measurement between fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations than has so far been undertaken in the fear of crime literature. Third, this is the first study to integrate CBT, a psychological-based theory, and the culture shock thesis, an anthropology epistemology, with frameworks adopted in the fear of crime area, advancing theoretical conceptualizations in this field. Fourth, the present nonrecursive model challenges leading recursive causal frameworks (Ferguson & Mindel, 2007; Melde, 2009) and conceptualizations involving reciprocal relationships between bivariate DVs (Rader et al., 2007). Fifth, testing measurement equivalence is another unique feature of the current thesis. Finally, investigations culminate in a number of significant implications for policy makers, police, communities, counselling services, universities, international students’ home countries, and students themselves.

The present thesis encompasses a further four chapters. Chapter 2 clarifies issues relating to conceptualization and operationalization of threat of victimization, followed by a description of seven theoretical conceptualizations underpinning the current thesis. Chapter 3 incorporates Study 1. Key antecedents and postulated relationships inherent in the hypothesized nonrecursive model are discussed. Methods are described, including the present research design, participants, the Threat of Victimization questionnaire, data collection procedures, common method bias, statistical procedures, and associated ethical considerations. Findings emanating from Study 1 are reported and compared with the pertinent literature in the fear of crime area.

Chapter 4 comprises Study 2, reviewing mainstream literature on international students, highlighting difficulties and crimes encountered by this sector. A description of methods is provided, followed by reports on and a discussion of findings. Chapter 5, the conclusion, draws together key aspects of Studies 1 and 2, underscoring contributions and implications, and noting limitations of these studies. Recommendations for future research and responsible parties, involving policy, police, universities, clinical practice, international students’ home country, and students themselves, are also outlined.
CHAPTER 2
THEORETICAL CONCEPTUALIZATION

Chapter 2 begins with a description of fear from a psychological perspective, followed by a discussion of concepts of cognition, emotion, and behavior. Issues associated with measurement and meaning of threat of victimization are clarified. On the basis of an overview of the principal frameworks adopted in the fear of crime literature, seven theoretical conceptualizations are used to underpin the present thesis. This chapter concludes with a summary.

FEAR

As indicated in the Introduction, this thesis takes Rader (2004) and her colleagues’ (May et al., 2010; Rader et al., 2007) position, utilizing a higher order construct termed threat of victimization to represent a multidimensional phenomenon that is associated with crime and fear of crime. This broad-based construct embraces cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance, prevention) components (Clark, 2003; Gabriel & Greve, 2003; Rachman, 1990). However, prior to clarifying issues relating to this construct, important topics associated with fear, cognition, emotion, and behavior are discussed.

As an inevitable part of human evolutionary history, fear, along with anger, sadness, happiness, relief, and other states (Larsen et al., 2008), is viewed as a powerful, and considerably aversive and discrete human emotion which promotes survival (Armfield, 2006; Clark, 2003). Fear is also observed in other species (Kring, 2008; Öhman, 2008). As an emotion, fear is associated with feelings of uneasiness, discomfort, and negative comprehension about tangible and predominantly realistic dangers or threats of an impending occurrence (Rachman, 1990); provides warning signs about realistic dangers; and initiates physiological changes (Clark, 2003).

Individuals’ abilities to cope with threats influence their levels of fear, the effects of which tend to be transient and short-lived (Diffenbach et al., 2008; Gabriel & Greve,
2003; Larsen et al., 2008). Most people experience fear infrequently, while for some fear can exemplify a debilitating disorder, causing significant distress or mental illness, and consequently, disrupting people’s quality of life (Armfield, 2006; Jackson & Stafford, 2009; Whitley & Prince, 2005). Not only can fear be acquired through signals (conditioned stimuli) that are premonitory of (i.e., having in the past been followed by) situations of injury or pain (unconditional stimuli) (Mowrer, 1939, p. 554), fear can also be generated vicariously through the absorption and observation of threatening information or situations (Rachman, 1990).

According to Rachman (1990), and Gabriel and Greve (2003), fear is related to three main components: subjective apprehension, psychophysiological changes, and attempts to avoid or escape from fearful situations. People become fearful when cognitively perceiving a risk of loss, danger, or negative consequences (Acierno et al., 2004; Clark, 2003), revealed through an intense urge to defend or protect themselves by avoiding, escaping from, removing, or destroying stimuli (Öhman, 2008; Schulz, 2006). However, these behavioral adaptations function only when emotional responses provoked are appropriate to the degree and type of threats. For example, individuals who are afraid of spiders might avoid areas where spiders have been encountered previously. When facing with a spider, people might increase the distance between themselves and spiders. Perhaps not surprisingly, individuals exhibit these three components differently (Rachman, 1990).

It appears that a key source of confusion in the fear of crime literature (Gabriel & Greve, 2003; Warr, 2000) is associated with a failure to recognize cognitive, emotional, and behavioral responses associated with fear, crime, or both. In a number of studies (Gabriel & Greve, 2003; Rader et al., 2007), the concept fear of crime has been utilized as a specific emotional response to crime, differentiated from cognitive and behavioral reactions; while in others (Delone, 2008; Wicox et al., 2007), fear of crime is treated as a multidimensional phenomenon, encompassing cognition and behavior. Such differences in meaning can lead to definitional, conceptual, and operational ambiguity, and ultimately, inconsistent findings (Clark, 2003; Gabriel & Greve, 2003; Rader, 2004).
The following section provides a discussion about what is meant by cognition, emotion, and behavior.

**COGNITION, EMOTION, AND BEHAVIOR**

There is a long research history on cognition, emotion, and behavior in psychology and sociology (Fabrigar & Petty, 1999; Lewis et al., 2008). Cognition describes beliefs about positive and/or negative attributes of an object (Fabrigar & Petty, 1999), whereas emotion is subjective experience (i.e., fear, joy, or anger), associated with mood, temperament, personality, and disposition. Behavior is actions or reactions of an object or organism, usually in relation to an environment (Sehaba & Estraillier, 2006). Both cognitions and emotions involve information processing (Lemerise & Arsenio, 2000). Different situations of affect result in specific emotions. For example, fear is labelled as a negative affect in situations involving threats. In situations of loss, a negative affect can be referred to as sadness, while a reaction to blameworthy behavior might be described as anger (Lewis et al., 2008).

According to Eisenberg (1986), determining associations between cognition and emotion can be problematic, akin to the so called *chicken and egg* (p. 2). Traditionally, cognition is viewed as a primary driver of decisions (Diffenbach et al., 2008), or a product of cognitive interpretation of events or arousal (Eisenberg, 1986). Feelings follow cognitions. Over 30 years ago, Zajonc (1980), however, argued that emotion can be fairly independent of cognitive operations and even precede them temporally. Emotional and cognitive appraisals of risk operate side by side, influencing each other in a variety of ways, and constituting independent sources of effects in information processing (Loewenstein et al., 2001; Zajonc, 1980). Emotions can be shaped by different things and arise without cognitive mediation (Loewenstein et al., 2001). A review of literature (Baumeister et al., 2007; Breckler, 1984) on clinical psychology also suggests that cognitions and emotions often conflict with each other. In some situations, emotions produce pathologies of decision making and behavior. When such conflicts happen, emotional reactions often exert a dominating influence on behavior and frequently produce behavior that does not appear to be adaptive, particularly
evident in people who suffer from often-debilitating fear- and anxiety-related disorders (Loewenstein et al., 2001).

According to Ellis (2003), people’s cognitions, emotions, and behaviors reciprocally and sometimes powerfully affect each other. Individuals act toward things on the basis of meanings that things have for them, selecting, checking, suspending, regrouping, and transforming meanings in the light of situations in which they are placed and the direction of their action (Blumer, 1986). When events or happenings are interfered with their goals and purposes, individuals can choose to have functional or rational beliefs that will encourage them to create healthy emotional and behavioral results, but they can also be inclined to have irrational beliefs that culminate in unhealthy feelings and behaviors (Ellis, 2003). When negative cognitive and emotional responses become cues in and of themselves, efforts of avoidance are prompted (Roemer 2005). Apparently, there is a diverse range of views on interrelationships between cognitions, emotions, and behaviors. The current thesis utilizes CBT to explain the inter-relationships between cognitive, emotional, and behavioral components of threat of victimization, as discussed in this chapter later. The following section provides an in-depth discussion of a long-standing debate on the conceptualization and operationalization of threat of victimization.

FEAR OF CRIME LEADS TO A CONCEPTUALIZATION OF THREAT OF VICTIMIZATION

Fear of crime has been one of the main foci of interest since the time of formative research in this area (Farrall & Lee, 2009; Furstenberg, 1971; Melde, 2009). Given its inherent limitations, the following section reviews literature on fear of crime, leading to a proposal to adopt the concept of threat of victimization (Rader, 2004). It is viewed as an imperative to conceptually specify issues relating to fear of crime, owing to its relevance for public policy, national economics, home affairs, public awareness, and research (Kury et al., 2004; Schafer et al., 2006). Hale (1996) estimated that over 200 books, articles, and other works have investigated this phenomenon. Over the previous decade, this number has increased significantly. According to Rader (2004), research interests on fear of crime can be grouped into three broad domains: the correlates of
fear of crime, strategies for reducing fear of crime, and conceptualization and operationalization of fear of crime (p. 689), with the first two categories being regarded as mainstreams. Investigations (Furstenberg, 1971; Garofalo, 1981) involving conceptualization of fear of crime, however, peaked in the late 1970s through to the 80s, and have not been a key concern since the early 1990s. Despite an apparent degree of definitional and operational confusion (Acierno et al., 2004), conceptualizing fear of crime, nowadays, is viewed as a topic less worthy of concern than those on correlates and strategies (Rader, 2004).

It appears that most literature (Delone, 2008; Xu et al., 2005) has dealt with fear of crime in the face of ambiguous definitions, inconsistent measurement tools, and a seeming failure to develop valid and reliable scales. Consequently, research is associated with measurement techniques and scales open to serious criticism and questions of validity, inconsistent findings, and conclusions seen through the light of fogged spectacles (Acierno et al., 2004; Gabriel & Greve, 2003). This next section attempts to conceptually clarify issues associated with fear of crime from definitional, conceptual, and operational perspectives, culminating in the adoption of a higher-order construct labelled threat of victimization (Rader, 2004), the concept of which is regarded as multidimensional, encompassing perceived risk (cognition), perceptions of unsafety (cognition), fear of crime (emotion), and behavioral adaptations.

**Definitional Inconsistency**

Fear of crime as a construct seems to have no specifically locatable birth moment (Lee, 2001, p. 475). Owing to increasing criticism concerning a heavy reliance on police statistics including crime rates and police reports, in the late 1960s and early 1970s, the concept of fear of crime appeared in early US crime surveys as a way of obtaining residents’ personal experiences of victimization (Lee, 2001). According to Jackson (2006), this construct emerges as an object of social scientific investigation against a backdrop of increasing governmental interest in law and order, and a state in the throes of becoming ever more a knowledge society, collecting increasing amounts of information about its citizens (p. 254). In the 1990s, emphasis on fear of crime moved away from so-called rationality questions, to treating this matter as a legitimate problem.
Since this time, fear of crime has been a perennial theme in public policy and academic debate (Gabriel & Greve, 2003; Jackson, 2006; Warr, 2000).

Although research has wrestled with the best way to define and measure fear of crime throughout its history (Rader, 2004, p. 694), a review of the literature (Lee, 2001; Warr, 2000) suggests a lack of a universally agreed definition. Concept of fear of crime has been taken for granted, with a limited number of scholars (Ferguson & Mindel, 2007; Ferraro, 1995) defining fear of crime prior to designing associated measures. Most authors (Delone, 2008; Randa & Wilcox, 2010; Xu et al., 2005) however, appear to have adapted the fear of crime concept to measures employed in their investigations. According to Garofalo (1981) however, from a purely scientific standpoint, research on the fear of crime can continue indefinitely. There is no critical experiment that will answer all the questions, so there will always be hypotheses to test and new paths of inquiry to follow. However, from both a scientific and practical standpoint, it is useful periodically to take stock of where we are, so that policy implications can be drawn from what is known and general priorities can be set to guide future research (p. 839).

Probably, the major difficulties associated with defining fear of crime concern generic references to two broad domains: crime and fear. Over a decade ago, Henry and Lanier’s (1998) criticism of the concept was on the basis that crime has been taken for granted, and there was no integrated definition. These problems can be attributed, in part, to the observation that there are six traditions that have significantly influenced the definitions of crime, involving legal, moral consensus, rule-relativism, political conflict, power, and social harm (Henry & Lanier, 1998). The legal definition of crime has been widely used (Henry & Lanier, 1998), referring to acts prohibited, prosecuted, and punished by criminal law (Michael & Adler, 1933). There is a wide range of categories of criminal activities, such as organized crime, offences against person or property, public order offences, inter alia. Under each activity, further or subclassifications can be made.

As indicated earlier, fear is a powerful and aversive emotion (Armfield, 2006), associated with feelings of uneasiness, discomfort, and negative appraisal about threats
(Rachman, 1990). Individuals are afraid of being victimized because they appraise a threat (Jackson, 2009). However, difficulties differentiating between fear, concern, anxiety, and worry (Öhman, 2008), contribute to a key source of confusion in the fear of crime literature (Gabriel & Greve, 2003; Warr, 2000). According to Davey et al. (1992), anxiety and worry should be treated as separate constructs, a position supported by investigations (Jackson, 2005, 2009) in the fear of crime field.

Owing to difficulties associated with defining crime and fear, it is not surprising that there is no universally accepted definition of fear of crime. Garofalo (1981) distinguished between actual and anticipated fear of crime. Actual fear is triggered by perceived cues (e.g., walking alone in a high crime rate area at night), whereas anticipation of being fearful in particular situations may or may not be based on having experienced actual fear in similar situations during the past (Garofalo, 1981, p. 841). These two fears mutually influence each other, and produce behavioral responses. Figgie (1980) and Keane (1992) differentiated between concrete and formless fear of crime. Concrete fear alludes to self-reported concern about being a victim of various crimes, whereas formless fear is based on perception of crime tendencies and safety, relating to abstract threats. As mentioned earlier, Gabriel and Greve (2003) stated that situational and dispositional fear of crime differ. Dispositional fear of crime is an individual’s proclivity to react fearfully, while situational fear of crime is triggered by threatening situations.

Most studies (Ferraro, 1995) define fear of crime in terms of distinctions of emotional reactions (Clark, 2003). According to DuBow et al. (1979), fear of crime refers to diverse subjective and emotional assessments and behavioral reports. Apparently, the DuBow et al. (1979) definition of fear of crime encompasses an amalgamated variable, incorporating emotional, cognitional, and behavioral components. This point is exemplified by Warr (1984) who concluded that ‘fear of crime’ has acquired so many divergent meanings in the literature that it is in danger of losing any specificity whatsoever (p. 681). Since then, scholars (Ferraro, 1995; Garofalo, 1981; Rader, 2004) have attempted to narrow the meaning. For example, Gates and Rohe (1987) operationalized fear of crime as an affective experience associated with the perceived
personal risk of victimization (p. 427). Garofalo (1981) specified fear of crime as emotional reaction characterized by a sense of danger and anxiety ... produced by the threat of physical harm ... elicited by perceived cues in the environment that relates to some aspect of crime (p. 840).

Following this trend, Ferraro (1995) defined fear of crime as an emotional reaction of dread or anxiety to crime or symbols that a person associates with crime (p. xiii), arguing that fear of crime differs significantly from only cognitive assessments of danger (e.g., perceived risk). This definition has been frequently referenced in the recent literature (Ferguson & Mindel, 2007). Nonetheless, Lee (2001) criticized this exposition on the grounds that this self-referential play of meaning invites us to ignore the contingent nature of ‘fear of crime’ research and ‘fear of crime’ as a concept and, instead, to get on with the serious business of doing ‘fear of crime’ research by using the (im)perfected tools that the discipline has on offer (p. 468). Consistent with this point, it would be difficult to differentiate fear from sadness, anger, despair, or resignation (Warr, 2000, p. 453).

Thus, there is a strong argument suggesting that definitional inconsistency is associated, in part, with a failure to recognize and differentiate conceptually between cognitive, emotional, and behavioral components of threat of victimization (Clark, 2003; Warr, 2000). Accordingly, the current thesis views threat of victimization as a multidimensional construct that subsumes perceptions of unsafety (individuals’ cognitive assessment of an environmental safety), perceived risk (a judgement of the possibility or likelihood of being victimized), fear of crime (a corresponding affective state), and behavioral adaptations (an appropriate motive or action tendency to avoid or protect oneself from threatening situations) (Clark, 2003; Gabriel & Greve, 2003; Warr, 2000). The following section clarifies issues associated with the meaning of fear of crime from a conceptual perspective.

**Conceptual Ambiguity**

A clarion call for conceptually clarifying issues associated with fear of crime began with criticisms regarding global mono-measurements (Clark, 2003; Jackson, 2005),
principally involving methodological issues. In an attempt to develop a robust working definition and operationalization of fear of crime, the following section discusses this issue from four perspectives: fear of crime versus perceived risk, fear of crime versus perceptions of unsafety, perceived risk versus perceptions of unsafety, and fear of crime versus behavioral adaptations. These four perspectives are discussed because each is distinctive in their own right.

**Fear of crime versus perceived risk**

In order to distinguish between fear of crime and perceived risk, it is critical to understand differences between fear and risk. As discussed earlier, fear is an emotional response to realistic dangers or threats of an impending occurrence (Rachman, 1990). By contrast, risk is viewed as exhibiting *variation in the distribution of outcomes, their likelihoods, and their subjective values* (March & Shapira, 1987, p. 1404). From a psychological perspective, risk refers to *a systematic way of dealing with hazards and insecurities induced and introduced by modernisation itself* (Beck, 1992, p. 21), and comprises two elements: dread and unknown. Risk of dread alludes to the extent of perceived lack of control, feelings of dread, perceived catastrophic potential, and the inequitable distribution of risk and benefit. Risk of unknown, however, is regarded as the extent to which a hazard is assessed to be unobservable, new, and delayed in producing harmful impacts. An accident in any of these domains can produce a high degree of concern or worry about personal and property loss, or harm (Peters et al., 2004).

In the psychological area, cognitive factors are recognized as playing a causal role during episodes of intense fear (Rachman, 1990). In the fear of crime literature, as early as 1981, Skogan and Maxfield argued that the concept of fear contains a situation-specific stimulus component that includes explicit risks and potential consequences that stimulate fear irrationally and emotionally. Warr and Stafford (1983) proposed that fear of crime was determined by perceived risk. Gates and Rohe (1987) pointed out that fear of crime is an affective experience associated with the perceived personal risk of victimization and the result of assessments of personal vulnerability to victimization. Following this lead, Ferraro (1995), Ferraro and LaGrange (1987), and Farrall et al.
Ferraro (1995) argued that perceived risk involves a cognitive recognition of a situation possessing potential danger or stimuli that produces fear reactions. This assessment draws upon the accumulation of information and environmental signals that indicate the likelihood of impending harm (Robinson, 1998). By contrast, fear of crime is an emotional response of dread, or anxiety to crime, or symbols associated with crime (Ferraro, 1995). Ferraro (1995) stated that fear involves an emotional, and sometimes physiological, reaction to perceived danger, a fundamentally different psychological experience from perceived risk. Jackson (2006, 2011) made a further call to revisit risk sensitivity in the fear of crime research. In summary, the view that fear of crime, as an emotional response to crime, differs from cognitive judgements, as reflected by perceived risk has been supported widely (Ferguson & Mindel, 2007; Rader et al., 2007; Truman, 2005), suggesting that both should be included in investigations in order to understand fully the complex phenomena (Rader, 2004; Warr, 2000).

**Fear of crime versus perceptions of unsafety**

Ongoing debate has also fuelled the controversy surrounding differences between fear of crime and perceptions of safety. It is not uncommon for the constructs of perceptions of safety and perceptions of unsafety to be used interchangeably. Perceptions of unsafety is used in the present thesis as a measure of the negative cognitions associated with fear of crime. According to Furstenberg (1971), there should be two distinguishable types of unsafety: general concerns about crime rates and trends, and specific fears of being a victim, indicating that fear of specific crime differs from concerns about safety. Maxfield (1984) stated that fear involves a personalized threat rather than abstract concerns or beliefs about crime in general or victimization of others. One might be easily concerned about a murder case reported by the social media or a rising trend in crime rates, but not be emotionally afraid of being personally attacked.
Fear of crime is distinct from perceptions of crime that refers to beliefs about crime levels or trends. According to Fabiansson (2007), perceptions of unsafety is not necessarily related to official crime rates or personal experiences of victimization. Rather, people are influenced by a diverse array of information garnered from environmental or available resources (i.e., friends, media). Thus, the affect of fear must always be accompanied by a cognitive facet, i.e., the cognitive perception of the situation as threatening or dangerous (Gabriel & Greve, 2003, p. 602).

Confusion between fear of crime and perceptions of unsafety can be attributed to the extensive application of the NCS standard question. As mentioned earlier, the NCS question can be regarded as a measure of perception or attitude towards overall safety (Garofalo, 1979; Warr, 2000). Thus, as a tool, it fails to differentiate between cognitive, emotional, and behavioral reactions to crime (Clark, 2003). Another possible explanation for the confusion concerns the difficulties associated with interviewing people in fear-provoking situations (Hale, 1996). This level of confusion is exemplified by a number of scholars measuring fear of crime when in actual fact their instruments were either measures of perceptions of unsafety (Xu et al., 2005) or a mixture of both (Moore & Shepherd, 2007), possibly in response to an assumed desirability for continuity with previous research.

The terminological and operational ambiguity between fear of crime and perceptions of unsafety can be also attributable to the interchangeability in the use of the terms fear, concern, anxiety, and worry (Jackson, 2005). Despite some overlap in meaning, these concepts are conceptually distinct. Fear and anxiety are aversive and activated conditions associated with threats (Öhman, 2008). According to Rachman (1990), anxiety refers to feelings of apprehension that are difficult to relate to tangible sources of stimulation (p. 3). Anxiety is seldom clearly represented in awareness, whereas fear is often unequivocal. A situation stimulating anxiety can be obscure, infinitely varied, and unknown, while a source of threat eliciting fear is usually identifiable (Epstein, 1972). Furthermore, fear is reactions to immediate threats. By contrast, anxiety is responses to future or past events (Warr, 2000). People also use different words to describe similar levels of worry, and sometimes employ the same terms to narrate very
different levels of worry, leading to either exaggeration or understatement (Farrall et al., 1997).

Recently, research (Crank et al., 2003; Schafer et al., 2006) has underlined differences between fear of crime and perceptions of unsafety. Warr (2000) advocated that fear of crime should be viewed as an emotional reaction to a perceived environment, rather than a perception of that environment (an awareness or experience of sensory stimuli). Ferraro and LaGrange (1992), and Schafer et al. (2006) outlined aetiological differences between fear of crime and perceptions of unsafety, the two constructs of which are influenced by different personal and community-related factors. For instance, when rating questions on perception of safety, the elderly tend to feel less safe walking alone after dark than their younger counterparts. However, age differences disappear when utilizing crime-specific questions (Ferraro & LaGrange, 1992). The following section distinguishes between two cognitive dimensions: perceived risk and perceptions of unsafety.

**Perceived risk versus perceptions of unsafety**

Despite a tightening of the meaning of the cognitive and emotional dimensions of threat of victimization, there appears to be somewhat obscure references to two cognitive components: perceived risk and perceptions of unsafety. Emotional fear is both an effect of, and caused by, cognitive information processes of judgement of risk or perceptions of safety, but to confound these concepts is to confuse the relationships (Clark, 2003; Rountree & Land, 1996b). This section provides a discussion on perceived risk versus perceptions of unsafety. It should be emphasized however that, related content and findings appear earlier (see Pages 21-24).

Research (Cameron, 2002; Macpherson, 2008; O'Sullivan et al., 2006) in psychology, public health (e.g., HIV, food safety), and business (e.g., risk management, organizational safety) shows that these two concepts are different. According to Slovic (1998), people utilize different cognitive mechanisms to make judgements: general (objective) versus personal (subjective). People make judgements regarding their general environment based on objective information gathered; while assessing personal
risk on the basis of information gleaned from interpersonal or situational cues (Kershaw et al., 2003).

Confusions between these two cognitions can be attributed, in part, to the mismatch between definition and measurement. Over four decades ago, Furstenberg (1971) first distinguished between what he termed fear of crime and concern with crime. Furstenberg (1971) defined fear of crime as an affective state relating to worry about personal safety, yet measured this construct by self-reported estimates of the chance of being victimized; in actual fact, an assessment of perceived risk. Furstenberg (1971) referred to concern with crime as a cognitive state involving a general anxiety about crime, but measured this construct with a single item by which participants list the most serious problem that they would like to see government do something about. In this instance, there appears to be a mismatch between definition and measurement of fear of crime.

Similarly, Mesch (2000a) defined perceived risk as a judgement of risk and assessment of safety in a surrounding area, measured by the extent to which participants believe or know from personal experience that there are excessive levels of crime in a neighborhood. In line with this view, Ferguson and Mindel (2007) stated that perceived risk of crime denotes a general, cognitively based assessment of surrounding risk in the neighborhood, yet measures assessing how often the individual’s worry prevents him or her from going out in the neighborhood (p. 334). Apparently, this measure focuses on behavioral responses to fear of crime, also reflecting a mismatch between conceptualization and operationalization, adumbrating the distinctions between perceived risk, perceptions of safety, fear of crime, and behavioral adaptations.

In order to minimize, is not avoid such confusion, the present thesis defines perceived risk of crime as an individual’s estimation of the probability of their becoming a crime victim (Hraba et al., 1998), measured by How LIKELY do you think it is that the following will happen to you over the next 12 months? By contrast, perceived unsafety refers to general perceptions of neighborhood or environment unsafety (Schafer et al., 2006), recognizing crimes around them, and is measured by an individual’s general
assessment of unsafety, in response to the question: *During your everyday life in Melbourne, how SAFE do you feel?* Measurements are discussed in-depth in Chapter 3. Perceived risk takes into account potential benefits or loss in a way that perceptions of unsafety does not (Macpherson, 2008). It is held that distinguishing between fear of crime, perceived risk, and perceptions of unsafety goes some way towards minimizing confusion in the area and enabling comparisons across studies (Acierno et al., 2004; Hale, 1996; Xu et al., 2005). The following section discusses conceptual differences between fear of crime and behavioral responses to crime or fear of crime.

**Fear of crime versus behavioral adaptations**

In an attempt to differentiate between emotional responses (i.e., fear of crime) and cognitive judgements (i.e., perceived risk, perceptions of safety), a number of scholars (Delone, 2008; Skogan & Maxfield, 1981) have argued that measures should include stimuli of fear, such as walking alone at night. This perspective is based on the view that people’s lifestyles and spatial activities play an important role in determining their risk of victimization, and ultimately, levels of threat of victimization (Delone, 2008; Mesch, 2000a). In other words, what people do can be regarded as a better index of their level of fear and risk than what people say (Hale, 1996). According to Ferrraro (1995), if one perceives a risk of a potential threat or assesses an environment as unsafe, fear is not the only reaction. Behavioral adaptations provide one of the most effective means of identifying hotspots and hot times of fear, risk, or actual victimization, and selecting appropriate strategies for ameliorating or managing fears, either avoiding, escaping, or preventing oneself from the threatening situations (Doran & Lees, 2005).

Avoidance and protection behaviors are the two most common and heavily researched responses in the fear of crime literature, often amalgamated into one construct termed *constrained behavior*. According to DuBow et al. (1979), avoidance behaviors are *actions taken to decrease exposure to crime by removing oneself from or increasing the distance from situations in which the risk of criminal victimization is believed to be high* (p. 31). By contrast, protective behavior refers to the steps taken by individuals, including purchasing various devices (e.g., guns), installing extra locks and outside lighting, taking out insurance, and learning self-defence, to protect themselves and their
property from being victimized or vandalized (Liska et al., 1988). A number of investigators (Liska et al., 1988; Rader et al., 2007) argue that avoidance and protective behaviors should not be used interchangeably or simply amalgamated, as these two behaviors are unrelated and influenced by dissimilar factors.

Differences between fear of crime and behavioral adaptations are evidenced by the majority of studies (Crank et al., 2003; Ferraro, 1995). However, a principal concern relates to whether behavioral adaptations should be treated as an indicator of fear of crime (Ferraro, 1995; Mesch, 2000a) or consequence (Crank et al., 2003; Randa & Wilcox, 2010). Treating behavior as an indicator of fear of crime is driven by the routine activity approach (Cohen & Felson, 1979) and/or lifestyle thesis (Hindelang et al., 1978), positing that people’s lifestyles play an important role in determining risks of victimization and levels of fear of crime (Delone, 2008; Mesch, 2000a).

Having said that, Mowrer’s (1939) two-stage theory of fear and avoidance posits that fear motivates behaviors that tend to avoid or prevent the recurrence of pain-producing stimuli. Laboratory evidence in animals demonstrates that fear is a decisive causal factor in avoidance behavior (Rachman, 1990). From a psychological perspective, fear stimulates avoidance or prevention behaviors (Rachman, 1976). Thus, scholars (Gates & Rohe, 1987; Giblin, 2008) argue that it is preferable to regard behavioral adaptations as consequences of fear of crime, rather than the converse.

Another problem is the difficulties of ascertaining what people are not doing or doing out of fear, and linking it back to fear (Warr, 2000). For example, the proclivity for older adults venture out less frequently, especially at night, might not be out of fear of crime, but because of problems associated with night vision, reduced driving ability, or curtailed social activity (Ferraro, 1995). Notably, there appears to be researchers (Delone, 2008; Pauwels & Pleysier, 2008; Schafer et al., 2006) who combine items under one construct when measuring fear of crime or perceptions of unsafety. The next section discusses the ways in which fear of crime is measured.
Measurement of Fear of Crime

As discussed earlier, there is an apparent lack of definitional consistency and conceptual clarification of fear of crime. One would expect inconsistencies when definitions of the same construct differ. However, for some unknown reason, measurement of fear of crime demonstrates consistency, possibly in response to an assumed desirability for continuity with previous research. According to Lee (2001), there seems to be an underlying assumption on the part of many presenters that the criminological audience shared a general understanding of what ‘fear of crime’ might be – if not quite such a universal understanding of its causes, symptoms and extent within the populace (p. 468).

In other words, the ways in which fear of crime has been measured is arguably to a large extent consistent (Ferraro, 1995), owing to a wide range of studies utilizing single-item measure (e.g., the NCS question).

A review of literature (Gabriel & Greve, 2003; May et al., 2010) suggests that there are four broad ways to measure fear of crime, involving single-items, crime-specific multiple items, a mixture of items representing different dimensions, and multidimensional constructs. As emphasized previously, this wide range of measurement has led to inconsistent findings, and ultimately, difficulties comparing findings and outcomes across studies (Hale, 1996; Schafer et al., 2006). The following section provides an in-depth discussion relating to these four types of measures.

Single-item measures

Fear of crime has often been treated as a monolithic construct where a standardised closed question (e.g., the NCS question) is used to tap participants’ affective responses to anticipated crime (Moore & Shepherd, 2007). These so-called mono-questions have received consistent criticism for inherently theoretical and methodological shortcomings, involving low levels of reported validity and reliability, being too general and ambiguous, and measuring formless fear or free floating anxiety (Jackson, 2005; May & Dunaway, 2000; Schafer et al., 2006). This section discusses two predominant single-item measures of fear of crime: the NCS and General Social Survey (GSS) questions, leading to a call for the utilization of multiple items in order to improve levels of instrument validity and reliability.
The NCS question: *How safe do you feel or would you feel being out alone in your neighborhood at night?* (Baumer, 1985) is one of the most frequently used single-item measures of fear of crime. Nonetheless, it has been criticized heavily for emphasizing only cognitive assessment of safety rather than emotionally-based feelings of fear of being victimized (Ferraro & LaGrange, 1987), or for treating fear of crime as both an emotional and cognitive response to crime-related stimuli (Ferguson & Mindel, 2007).

Garofalo (1979) criticised this less-than-perfect indicator from four aspects: no reference to *crime*; self-defined geographical area relating to *neighborhood*; a variety of chances of being outside alone yet among people; and a mixture of actual feelings of fear with cognitive assessments about hypothetical situations owing to the use of words *do you feel or would you feel*. Ferraro and LaGrange (1987) concurred with Garofalo (1979), further stating that measures that did not differentiate emotional reactions from judgments of general safety had questionable validity. Ferraro (1995) emphasized that measures of fear of crime and perceived risk are not interchangeable, owing to significant aetiological differences. Hale (1996) contended that measures become a risk assessment when not including an imminent threat even when they were about the self.

In order to meet these criticisms, a number of scholars (Clemente & Kleiman, 1977) have taken refuge in the application of the GSS question: *Is there any area right around here – that is, within a mile - where you would be afraid to walk alone at night?* The GSS question is an improvement over the NCS measure by using word *afraid* and a frame of reference *within a mile*, providing opportunities for longitudinal comparisons of magnitude of fear of crime (Warr, 2000). The GSS question became conventional in the fear of crime literature owing to the routine use by the Gallup Organization and the National Opinion Research Center since the 1960s. Nonetheless, it seems that criticisms levelled at the NCS measure are also applicable to the GSS question, such as no reference to crime, the limitation of nighttime, no account for fear occurring at other times, only on intensity, and no bases in daily experience (Ferraro & LaGrange, 1987; Warr, 2000). Apparently, people are more likely to have concerns about their safety and fear of being victimized when walking alone at night than day time (Fabiansson, 2007).
Single-item measurement is a feature of much fear of crime research (Fabiansson, 2007; Xu et al., 2005), particularly in the early studies (DeFronzo, 1979; Garofalo, 1979). However, according to Gabriel and Greve (2003), *responding to a global question is a particularly difficult mental task … This not only requires cognitive effort, but also time … unless the question provides adequate hints and information, respondents will focus on the most accessible aspect of the construct* (p. 609). Content and construct validity of these global standard single indicators is thus called into question, leading to the consideration of utilizing multiple-item measures, as discussed below.

**Crime-specific item measures**

In order to overcome inadequacies and criticisms associated with single-item measures, investigators (Ferraro, 1995; Ferraro & LaGrange, 1992) have recommended the adoption of multiple item indices, that have the capacity to differentiate between the concept of fear and types of offenses that make reference to specific crimes. Ferraro and LaGrange (1987; 1992) suggested that measures of fear of crime should take into account five elements: examining the levels of emotional states of fear; making reference to crime; relating to context-specific crimes; avoiding the use of hypothetical scenarios; and bringing a touch of reality to questions. After analysing nine crime types (i.e., burglary while at home, sexual assault, murder, attack, being cheated/conned, burglary while away from home, car theft, being robbed, vandalism), Ferraro and LaGrange (1992) grouped fear of crime into two broad-based categories: fear of personal crime and fear of property crime, the classification of which has been supported by a number of studies (Beck & Travis, 2004; Moore & Shepherd, 2007).

In concert with Ferraro and LaGrange (1992), researchers (Acierno et al., 2004; Moore & Shepherd, 2007; Salmi et al., 2004) have explored similarities and differences between fears associated with specific offenses, demonstrating significant value in making these distinctions. The logic underlying the utilization of crime-specific fears is that emotions involve situated instances of affect (Gabriel & Greve, 2003; Lewis et al., 2008). The level, nature, and severity of consequences of fear vary depending on crime categories under consideration (Lee & Ulmer, 2000; May & Dunaway, 2000; Wicox et al., 2007). Furthermore, people’s conceptions of crime typologies are different in terms
of the level of violence, amount of property harm, and levels of sex relatedness (Clark, 2003; Hansel, 1987). For instance, fear of violence (e.g., rape) cannot be considered analogous to fear of property crime (i.e., burglary). Under the category of property crime, fear of burglary differs from fear of vandalism (Wicox et al., 2007). Having said that, there appears to be no consensus on the optimal way to measure fear of crime, thus care needs to be taken when using measures of crime-specific fears (LaGrange & Ferraro, 1987). The following section discusses a third alternative.

A mixture of items representing different dimensions

As discussed earlier, it appears that a number of authors (Delone, 2008; Pauwels & Pleysier, 2008) have not only amalgamated the cognitive, emotional, and behavioral dimensions of threat of victimization, but also failed to differentiate between these concepts. For example, Delone (2008) utilized a six-item measure asking if respondents were ever worried about being a crime victim within their housing tower; if they were afraid to walk alone in the tower during a weekday, a weeknight, at night on the weekend, or during the day on a weekend; and if they avoided places within the tower (p. 118). This construct comprises worry about crime and participants’ avoidance behavior as a result of fear. Similarly, Pauwels and Pleysier (2008) adopted a four-item measure of fear of crime from the Belgian Safety Monitor, involving Do you sometimes avoid certain areas in your neighborhood because you do not consider them safe? Does it sometimes happen that you do not open the door to strangers in the evening or at night because you do not consider it safe? Do you sometimes avoid leaving home if it is dark? Do you sometimes feel unsafe? (p. 148). Avoidance behavior and perceptions of unsafety are amalgamated into one construct of fear of crime.

Apparently, the utilization of either crime-specific items or bundles of items representing different dimensions to measure fear of crime can enhance instrument validity, when compared with the use of single-item measures. However, when using multiple items, scale construction, reliability, and validity are critical considerations. Summing item scores is not uncommon in the fear of crime literature (Delone, 2008; Rader et al., 2007). Although Pauwels and Pleysier (2008) utilized CFA to construct a 4-item measure of fear of crime; factor loading of item representing UNKNOWN (Does
it sometimes happen that you do not open the door to strangers in the evening or at night because you do not consider it safe?) is only .42, less than the standard cut-off value .5 (Hair et al., 2010). Furthermore, it appears that a limited number of studies (Taylor, 2002) have addressed issues relating to instrument validity. The majority of studies (Ferguson & Mindel, 2007; Melde, 2009) report only Cronbach’s alpha (Cronbach, 1951), factor loadings, and goodness-of-fit for measurement models, neglecting to report tests for construct reliability and discriminant validity.

**Multidimensional constructs**

Researchers (Clark, 2003) have criticized crime-specific measures on the grounds of relying solely on assessing levels of fear, excluding other emotions such as levels of worry, disgust, hate, boredom, or even fascination. Over three decades ago, Garofalo and Laub (1978) contended that fear of crime is *simply not fear of crime*, but could be understood as an expression of *some sort of unfocused, or multifocused, anxiety, or mistrust which leads to uneasiness and discomfort* (p. 247), and a concern for community and quality of life. Garofalo’s (1981) fear of crime model incorporated constructs of risk assessment, fear of crime, and individual responses to explicate causes and consequences of fear of crime, despite a lack of empirical support. However, a review of literature (Rader, 2004; Xu et al., 2005) suggests that fear of crime is the main research interest, with cognitive (i.e., perceived risk) and behavioral dimensions having been largely ignored.

Fear of crime is a complex psychological and social phenomenon that is difficult to be measured by only one construct (Kury et al., 2004). Fear is not the only response to crime or risk; cognitive and behavioral responses should also be taken into account (Ferraro, 1995; Gabriel & Greve, 2003). Utilizing a battery of items based on different reactions to crime (i.e., cognitive, emotional, behavioral) is becoming relatively popular in the recent times, helping to differentiate between concepts of perceptions of unsafety (i.e., *How safe is your neighborhood … ?*) (Crank et al., 2003), perceived risk (i.e., *How likely is it that … will happen to you?*) (Tulloch, 2000), fear of crime (i.e., *How afraid are you of being a victim of …?*) (Acierno et al., 2004), and behavioral adaptations (i.e.,
Have you done any of these things to avoid becoming a victim of crime that take place outside the home … ?) (Giblin, 2008).

The logic underlying the utilization of multiple dimensions to reflect the richness of this particular phenomenon is that: the emotional component of fear of being victimized (i.e., fear of crime) is significantly distinct from general perceptions of unsafety in a given area (i.e., perceptions of unsafety), the cognitive assessment of the likelihood of being a potential victim (i.e., perceived risk), and consequent behavioral adaptations (i.e., avoidance, protection, prevention). These four dimensions are associated with different socio-demographic and ecological factors (Rader et al., 2007; Schafer et al., 2006; Wicox et al., 2007).

Nonetheless, despite these efforts and advances in the fear of crime field, apparent confusion remains. On the one hand, fear of crime is regarded widely as an affective response, conceptually differentiated from perceived risk, perceptions of unsafety, and behavioral adaptations (Clark, 2003; Gabriel & Greve, 2003). On the other hand, scholars (Kury et al., 2004; Wicox et al., 2007) utilize the concept of fear of crime to refer to the multidimensional phenomena, comprising cognitive, emotional, and behavioral facets. Clark (2003) attempted to address this confusion in meaning, utilizing the hyphenated term fear-of-crime to overarch the multidimensional nature. Rader (2004) further relabelled this multidimensional phenomenon as a broad-based concept threat of victimization, encompassing perceived risk (cognition), fear of crime (emotion), and behavioral adaptations. This reconceptualization broadens the depth and nature of the earlier conceptualizations of fear of crime, diminishes terminological ambiguity, provides a new insight for research and policy-makers, and for these reasons is adopted for the use in the present thesis.

Investigations need to differentiate between instruments that comprise a number or mixture of items that measure a number of constructs versus multidimensional construct that distinguish clearly between constructs. The higher order construct of threat of victimization that subsumes fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations can be regarded as an example of the latter point, making
There is empirical evidence (Lane, 2009; May et al., 2010; Rader et al., 2007) to suggest that fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations are distinct, but inter-related constructs. These constructs are associated with different personal and community-related characteristics, in line with research from different disciplines (i.e., psychology, sociology) and laboratory experiments. Threat of victimization is a complex phenomenon, with people responding differently to cognitive, emotional, and behavioral dimensions. For example, people might assess their neighborhood as safe, but still tend to avoid going out at night out of fear of being victimized. Thus, a composite construct comprising only a mixture of items is unlikely to capture the complexity of this phenomenon.

Moreover, from a methodological perspective, multidimensional constructs significantly improve the content, convergent, and discriminant validity of scales. To the contrary, an EFA involving a sole latent variable comprising a mixture of items representing different dimensions might suggest more than one potential factor and culminate in low communalities. And, Cronbach’s alpha, with concomitant construct validity and variance extracted estimates being open to question. In line with these possibilities, over two decades ago, Carver (1989) tested differences between multifaceted personality constructs and composite latent variables, reporting that valuable information can be lost whenever a latent variable is tested only by a composite. Thus, the present thesis utilizes multidimensional constructs to capture the complexity of feelings associated with threat of victimization.

**Threat of Victimization**

Rader (2004) noted that *conceptualization issues in fear of crime have not significantly changed since critiques of the early studies first began ... by only focusing on emotive response, researchers take a narrow approach and may be missing the complexities and nuances of this multidimensional phenomenon ... until researchers broaden their definition of this phenomenon and take a closer look at the importance of perceived risk and constrained behaviors along with fear of crime, it is unknown how powerful these connections might be for people’s daily lives* (pp. 697-699). This thesis extends Rader’s
(2004) position by including perceptions of unsafety as an important cognitive dimension of threat of victimization, as shown in Figure 2.1. The logic underlying this application is that studies (Bennett & Flavin, 1994; May & Dunaway, 2000) have shown low- to moderate-correlations and unearthed important socio-demographic and etiological differences between perceptions of unsafety (cognition), perceived risk (cognition), fear of crime (emotion), and behavioral responses.

![Figure 2.1 Threat of Victimization](image)

Figure 2.1 Threat of Victimization

Gabriel and Greve (2003) stated that a threatening situation combines (previous) expectations, an actual awareness, appraisal, attributions, evaluations as well as the affect and typically – as an indicator and external sign of the state of ‘being afraid of crime’ – visible behavior (p. 605). Following this lead, this thesis defines threat of victimization as the overarching factor that subsumes four dimensions: perceptions of unsafety (cognitive assessment of an environmental safety) (Schafer et al., 2006); perceived risk (judgement of the possibility or likelihood of being victimized) (Ferraro, 1995); fear of crime (a corresponding affective state) (Gabriel & Greve, 2003); and behavioral adaptations (an appropriate motive or action tendency to avoid or protect oneself from threatening situations) (Rader et al., 2007). Feelings of threat of victimization can be triggered by victimization experience, personal vulnerability (i.e., physical, mental), information communicated through interpersonal relationships and social media, and perceived cues or symbols associated with crime in an environment (Ferraro, 1995; Gabriel & Greve, 2003; Garofalo, 1981; Jackson, 2005).
Specifically, fear of crime is viewed as an emotional indicator of threat of victimization, and alludes to *negative emotional reactions generated by crime or symbols associated with crime* (Ferraro & LaGrange, 1987, p. 73). Perceived risk and perceptions of unsafety are two cognitive components of threat of victimization. Perceived risk is an individual’s self-reported views of the likelihood of being victimized by a specific crime over the ensuing 12 months (Beck, 1992). While perceptions of unsafety refer to an individual’s general assessment of unsafety regarding an environment based on daily life (Schafer et al., 2006).

Behavioral expressive responses to threats can be classified as overt, visible, and physiological reactions (Gabriel & Greve, 2003). Based on DuBow et al. (1979), Garofalo (1981) listed six types of individual responses to threats (crime), including avoidance, protection, taking on insurance, communication, participation, and information seeking behavior. However, it should be noted that not every reaction triggers fear (Gabriel & Greve, 2003; Rachman, 1990). This thesis focuses on avoidance behavior, referring to *actions taken to decrease exposure to crime by removing oneself from or increasing the distance from situations in which the risk of criminal victimization is believed to be high* (DuBow et al., 1979, p. 31). Avoidance behaviors are forms of self-help, attempting to fill the perceived void in services provided by formal law enforcement authorities (Giblin, 2008; Smith & Uchida, 1988). Patterns of avoidance are common and diverse, such as refraining from going out at night, avoiding unsafe places and dangerous persons, or moving out from a neighborhood (Ferraro, 1995). Consistent with the goal of defining and conceptually differentiating between these concepts, the current thesis adopts and develops a battery of sound measures with high levels of reliability and validity, as discussed in the Measures section of Chapter 4.

**Summary**

Over 10 years ago, Hale (1996) concluded that ... *empirical chaos has been the order of the day in studies of fear of crime. Future work needs to avoid ... conceptual ambiguities and confusions if progress is to be made. This is not to suggest that the range of questions asked should be limited but rather that clear distinctions be made between different types of measures* (p. 94). Nonetheless, many studies (Delone, 2008;
Pauwels & Pleysier, 2008; Xu et al., 2005) appear to recycle flawed and inadmissible measures. In part, inconsistent findings in fear of crime area can be attributed to definitional, conceptual, and operational variance (Acierno et al., 2004; Rader, 2004). This chapter has provided an in-depth discussion of problems associated with conceptualizations and operationalizations of fear of crime in quantitative investigations, culminating in the adoption of a multidimensional construct named threat of victimization.

The main focus of research in this area has been set to test models and to examine the extent and determinants of fear of crime across particular socio-demographic populations or localities (Lee, 2001). The ways in which fear of crime is measured influence the significance, magnitude, direction of explanatory models, independent indicators, and ultimately findings and outcomes (Farrall et al., 1997; Miethe, 1995; Schafer et al., 2006). According to Jackson (2006), people respond differently when thinking about different types of crime, the likelihood of becoming a victim, situations where crimes are committed, and the severity of consequences of falling victim.

Broadly, what is being tapped here is a pressing need to conceptually and empirically distinguish between an actual awareness and appraisal (i.e., perceptions of unsafety), a cognitive assessment or evaluation of an impending threat and/or danger at the prospect of being harmed (i.e., perceived risk), a negative emotional response to crime (fear of crime), and behavioral adaptations to threats/crime (i.e., avoidance). None of the four components can be used to explain any other dimension or concept (Gabriel & Greve, 2003). Differentiated conceptualization and operationalization has the potential to increase the validity of instruments and reliability of findings, enabling theoretical models to be tested without threats to the internal validity of studies (Wayne & Rubel, 1982; Wurff et al., 1989). Within this context, the following section provides an overview of theoretical conceptualizations underpinning the current thesis.

**THEORETICAL CONCEPTUALIZATION**

As alluded to earlier, fear of crime investigations have tended to lack theoretical support. According to Taylor and Hale (1986), initially, theories driving the fear of crime
research (Erskine, 1974; Skogan & Klecka, 1977) lacked propositions concerning intercorrelations between central variables or concepts in proposed models. This limitation seems to have continued, as noted by Gabriel and Greve (2003) who criticized the fear of crime research on the grounds that it has been investigated from possibly the wrong perspective (p. 600). Jackson (2009) added that research on fear of crime lacks a convincing theory from psychology perspectives. Moreover, Hale (1996) contended that there is little agreement on how to conduct fear of crime research. The next section reviews the principal theoretical frameworks adopted in the fear of crime literature, outlining their strengths and weakness, culminating in the adoption of seven theoretical conceptualizations underpinning the present thesis.

**Frameworks Adopted in the Fear of Crime Research**

Based on national crime surveys, it seems that a majority of early studies (Clemente & Kleiman, 1977; Erskine, 1974; Skogan & Klecka, 1977) focused primarily on identifying fearful populations (e.g., women, elderly), followed by attempts to explore bivariate and multivariate relationships (Hale, 1996; Jackson & Stafford, 2009; Melde, 2009). It appears that only a limited number of studies (Ferraro, 1995; Melde, 2009) were driven by the pertinent theory, as discussed below.

An overview of contemporary paradigms adopted in the fear of crime literature suggests 15 frameworks or models. Table 2.1 reviews briefly ten of these theories not utilized in the current thesis: the social disorganization theory (Shaw & McKay, 1942), the routine
<table>
<thead>
<tr>
<th>Theory/Model</th>
<th>Discipline</th>
<th>Conceptual Formulation</th>
<th>Applied Studies</th>
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<tbody>
<tr>
<td>1. Routine activity approach</td>
<td>Ecology</td>
<td>Criminal activities are regarded as requiring convergence in space and time of suitable targets, motivated offenders, and the absence of capable guardians. People’s lifestyle influences their risk of victimization and fear of crime.</td>
<td>Ferraro (1995); Mesch (2000a)</td>
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<tr>
<td>3. Community-concern model</td>
<td>Ecology</td>
<td>Fear of crime is viewed as relating to residents’ perceptions of community dynamics.</td>
<td>Katz et al. (2003); McGarrell et al. (1997)</td>
</tr>
<tr>
<td>5. Social-psychological model</td>
<td>Sociology and Psychology</td>
<td>Feelings of unsafety are related to attributions about self, potential criminals, and situations in which criminal activities might occur.</td>
<td>Meško et al. (2008)</td>
</tr>
<tr>
<td>6. Social learning theory</td>
<td>Sociology</td>
<td>Locus of control and reinforcement values of behaviors are rooted in previous experiences or social learning, and related significantly to fear of crime.</td>
<td>Houts and Kassab (1997)</td>
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Table 2.1 continues …
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<tr>
<th>Theory/Model</th>
<th>Discipline</th>
<th>Conceptual Formulation</th>
<th>Applied Studies</th>
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<tr>
<td>7. Social integration</td>
<td>Sociology</td>
<td>Individuals’ attitudes towards fear of crime in neighborhoods are often contingent on</td>
<td>Gibson et al. (2002)</td>
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<td>model</td>
<td></td>
<td>the degree of social integration that residents enjoy.</td>
<td></td>
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<tr>
<td>8. Social capital theory</td>
<td>Sociology and Economics</td>
<td>Positive influences of social capital can reduce fear of crime by mobilizing as public</td>
<td>Ferguson and Mindel (2007)</td>
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<td></td>
<td></td>
<td>safety and community resources in high-crime neighborhoods.</td>
<td></td>
</tr>
<tr>
<td>9. Symbolic interaction</td>
<td>Anthropology</td>
<td>Human beings act toward events on the basis of meanings that these events have for them.</td>
<td>Ferraro (1995)</td>
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<tr>
<td>interactionism</td>
<td></td>
<td>Meaning is derived from social interaction. These meanings are handled in, modified</td>
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<td></td>
<td></td>
<td>through, and interpretative process used by person in dealing with encountered events.</td>
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<tr>
<td>10. Risk interpretation</td>
<td>Anthropology, criminology,</td>
<td>Perceived risk and fear of crime are conceptually different. Ecological forces and</td>
<td>Ferraro (1995); Lee and Ulmer (2000); Ferguson and</td>
</tr>
<tr>
<td>model</td>
<td>and ecology</td>
<td>personal factors play salient roles in individuals’ judgements about criminal risk,</td>
<td>Mindel (2007)</td>
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<tr>
<td></td>
<td></td>
<td>shaping perceptions of incivility and cohesion that in turn influence behaviors and fear</td>
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<td>of crime.</td>
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Table 2.2 Theoretical Conceptualizations Underpinning the Current Thesis

<table>
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<tr>
<th>Theory</th>
<th>Theoretical Origin</th>
<th>Hypotheses/Proposition</th>
<th>Strengths/Weakness</th>
<th>Applied Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victimization model (Skogan &amp; Maxfield, 1981)</td>
<td>Criminology</td>
<td>Fear of crime is regarded as being determined by personal vulnerabilities, either social or physical, to crime, and direct and indirect victimization.</td>
<td>This model has been used widely in the fear of crime literature. However, results relating to impact of victimization on fear of crime are mixed.</td>
<td>Crank et al. (2003)</td>
</tr>
<tr>
<td>Incivilities thesis (Taylor, 2001)</td>
<td>Ecology</td>
<td>Perceptions of physical and social incivilities in one’s area of residence lead to fear of crime.</td>
<td>This model has demonstrated theoretical and methodological utility, reliability, and validity in understanding fear of crime.</td>
<td>Worrall (2006)</td>
</tr>
<tr>
<td>Garofalo’s (1981) fear of crime model</td>
<td>Sociology and Criminology</td>
<td>People’s position in social space, information about crime, and image of crime influences their risk assessment, fear of crime, and responses.</td>
<td>This model indicates that the development and changes in levels of fear are not simple recursive processes, while lacking of empirical support.</td>
<td></td>
</tr>
<tr>
<td>Cognitive behavior theory (Beck, 1963, 1964)</td>
<td>Psychology</td>
<td>Cognition has a controlling influence on emotions and behavior; cognitive activities can be monitored and altered; behaviors affect thoughts and emotions.</td>
<td>CBT is evaluated as the most widely researched and empirically supported theory, dealing with relationships between cognition, emotion, and behavior. However, it has not been utilized in fear of crime area.</td>
<td>Fairburn et al. (2008); Armelius and Andreassen (2007)</td>
</tr>
<tr>
<td>Subcultural-diversity model (Merry, 1981)</td>
<td>Sociology</td>
<td>Fear of crime primarily results from individuals’ worries about people from different cultural and ethnic backgrounds.</td>
<td>This model addresses the role of culture on people’s fear of crime from individual level, empirically supported by a number of studies.</td>
<td>Bennett and Flavin (1994); Katz et al. (2003)</td>
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<th><strong>Theory</strong></th>
<th><strong>Theoretical Origin</strong></th>
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<th><strong>Strengths/Weakness</strong></th>
<th><strong>Applied Studies</strong></th>
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<tr>
<td>Group position thesis (Blumer, 1958)</td>
<td>Sociology</td>
<td>Ethnic minority prejudice exists basically in a sense of group position rather than in a set of feelings which members of one ethnic group have towards the members of another ethnic group.</td>
<td>This model addresses the role of perceived status, group position, and cultural threats in racial hostility and fear of crime from a group perspective, and is empirically supported.</td>
<td>Lee and Ulmer (2000)</td>
</tr>
<tr>
<td>Culture shock thesis (Oberg, 1954, 1960)</td>
<td>Anthropology</td>
<td>Cross-cultural travellers experience anxiety resulting from a loss of familiar signs and symbols associated with expected social intercourse.</td>
<td>Culture shock thesis has been used heavily to investigate international students’ academic, social, and psychological adjustment, providing a theoretical context for the current comparative study. Notable, this conceptualization has not been applied in fear of crime research.</td>
<td>Miyamoto and Kuhlman (2001); Ward et al. (2001)</td>
</tr>
</tbody>
</table>
activity approach (Cohen & Felson, 1979), the community concern model (Taylor & Hale, 1986), the social control model (Gates & Rohe, 1987), the social-psychological model (Wurff et al., 1989), the symbolic interactionism (Ferraro, 1995), the risk interpretation model (Ferraro, 1995; Melde, 2009), the social learning theory (Houts & Kassab, 1997), the social integration model (Gibson et al., 2002), and the social capital theory (Ferguson & Mindel, 2007).

The remaining five conceptualizations coupled with two theories adopted from psychology and anthropology are summarized in Table 2.2. These seven frameworks underpin the present thesis, including the victimization model (Gates & Rohe, 1987; Skogan & Maxfield, 1981), the incivilities thesis (Taylor, 1998, 2001), Garofalo’s (1981) fear of crime model, the subcultural-diversity thesis (Merry, 1981), the group position model (Blumer, 1958), CBT (Beck, 1976; Martin & Sandra, 2005), and the culture shock thesis (Oberg, 1954, 1960). Prior to the in-depth description of these seven conceptualizations, the following section discusses frameworks predominated in the fear of crime literature, leading to the conclusion that there is an apparently theoretical gap from a psychological frame of reference.

It appears that epistemologies underlying the fear of crime research are derived from criminology (Garofalo, 1979), ecology (Skogan, 1990), sociology (Houts & Kassab, 1997), psychology (Wurff et al., 1989), anthropology (Ferraro, 1995), and economics (Ferguson & Mindel, 2007). Perspectives from ecology and sociology seem to predominate. Beginning with criminology-based paradigms, the next section discusses these frameworks in the context of their epistemological classification, highlighting studies (Ferraro, 1995; Gabriel & Greve, 2003) investigating the interplay between cognitive, emotional, and behavioral dimensions of threat of victimization.

Originating from criminology, the victimization model (Skogan & Maxfield, 1981) is one of the most important and widely researched frameworks underpinning the early fear of crime research (Garofalo, 1979; Gates & Rohe, 1987). This model purports that victims tend to fear of being victimized further when compared with their nonvictim counterparts. However, the so-called paradox of fear (Snell, 2001) indicates that females
and the elderly are most likely to express feelings of fear of crime, but least likely to be victimized. Partly in response to this paradox, scholars (LaGrange et al., 1992; Wyant, 2008) began to take into account neighborhood ecological contexts (e.g., incivilities).

Ecological-based perspectives include the routine activity approach (Cohen & Felson, 1979), the social control model (Gates & Rohe, 1987), the community concern model (Taylor & Hale, 1986), and the risk interpretation model (Ferraro, 1995); with the social disorganization theory (Shaw & McKay, 1942) and the incivilities thesis (Taylor, 1998, 2001) being prominent. Although originally developed to explain how routine activities affect people’s exposure to victimization through the convergence in space and time of motivated offenders, suitable targets, and absence of guardians, a number of studies (Ferraro, 1995; Melde, 2009; Mesch, 2000a) extend the routine activity approach to understand relationships between lifestyle, risk, and fear of crime. The remaining ecological-based theories address the role of neighborhood contexts (e.g., incivilities) and structure (i.e., economic status, ethnic heterogeneity, residential mobility, family disruption) in understanding crime and threat of victimization. Taylor (1998, 2001) integrated several distinct but interrelated paradigms, for example, the broken window thesis (Wilson & Kelling, 1982), that investigate relationships between incivilities, criminal activities, neighborhood conditions, and threat of victimization into the incivilities thesis, as discussed later in this chapter.

Sociological-based approaches to fear of crime include social capital theory (Ferguson & Mindel, 2007), social learning theory (Houts & Kassab, 1997), the subcultural-diversity model (Merry, 1981), the group position thesis (Blumer, 1958), and the social integration model (Gibson et al., 2002). These conceptualizations help to understand fear of crime from diverse perspectives. Drawing upon social capital theory, Ferguson and Mindel (2007) argued that the positive influences of social capital can reduce levels of fear of crime by mobilizing public safety and community resources in high-crime neighborhoods. These social capitals involve police presence in neighborhoods, social support networks, neighborhood satisfaction, and collective efficacy. Underpinned by the social learning theory, Houts and Kassab (1997) found that locus of control, reinforcement value, and social context (p. 122) are related significantly to fear of crime.
The subcultural-diversity (Merry, 1981) and the group position models (Blumer, 1958) have been empirically supported by a number of studies (Katz et al., 2003; Lee & Ulmer, 2000), addressing the importance of ethnicity and culture in understanding fear of crime. Recently, the social integration model has emerged as an important approach for understanding the ways in which to reduce fear of crime; however, the measurement and operationalizations of which vary in studies (Adams & Serpe, 2000; Gibson et al., 2002), leading to inconclusive findings (Kanan & Pruitt, 2002). Thus, the validity of this model is open to question.

Until now, it appears that there is only one model (Wurff et al., 1989) exposing a psychological perspective. Wurff et al. (1989) related fear of crime to four key components: attractiveness (the extent to which people perceive themselves or their possessions as attractive victims or targets for criminal activities), evil intent (the degree to which participants assign someone's intention to do harm to others), power (the degree of self-assurance and feelings of control that a person has relating to possible threat), and criminalisable space (situations where crimes might be committed). According to Wurff et al. (1989) and Meško et al. (2008), in comparison with a socio-demographic model involving age, gender, income, and victimization, inter alia, this model from socio-psychological perspective demonstrates superior explanatory power and greater interpretability, offering strategies for the reduction and prevention of fear of crime. Although having been empirically supported (Farrall et al., 1997; Meško et al., 2008), this model focuses on only individual-level explanations relating to six situational scenarios with respect to visitations to front-door bells, cars, parties, bus stops, telephone calls, and cafes, failing to take into account sociological and etiological factors that can influence levels of fear of crime (Meško et al., 2008).

Drawing upon the symbolic interactionism (Blumer, 1969), routine activity approach (Cohen & Felson, 1979), and the incivilities thesis (Taylor, 2001), Ferraro (1995) and his colleagues (Ferraro & LaGrange, 1987; LaGrange et al., 1992) developed the risk interpretation model (RIM). The RIM explains how macro and micro level factors shape individual perceptions, risks of victimization, behavioral changes, and eventually fear of crime, positing that fear of crime is not developed in a social vacuum, but within
peoples’ perceptions of situations and subjective experiences (Ferraro, 1995; Jackson, 2004). RIM also differentiates between individuals’ cognitive judgement or assessment of potential danger or risk (i.e., perceived risk) and the emotional component of fear of crime.

According to Lee and Ulmer (2000), RIM is regarded as the most comprehensive, parsimonious, and complete general approach to fear of crime. However, in criticism, Jackson (2004) stated that there is no theoretical specification of the processes involved in the movement from perceived risk to anxiety (p. 949). Moreover, RIM views behavioral adaptations as causes of fear of crime rather than consequences. Psychology and laboratory evidence has demonstrated that fear is a decisive causal factor in avoidance behavior (Rachman, 1990). Mowrer’s (1939) two-stage theory of fear and avoidance posits that fear motivates behaviors that tend to avoid or prevent the recurrence of pain-producing stimulus. Thus, behavioral adaptations are best viewed as consequences of fear (Crank et al., 2003; Liska et al., 1988).

In summary, an overview of theoretical conceptualizations adopted in the fear of crime literature shows that investigations lack the theoretical background necessary for sensitive conclusions to be drawn (Gabriel & Greve, 2003, p. 600). As early as 1989, Wurff et al. stated that fear of crime research has involved little theorizing about the phenomenon and even less empirical research to test those theoretical ideas that have been proposed (p. 141). Since that time, it appears that a theoretical void remains, leading to an uncertainty regarding linkages between variables. For example, Rader et al. (2007) questioned the nonsignificant relationships between perceived risk, and avoidance and defensive behavior on the ground of their logical perspectives.

In order to fill the apparent theoretical gap, the present thesis embraces theories from multiple disciplines. As mentioned earlier, five frameworks adopted from the fear of crime literature are employed on the basis of their empirical utility and demonstrated appropriateness. Furthermore, CBT (Beck, 1976) from psychology is used to underpin the reciprocal relationships between cognitive, emotional, and behavioral dimensions of threat of victimization. The culture shock thesis (Oberg, 1954, 1960) provides a
theoretical background for undertaking the present comparative investigation on international and local cohorts. Multiple disciplinary theories provide a new insight for our understanding of causes and consequences of threat of victimization. The following sections provide an in-depth discussion of theoretical conceptualizations underpinning the current thesis.

**Theoretical Conceptualization Underpinning the Present Thesis**

This thesis is driven by seven theoretical frameworks, involving the victimization model (Gates & Rohe, 1987; Skogan & Maxfield, 1981), the incivilities thesis (Taylor, 1998, 2001), cognitive behavior theory (Beck, 1976; Martin & Sandra, 2005), Garofalo’s (1981) fear of crime model, the culture shock thesis (Oberg, 1954, 1960), the subcultural-diversity model (Merry, 1981), and the group position thesis (Blumer, 1958). These conceptualizations transcend at least five disciplines: psychology, criminology, ecology, anthropology, and sociology, underscoring the current nonrecursive model-building process. The first four frameworks underpin Study 1, while the latter three drive Study 2. The following sections discuss each theory/frameworks in-depth, culminating in the specification of derived propositions.

**The victimization model**

The victimization model is one of the oldest and widely employed frameworks, proposing that fear of crime is influenced by direct and indirect experiences of victimization, and personal vulnerability to crime (Katz et al., 2003). This theoretical conceptualization subsumes direct and indirect forms of victimization models. Initially, the direct victimization model posits that actual crime rates are the basic causes of fear of crime and reactions to crime (Gates & Rohe, 1987), emphasizing that victims of crime tend to express significantly higher levels of fear of further victimization than their nonvictims counterparts (Garofalo, 1979; Skogan & Maxfield, 1981). However, this direct victimization proposition has been called into question. A number of studies (Evans & Fletcher, 2000; Gates & Rohe, 1987) found that the elderly and females are least likely to be victimized but express the highest levels of fear of crime; while those who are most likely to be victimized (i.e., the young, males), however, report the lowest
levels of fear. Being a victim may make people cautious, but it remains unanswered whether the experience makes people more fearful (DuBow et al., 1979).

The fear-victimization paradox (Snell, 2001) contributes to the emergence of the indirect victimization model, demonstrating that fear of crime is a result of subjective experiences (knowing, observing, or hearing about a victim from friends, neighbors, police, and media), rather actual experience. The indirect victimization perspective accounts for the seeming incongruity that fear of crime is much more widespread than crime (Covington & Taylor, 1991). In contrast to direct exposure to crime, indirect victimization significantly increases levels of fear of crime (Skogan & Maxfield, 1981), given that it affords people an opportunity to vicariously imagine being victimized (Hale, 1996).

The victimization model takes into account personal vulnerability. According to Skogan and Maxfield (1981), vulnerability comprises physical and social dimensions. Physical vulnerability refers to openness to attack, powerlessness to resist, and exposure to the physical and emotional consequences of being attacked (Bennett & Flavin, 1994, p. 359), reflected by age and gender. Generally, females (Gibson et al., 2002; Killias & Clerici, 2000; McGarrell et al., 1997) and the elderly (Katz et al., 2003; McGarrell et al., 1997) report heightened levels of fear of crime, perceived risk, and perceptions of unsafety, and thus adopting avoidance strategies.

By contrast, social vulnerability is expressed as regular exposure to the threat of victimization and limited methods for coping with the medical and economic consequences of victimization, as indicated by one’s socioeconomic status, such as minority ethnicity, economic disadvantage, and levels of income and education (Bennett & Flavin, 1994; Gibson et al., 2002). Individuals with high socioeconomic status express low levels of fear of crime; have fewer difficulties in ensuring their own safety by choosing a safe living environment, by installing better technical equipment, or paying for private security services (Meško et al., 2008). In general, non-whites (Ferguson & Mindel, 2007), minority groups (Carmen et al., 2000), and people with low levels of income and education (Bennett & Flavin, 1994; Gibson et al., 2002) tend to
express accentuated levels of threat of victimization. In summary, the higher the levels of perceptions of personal vulnerabilities, the greater the levels of threat of victimization (Bennett & Flavin, 1994).

The validity of the victimization model in understanding threat of victimization has been widely tested among adult and student populations (Melde, 2009; Randa & Wilcox, 2010). Accordingly, the current thesis holds that tertiary students’ threat of victimization is highly likely associated with their direct and indirect victimization experiences and personal vulnerabilities to crime.

The incivilities thesis

According to Taylor (1998, 2001), the incivilities thesis embraces five relatively distinct but interrelated versions of a theory that investigate relationships between incivilities, criminal activities, neighborhood conditions, and threat of victimization (Taylor, 2001; Worrall, 2006). These five variants, surprisingly, have not been labelled, but seem associated with researchers in the field: Wilson (1975), and Garofalo and Laub (1978); Hunter (1978); Wilson and Kelling (1982); Lewis and Salem (1986); and Skogan (1990), with Wilson and Kelling (1982) and Skogan (1990) being cited most frequently. Since the establishment, the focus of the incivilities thesis has shifted from differences at one point in time, between neighbors, and fear of crime, to differences over time, between neighborhoods, and on increasing crime and neighborhood decline. This shift reflects an evolution in perspectives, including expansion of outcomes, shifting levels of analyses and temporal contexts, and a progressive unlinking of crime and incivilities (Taylor, 2001). These five variants are discussed below.

Wilson (1975), and Garofalo and Laub (1978) argued that urban conditions were more likely to precipitate residents’ concerns for safety than actual crimes or victimization. High levels of fear among individuals and neighbor-to-neighbor fear differences are of central interest (Taylor, 2001). Hunter (1978) contented that incivilities were the symbolic cues heightening the possibility of victimization and influencing fear of crime. Lewis and Salem (1986) emphasized that incivilities and crime operated interactively affecting levels of fear. That is, when crime and symbols of incivilities are both at high
levels, residents express heightened levels of fear of crime. However, when crime rates are high but signs of incivilities are not, residents tend to be less fearful, and vice versa.

Wilson and Kelling’s (1982) broken window thesis is viewed as the most predominant variant (Taylor, 2001), positing that signs of incivilities lead to high levels of crime rates, weakened informal social control, reduced concerns about neighborhoods, and people withdrawing from public places. The central point of the broken window thesis is: when a window in a building is broken and left unrepaired, the other windows will be smashed soon because the community interprets the first broken window as a sign that no one cares. Analogically, when left unchecked, disorderly behaviors lead to further incivilities and eventually to serious criminal activities. Reductions in levels and degree of incivilities have a strong positive impact on criminal, cognitive, emotional, and behavioral outcomes for neighborhoods. The broken window thesis extends the early incivilities thesis by including individual and group behaviors, physical neighborhood quality, and crime rates (Taylor, 2001). Although rejected by a number of theorists (Matthews, 1992) and researchers (Berthold & Hoover, 2000; Xu et al., 2005), the broken window thesis has had a significant bearing upon subsequent research and policy developments (Doran & Lees, 2005).

Drawing upon the social disorganization theory (Sampson & Groves, 1989), Skogan (1990) extended the incivilities thesis to explain neighborhood-level change. Not only are victimization, neighborhood dissatisfaction, neighborhood structure, and population mobility associated with disorder, neighborhood features (i.e., poverty, instability, ethnic composition) can also contribute directly to an emergence of incivilities. Skogan’s incivilities thesis provides an in-depth understanding of the ways in which incivilities influence threat of victimization (Worrall, 2006).

Direct, positive, and causal relationships between incivilities and threat of victimization appear to be well established both at a theoretical and empirical level (LaGrange et al., 1992; Markowitz et al., 2001; Wyant, 2008). Figure 2.2 shows the feedback loops demonstrated by the incivilities thesis. The visible signs of neighborhood incivilities (e.g., trash & litter, public drunkenness, rowdy youth, drug dealing) are related closely
to criminal activities, and are viewed as powerful as crime itself in generating and elevating feelings of fear (Maxfield, 1984). If left unattended, signs of incivilities communicate a range of information to residents about the incidence of crime and deterioration of community amenity (Wilson & Kelling, 1982). Incivilities play a potent role in sparking urban decline, detrimentally weakening informal social control and community morale, threatening the housing market (Skogan, 1990). Within this context, residents tend to feel vulnerable and perceive their environment to be threatening. A lack of concern over neighborhood surroundings can lead to elevated levels of threat of victimization (Schafer et al., 2006; Wyant, 2008). Consequently, residents tend to stay at home longer, avoid certain places and disorderly people at certain times, decrease social connections with neighbors, or even move out of neighborhoods for greener pastures (Ferraro, 1995; Schafer et al., 2006).

![Figure 2.2 The Incivilities Thesis Feedback Loops (Doran & Lees, 2005)](image)

Originally, relationships between incivilities and fear of crime were the main focus of research. Relatively recently, the incivilities thesis has been used to explain how social and physical disorder influence peoples’ perceived risk (LaGrange et al., 1992; Wyant, 2008), perceptions of unsafety (Schafer et al., 2006), and behavioral adaptations (Giblin,
Broadly, the incivilities thesis provides an explanation on causation of threat of victimization from both psychological and political perspectives (Evans & Fletcher, 2000). From a psychological frame of reference, the incivilities thesis associates crime and disorder with the notion of control (Wilson & Kelling, 1982) and loss of valued objects (Wurff et al., 1989). On a political level, the incivilities thesis reflects minor forms of physical and social public deviance (Evans & Fletcher, 2000). Thus, the present thesis takes as a given that tertiary students express high levels of threat of victimization in the face of incivilities.

**Cognitive behavior theory**

A review of the pertinent literature (Kalodner, 2007) fails to identify a unitary definition of cognitive behavior theory, which can be conceptualized as a set of related theories. Those individual theories are grouped by common assumptions, techniques, and research strategies, yet maintain the diversity of views about the role of cognitions playing in behavior change (Kalodner, 2007). Broadly speaking, cognitive behavior theory embraces cognitive, behavioral, and social learning perspectives, viewing thoughts, feelings, and behaviors as causally related (Kendall & Gosch, 1994). Functioning is regarded as a product of reciprocal interactions between individuals and an environment (Regehr, 2001). In general, cognitive behavior theory demonstrates that cognitive activities and behaviors are fundamentally different (Hupp et al., 2008), with cognitions playing an important role in behavioral changes (Kalodner, 2007).

Initially, cognitive and behavioral theories are considered quite distinct, with cognitive theories emphasizing impacts of beliefs about the self and the world on behavioral and emotional states. By contrast, behavioral theories tend to focus on environmental conditions or stimuli that induce and maintain behaviors (Regehr, 2001). Owing to an adherence to a social leaning process model of human functioning, cognitive behavioral paradigms bring together theoretical assumptions and intervention strategies, reflecting the importance of both cognitions and behaviors for understanding and helping people (Kalodner, 2007).
The development of cognitive behavior theory has culminated in a number of intervention methods. Two broad types are most influential: changing cognitions with an expectation that behavioral change will follow and changing behaviors with an expectation that change in cognitions will follow (Martin & Sandra, 2005). Rational-emotive therapy (Ellis, 1962), cognitive therapy (CT) (Beck, 1976), cognitive behavior modification (Meichenbaum, 1977), and problem-solving training (D’Zurilla & Goldfried, 1971) can be viewed as leading models. The first two are cognitively oriented, whereas the latter two are more behaviorally-oriented approaches.

Beck’s (1976) CT is employed in the current thesis in light of its simplicity, brevity, effectiveness, suitability for group treatments and ethnic minorities, extensive application in research, and explanatory power of interrelationships between cognitions, emotions, and behavior (Hansen et al., 2000; Regehr, 2001). CT, also labelled as cognitive behavior therapy (CBT), was initially developed for understanding and treating depression and anxiety disorders. Beck (1976) demonstrates that psychological disturbances result from faulty learning, making incorrect inferences on the basis of inadequate or incorrect information, and not distinguishing adequately between imagination and reality (p. 19). It should be noted that, in order to avoid any possible confusion between general concepts of cognitive behavioral theory and Beck’s (1976) cognitive behavior therapy, for the present thesis, the acronym, CBT refers specifically to Beck’s (1976) theory.

Figure 2.3 The Basic CBT Model (Simmons & Griffiths, 2009)
As shown in Figure 2.3, the principal elements of CBT suggest that situations in themselves do not cause psychological distress, but it is the ways in which people interpret, make sense of, and react to situations. The central tenets of CBT are: cognition has a controlling influence on emotions and behaviors; cognitive activity can be monitored and altered; and the ways in which individuals act or behave can affect thoughts and emotions (Kalomdner, 2007). Cognitive processing plays a central role because individuals continually appraise the significance of events (e.g., stressful events, memories) around and within them (Wright et al., 2006).

There are three primary levels of cognitive processing: consciousness, automatic thoughts, and schemas (Beck, 1963, 1964; Beck et al., 1979). Consciousness is the highest level, a state of awareness in which decisions can be made on a rational basis. Conscious attention allows people to monitor and assess interactions with their environment; to link memories with present experiences; and to control and plan future actions. Automatic thoughts stream through everyday thinking, and are difficult to assess for accuracy or relevance. One of the most important clues that automatic thoughts might be occurring is the presence of strong emotions (Wright et al., 2006, p. 8). Schemas, the deepest level, are core beliefs acting as basic templates or rules for information processing that underlie the more superficial layer of automatic thoughts (Clark et al., 1999). Core beliefs are shaped by developmental influences and life experiences, such as formal and informal educational activities, peer experiences, traumas, and successes. Schemas are a frequent target of interventions, accounting for part of the relapse prevention effect of CBT (Wright, 2006).

CBT stipulates that processing of external events or internal stimuli is biased and systematically distorts an individual’s construction of experiences, leading to a variety of cognitive errors (e.g., overgeneralization, selective abstraction, personalization). Underlying these distorted interpretations are dysfunctional beliefs incorporated into relatively enduring cognitive structures or schemas. When activated by external events, drugs, or endocrine factors, schemas tend to bias information processing and produce typical cognitive content of a specific disorder (Beck, 2005).
Perhaps surprisingly, CBT has not been used in the fear of crime area. However, CBT has propelled research in a wide range of areas and conditions, including eating disorders (Fairburn et al., 2008), schizophrenia (Turkington et al., 2006), bipolar disorders (Basco & Rush, 2005), insomnia (Sivertsen et al., 2006), personality disorders (Leichsenring & Leibing, 2003), substance abuse (Easton et al., 2007), suicidal behavior (Beck, 2005), and in crisis intervention (Dattilio & Freeman, 2007). In criminology, however CBT has been utilized to treat antisocial (Armelius & Andreassen, 2007) and violent (Özabacı, in press) behaviors, victims (Frank et al., 1988; Iverson et al., 2011), and offender populations (Easton et al., 2007; Hollin et al., 2008).

For the current thesis, CBT informs and drives the model-building processes because it is the way in which students interpret information around and within them, and act (behave) that influence levels of perceived risk (cognition), perceptions of unsafety (cognition), fear of crime (emotion), and avoidance adaptations (behavior). CBT also provides conceptual support for Garofalo (1981) who proposed reciprocal relationships between risk assessment, fear of crime, and individual responses. Given the applied nature of CBT, this thesis proposes that when students experience difficulties or traumatic life events (e.g., being victimized), they will be more likely to develop negative core beliefs and assumptions (i.e., feeling unsafe, perceiving high levels of risk of being victimized) than nonvictims. These negative core beliefs and assumptions (i.e., feeling unsafe, perceiving high levels of risk of being victimized) influence everyday negative automatic thoughts (i.e., perceptions of unsafety), feelings (i.e., fear of crime), and behaviors (i.e., constraining day-to-day activities). Also, behavioral changes intensify students’ perceived risk and perceptions of unsafety, thus accentuating their emotional fears in turn. Therefore, in line with CBT, the current thesis hold that there is a positive feedback loop between cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance) dimensions of threat of victimization.

**Garofalo’s (1981) fear of crime model**

Garofalo (1981) developed an eight category conceptual model to capture causes and consequences of fear of crime. As shown in Figure 2.4, these eight categories are:
people’s position in social space, information about crime, images of crime, risk assessment, fear of crime, costs and options, individual responses, and social outcome. Each category consists of different dimensions. For example, risk assessment includes prevalence of crime, likelihood of being victimized, vulnerability, and consequences of loss. Fear of crime is differentiated by actual and anticipated perspectives. And there are six types of individual responses to fear of crime, involving avoidance, protection, taking on insurance, communication, participation, and information seeking behavior.

**Figure 2.4 Garofalo’s (1981) Fear of Crime Model**

A key attribute of Garofalo’s model is the feedback loops between categories, suggesting that development and changes in levels of fear are not simple recursive processes (Garofalo, 1981, p. 856). For example, avoidance behaviors are associated inversely with the distance between individuals and by the perceived threats of particular situations, helping to reduce the risk of being victimized. Minor or major behavioral adaptations modify people’s lifestyle and position in social space, leading to changes in risk assessment that in turn affects actual and/or anticipated fear of crime.

Strictly speaking, Garofalo’s model cannot be classified as a theory. According to Taylor and Hale (1986), an important element of theory is testability. The complexity of this model exacerbates difficulties of empirical tests by not connecting different propositions. Also, this model fails to take into account community-level factors (i.e., disorder) and lacks conceptual support. However, Garofalo’s (1981) model provides an opportunity to integrate CBT with frameworks adopted in the fear of crime field (i.e.,
the victimization model, the incivilities thesis) to examine how personal and community-related factors affect levels of threat of victimization; and how cognitive, emotional, and behavioral dimensions of threat of victimization influence each other. Thus, Garofalo’s (1981) model can be viewed as a link integrating multi-theoretical streams into a comprehensive view of phenomena, leading to the development of advanced theory to guide fear of crime research.

**Culture shock thesis**

Based on personal observations of expatriate Americans, Oberg (1954, 1960), an anthropologist, introduced the concept of culture shock, referring to an occupational disease of people who have been suddenly transplanted abroad, *precipitated by the anxiety resulting from losing all familiar signs and symbols of social intercourse* (Oberg, 1954, p. 1). Culture shock is viewed as a normal process of adaptation to cultural stress (Selmer, 1999) involving cross-cultural adjustment, learning, and adjustment to stress (Befus, 1988; Chapdelaine & Alexitch, 2004). Elements of culture shock include unfamiliar stimuli from new environments (Hall, 1959), individuals’ emotional reactions (Adler, 1975), and interactions between individuals and environment. According to a number of researchers (Miyamoto & Kuhlman, 2001; Ward et al., 2001), international students, tourists, business people, refugees, and immigrants are prone to experiencing culture shock.

Culture shock is manifested by a number of factors, including a sense of loss of familiar stimuli and their replacement by others regarded as strange; experiences of stress and strain owing to the extra efforts required to make necessary psychological adjustment to a new culture; ineffectiveness of intercultural or interpersonal communication; confusion regarding role expectation, values, and self-identity; emotions of surprise, anxiety, disgust, and indignation after becoming aware of cultural differences; and threat to the emotional or intrapsychic well-being (Hall, 1959; Juffer, 1986).

Culture shock can precipitate a wide range of symptoms from homesickness, fearfulness, suspiciousness, depression, vulnerability, anxiety, to hostility (Zapf, 1991). These symptoms can result in a number of abnormal behaviors, involving fear of physical
contact with people; feelings of helplessness; dependence on residents originating from one’s own nationality; fits of anger towards or avoidance of local people over minor frustrations; excessive fear of being cheated, robbed, or injured; and heightened longing to be back home (Church, 1982; Oberg, 1954).

Individuals are not born with culture but with the capability to learn and use it: *Once learned, culture becomes a way of life* (Oberg, 1954, p. 6). When entering a host country, international students bring their home culture, choosing actions consistent with and interpreting their own and host’s actions in terms of it (Noesjirwan & Freestone, 1979). Conflicts, thus become inevitable owing to differences in rules, values, and behaviors between the two cultures (Zapf, 1991). International students differ in the degree to which culture shock might affect them, from rapid adjustment to a new environment to suffering emotional, chronic, and debilitated disturbance (Mumford, 1998); sometimes resulting in returning home prematurely (Selmer, 1999). Some international students adopt an extremely hostile and critical attitude towards host nationals (fight); yet others rapidly and uncritically abandon their former identities, trying to imitate host nationals in every possible way, as if going native (Selmer, 1999). International students do not necessarily change their basic values, beliefs, behaviors, or commitment to their country of origin. Most tend to adopt attitudes favoring greater open-mindedness, the value of knowledge, and freedom in relationships between males and females (Pedersen, 1991). It is difficult to accommodate a new environment without becoming more flexible.

It has been widely accepted that international students who experience high levels of cultural differences and have less social interaction with host students intensify culture shock (Poyrazli & Lopez, 2007). Owing to differences in language, values, attitudes, and communication styles, a high degree of cross-cultural dissimilarities between countries suggest that international students’ accentuated levels of unskilful social capabilities can hinder social interaction with host members, decrease the likelihood of learning a host culture’s social rules, and ultimately increase social difficulties (Chapdelaine & Alexitch, 2004). Even when cultures are similar, some degree of adjustment is necessary (Tsang, 2001).
Having demonstrated efficacy, reliability, and validity both in understanding and interpreting international students’ psychological, social, and cultural adjustment, the culture shock thesis has not been used in investigations of threat of victimization. As discussed earlier, the culture shock thesis accounts for abnormal behaviors associated with fear, such as excessive fear of being cheated, robbed, or injured, fear of physical contact with people, and avoidance of local people. According to Marginson et al. (2010), for people crossing national or territorial borders, whether temporarily or permanently, their first concern is to achieve personal, social, and economic security for their families and themselves. Thus, the culture shock thesis provides a framework for understanding international students’ heightened levels of threat of victimization. The following section discusses the subcultural-diversity model (Merry, 1981) and group position thesis (Blumer, 1958), highlighting the important role of culture and ethnicity in understanding threat of victimization.

Subcultural-diversity model

Situated in the social disorganization tradition (Lane & Meeker, 2000), the subcultural-diversity model has recently been employed to help explain threat of victimization (Bennett & Flavin, 1994; Katz et al., 2003; Lane & Meeker, 2000). This model posits that threat of victimization results primarily from individuals’ worries about people from different cultural and ethnic backgrounds (Merry, 1981), because people interpret neighbors’ behavior and manners through the lens of their own culture (Merry, 1981). Values, attitudes, and behaviors of individuals from diverse backgrounds can be difficult to interpret, understand, and trust, leading to broader-based social uncertainty, anxiety, distrust among neighbors, and ultimately to threat of victimization (Hale, 1996; Katz et al., 2003). The subcultural-diversity model contributes to an understanding of an apparent paradox concerning fear: that people who do not have the highest objective risk of victimization (i.e., the elderly, females) are the ones who tend to be the most afraid of crime (Lane & Meeker, 2000).

The subcultural-diversity model does not link ethnicity directly to fear, but rather suggests that worries about culturally- or ethnically-influenced behaviors create an environment of fear (Bennett & Flavin, 1994; Katz et al., 2003). For example, Chinese
residents, who are typically quiet and reserved, tend to fear their Afro-American neighbors; interpreting their culturally influenced behaviors as noisy, rowdy, and unruly (Merry, 1981). Skogan and Maxfield (1981) observed that Caucasians’ concerns about crime were rooted mainly in their fear of African-American people. Accordingly, ethnic heterogeneity and variations of subculture in different racial and ethnic groups are key considerations.

Despite disagreement on optimal measurement processes and procedures, findings (Bennett & Flavin, 1994; Katz et al., 2003; Taylor & Covington, 1993) demonstrate that individuals who are more culturally diverse or ethnically different from their neighbors report significantly higher levels of threat of victimization. Although having not been employed in the context of international student population, the subcultural-diversity thesis is used to underpin the present comparative investigation involving international and local students because of its applicability and explanation of ethnic-minority adult residents’ threat of victimization. It proposes that international students are more likely to express significantly higher levels of threat of victimization than their local counterparts.

**Group position thesis**

Blumer (1958), a sociologist, pioneered the group position thesis, positing that ethnic-oriented prejudice exists in a sense of group position rather than in a set of feelings that members of one ethnic group have towards members of another ethnic minority group (p. 3). According to Bobo and Hutchings (1996), *identity, stereotypes, values, and assessments of interests are shaped historically and involve a collective and relational dimension between groups that powerfully engage emergent normative ideas about appropriate group statuses and entitlements* (p. 968). Blumer (1958) identified four elements that establish a sense of group position, involving feelings of superiority; feelings of proprietary claim to particular domains of privilege and advantage, perceptions that ethnic minority groups are intrinsically different and alien; and fear or suspicion that ethnic minority groups have designs on the prerogatives of the dominant ethnic group.
While focusing on a dominant group’s beliefs about status and entitlements, the group position thesis has been extended to propose that *members of a racial group who feel alienated and oppressed are more likely to regard other racial groups as competitive threats to their own group’s social position* (Bobo & Hutchings, 1996, p. 956). The group position thesis has been widely used to investigate racially-related issues, such as racial alienation (Bobo & Hutchings, 1996), racial prejudice (Bobo, 1999), and racial tolerance (Smith, 1981). According to Bobo and Hutchings (1996), the group position thesis offers the most parsimonious integration and interpretation of the social psychological processes involved in the formation of perceptions of group threat and competition (p. 951).

Drawing upon the group position thesis, Lee and Ulmer (2000) investigated ethnic group position, relations, perceived threat, and threat of victimization among Korean Americans in communities of Chicago, demonstrating that ethnic conflict and anti-black prejudice significantly influences their levels of fear of crime and perceived risk. Thus, it is taken as granted that local tertiary students are viewed as a domain ethnic group, while international cohorts are members from ethnic minority groups. Accordingly, it is highly likely that international students express higher levels of threat of victimization than their local counterparts.

**SUMMARY**

Chapter 2 clarifies issues associated with meaning and measurement of fear of crime, culminating in an adoption of a higher order multidimensional construct called threat of victimization. This thesis argues that threat of victimization subsumes fear of crime (emotion), perceived risk (cognition), perceptions of unsafety (cognition), and behavioral adaptations. These four dimensions have equal footing in explaining feelings triggered by threats of being victimized, influencing each other reciprocally. This position helps to diminish terminological ambiguity and operational inconsistency, providing a broad-based lens by which to investigate fear of crime and associated issues.

This chapter reviews principal theoretical conceptualizations adopted in the fear of crime research, concluding that there is an apparent absence of psychology-based theory.

Drawing upon the victimization model and the incivilities thesis, tertiary students’ threat of victimization are accommodated within the context of personal vulnerability to crime and their perceptions of environment. These two models have demonstrated theoretical and methodological applicability and validity for understanding threat of victimization. Although Garofalo’s (1981) model lacks theoretical and empirical support, the paper was published by a leading journal, the Journal of Criminal Law and Criminology. Thus, from a criminology perspective, Garofalo’s (1981) model provides an opportunity for the present thesis to integrate CBT and related frameworks adopted in the fear of crime (e.g., the victimization model).

Because of a lack of conceptualizations derived from psychology, particularly those explaining causal relationships between cognitive, emotional, and behavioral dimensions of threat of victimization, CBT is adopted for the present thesis. CBT is one of the most heavily researched and empirically supported contemporary psychologically-based models (Cassel & Bernstein, 2007; Prochaska & Norcross, 2003; Singer, 2006), providing a convincing theoretical understanding of reciprocal relationships between these fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior.

The culture shock thesis, the subcultural-diversity model, and the group position thesis underpin comparisons between international and local tertiary students on their levels of threat of victimization. The culture shock thesis accounts for a range of symptoms (i.e., fearfulness, anxiety) encountered by international students. Yet, this theory has not been applied specifically in the fear of crime research. To fill this void, the subcultural-diversity model and the group position thesis provides a foundation for understanding
relationships between ethnicity, culture, and threat of victimization. These two frameworks have been supported empirically by a number of studies (Lee & Ulmer, 2000), demonstrating a sound level of efficacy in understanding threat of victimization. The integration of these three frameworks provides a solid theoretical basis for the present thesis.

These seven frameworks, emerging from different disciplinary perspectives, underscore the present model building and testing process (Study 1); as well as underpinning the current comparative investigation (Study 2), providing a robust theoretical foundation for understanding, explaining, and predicting how personal and community-related characteristics influence tertiary students’ threat of victimization; how cognitive, emotional, and behavioral dimensions of threat of victimization inter-relate; and how international and local students interpret their environment and levels of threat of victimization. The following chapter incorporates Study 1, involving an in-depth review of the pertinent literature, hypothesis development, a description of the present methodology, a report of quantitative testing of hypothesized model, culminating in a discussion of these results.
CHAPTER 3
STUDY 1: TERTIARY STUDENTS’ THREAT OF VICTIMIZATION

Chapter 3 reports on Study 1. A review of literature on tertiary students’ threat of victimization is provided, culminating in a number of testable hypotheses and a proposed conceptual model. The present methodology is described, followed by a discussion of salient findings.

Criminal activities, deviant behaviors, victimization, and threat of victimization associated with tertiary students are prominent social, political, and psychological issues, receiving growing public (Das, 2009; Levett, 2008) and academic attention (Farina, 2009; Fisher & May, 2009; Sudo & Yamauchi, 2010). Research on tertiary students’ threat of victimization can be classified into on- and off-campus, the two types of which are underrepresented in the literature (Barberet & Fisher, 2009; King, 2009; Woolnough, 2009). Investigations within the on-campus context predominate (Fisher, 1995; Fisher & Wilkes, 2003; Jennings et al., 2007), with female college students being the main focus (Fisher & May, 2009; Fisher & Sloan, 2003); with research on off-campus (public spaces) threat of victimization being relatively limited (Cubbage & Smith, 2009; Truman, 2005). In terms of on-campus threat of victimization, it appears that a substantial number of tertiary students are fearful of being victims of crime, especially at night and in open and outside campus areas (McConnell, 1997; Wicox et al., 2007). Generally, females, minorities, and prior victims express significantly elevated levels of on-campus threat of victimization (Fisher & May, 2009; Fox et al., 2009; Kelly & Torres, 2006).

In accord with the routine activity approach (Cohen & Felson, 1979), it is widely accepted that university campus environment characteristics are attractive targets for criminals, consequently generating victimization and threat of victimization (Barton et al., 2010; Edmondson et al., 2007; McConnell, 1997). Environmental characteristics involve ease of accessibility, high convergence of suitable targets, relatively low levels of security, and student lifestyles (Barberet & Fisher, 2009; Dameron et al., 2009; Robinson, 1998; Sloan et al., 2000). Fisher and Nasar (1992) related campus crime and
threat of victimization to three exterior site features, involving prospect, refuge, and escape. Campuses with limited prospect, high levels of concealment, and difficult escape routes have been shown to reduce victimization and threat of victimization (Fisher & Nasar, 1992).

Campus crime can be categorized into two distinct clusters: theft and property related (Bromley, 1999; Fisher et al., 1998); and alcohol and drug related crimes that culminate in murder, sex offenses, robbery, or aggravated assault (McConnell, 1997). These crimes are often perpetrated by students against other students (Siegel, 1994). Personal characteristics and certain lifestyle are associated significantly with actual victimization and threat of victimization (Fisher & May, 2009; Fisher et al., 1998; Sloan et al., 2000), such as partying, recreational drug use and/or alcohol related activities. Davis et al. (2002) revealed that sexual assault perpetrated against female university students and repeated victimization were significantly and positively associated with involvement in risk-taking behaviors (i.e., substance use abuse, risky sexual behaviors).

In terms of research on off-campus threat of victimization, adolescent populations, such as those aged between 10-16 years (Melde, 2009), predominate. Maimon and Browning (2010) stated that unstructured socializing with peers is associated significantly with adolescents’ violent behaviors, which in turn enhances an actual risk of being victimized and threat of victimization (Melde, 2009). Students living in neighborhoods associated with high crime rates and marginal economic and social resources are also under a heightened level of risk of violent crime (Farina, 2009).

Tertiary students suffer similar social and psychological sequelae to victimization as the general population, involving depression, mutual distrust, decreased social interaction, constrained behavior, restricted freedom and personal opportunities, withdrawal of social support, and ultimately, overall poor mental health and well being (Barchia & Bussey, 2010; Warr, 2000; Whitley & Prince, 2005). They are also highly likely to develop negative beliefs and manifest a wide range of psychological, behavioral, and social symptoms. These symptoms can include hostile attitudes toward universities and peers, negative views about social interaction, anxiety, depression, social isolation,
suicidal ideation, truancy, poor academic performance, and drop out (Kerbs et al., 2005; McConnell, 1997). Furthermore, student victims tend to suspect their surroundings and feel helpless to modify conditions that can appear beyond their control (Wayne & Rubel, 1982).

Apparently, learning and academic performance is enhanced only when students feel physically and emotionally safe (Edmondson et al., 2007). Within this context, drawing upon four theoretical conceptualizations: CBT (Beck, 1964, 1976), Garofalo’s (1981) model, the victimization model (Gates & Rohe, 1987; Skogan & Klecka, 1977), the incivilities thesis (Taylor, 1998, 2001). Study 1 aims to develop and test a nonrecursive model, explicating key factors contributing to tertiary students’ threat of victimization. The following section discusses key antecedents of the present hypothesized model driving threat of victimization, based on theory and related research in this area (Lane, 2009; Melde, 2009; Rader et al., 2007).

**THEORETICAL CONCEPTUALIZATION**

As discussed in Chapter 2, the victimization model (Gates & Rohe, 1987; Skogan & Maxfield, 1981), the incivilities thesis (Taylor, 1998, 2001), CBT (Beck, 1976; Martin & Sandra, 2005), and Garofalo’s (1981) fear of crime model underpin Study 1. Respectively, the victimization model and the incivilities thesis demonstrate validity and efficacy in conceptualizing threat of victimization from personal and community perspectives. These two models posit that tertiary students’ threat of victimization is related highly to their perceptions of personal vulnerability and interpretation of surroundings.

Having said that, pertinent theories from psychology-based epistemologies are absent, particularly in relation to studies investigating relationships between perceived risk, perceptions of unsafety, fear of crime, and behavioral adaptations. From a criminology perspective, Garofalo (1981) advocated that causes and consequences of fear of crime are not simply recursive. Although lacking theoretical and empirical support, Garofalo (1981) provided a basis for integrating CBT with the victimization model and the incivilities thesis. CBT provides a solid explanation of relationships between cognitions,
emotions, and behaviors (Study 1). The next section reviews literature on threat of victimization, culminating in a number of testable hypotheses and a proposed conceptual model.

**HYPOTHESIS AND MODEL DEVELOPMENT**

It is widely accepted that fear of crime is not a simple response to potential risk or experiences of being victimized (Garofalo, 1979), but a product of individual-level information processing; related highly to personal characteristics and people’s perceptions of ecological-setting conditions and dynamics (Berthold & Hoover, 2000; Ferguson & Mindel, 2007; Ferraro, 1995). Ongoing debate (Melde, 2009; Rader et al., 2007) and pertinent theories propelled the present investigator to explore: how cognitive, emotional, and behavioral dimensions of threat of victimization, specifically, fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior influence each other; and how personal and community-related factors affect tertiary students’ threat of victimization.

The present thesis accommodates tertiary students’ threat of victimization within personal and community-related contexts. Personal-related factors involve age, gender, protective ability, and direct and indirect victimization. Generally, relatively younger students, female, those with lower levels of protective ability, and prior victims (either direct or indirect) tend to express higher levels of threat of victimization (Adams & Serpe, 2000; Ferguson & Mindel, 2007; Melde, 2009). However, owing to the inconsistent findings emanating from investigations on personal characteristics, research on fear of crime has moved from a focus on sociodemographics to concerns about neighborhood environments, including social disorder (LaGrange et al., 1992; Wyant, 2008), social integration (Adams & Serpe, 2000; Gibson et al., 2002), and confidence in police (Giblin, 2008; Winkel, 1988). The impact of these personal- and community-related variables is addressed in-depth in the following sections.

It is noteworthy that, although antecedents influencing fear of crime have been researched extensively, proposed frameworks have by-and-large been mediated recursive models. Having said that, there is limited, if no studies that have treated these
four dimensions, concurrently, as DVs. Figure 3.1 shows key antecedents and postulated relationships inherent in the present conceptual model. This hypothesized model involves two feedback loops (H1a & H1b). Ideally, two individual models with each feedback loop, either H1a or H1b, and associated hypotheses should be developed separately. To avoid repetition and possible ambiguity, however, the following section provides a discussion of hypothesis and model development only in relation to the current final integrated model, highlighting the development of reciprocal propositions between cognitive, emotional, and behavioral dimensions of threat of victimization.

It should be noted that a fully specified model including all necessary variables is a key assumption to estimate coefficients without any potential bias (Marais & Wecker, 1998; Sackett et al., 2003; Swamy et al., 2003). However, it is naturally impractical to collect all requisite data in the social and behavioral sciences (Kim & Frees, 2006, p. 659). As noted earlier, there are different behavioral responses to threat of victimization. In an ideal situation, each behavior would have been included in one or more models. But because the present thesis aims to investigate nonrecursive relationships between cognitive, emotional, and behavioral dimensions of threat of victimization, a feedback loop only needs to include one variable from each dimension, rather than a number of possible variables from each dimension. Had all these behaviors been included in the analyses, six feedback loops (models) would have needed, potentially raising other concerns such as family-wise Type I error rates, and simplicity of the present model. Additionally, it would not be feasible to develop a fully specified model with all possible variables being included. In this case, while no specific statistical tests were undertaken, the exclusion of the other behavioral constructs is unlikely to have had a significant effect on estimated coefficients and standard errors, as these behaviors are distinct in their nature.
Threat of Victimization

This section discusses relationships between cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance) dimensions of threat of victimization, culminating in the development of a nonrecursive hypothesis. A review of literature suggests that mediated causal-effect propositions predominate (Ferguson & Mindel, 2007; Melde, 2009), with a limited number of studies (Rader et al., 2007) undertaking a nonrecursive approach, as discussed below.

Bivariate causal relationships between fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior

Fear of crime and perceived risk. Mediated cause-effect relationships between combinations of these four dimensions have been a focus of attention, with fear of crime often being treated as a sole DV (Loukaitou-Sideris & Fink, 2009; Melde, 2009). Specifically, perceived risk is regarded as one of the strongest predictors of fear of crime (Ferguson & Mindel, 2007; Ferraro, 1995; Mesch, 2000a), mediating personal
and environmental-related factors. Perceived risk has been shown to move in tandem with accentuated levels of fear of crime, leading to an adoption of related constrained behaviors (i.e., prevention, protection, and avoidance). Skogan and Maxfield (1981), however, revealed that assessments of perceived risk of victimization are frequently inaccurate. Rader (2004) argued that perceived risk and fear of crime should be treated as equally important, functioning as indicators of threat of victimization.

**Fear of crime and perceptions of unsafety.** Feelings of fear of being victimized can result from a cognitive judgement or evaluation of the possibility of a potential risk. Fear of crime, however, does not result directly from cognitive assessments of risk or danger alone, but is also reflective of general attitudes, beliefs, or perceptions regarding crime, victimization, and environment (Melde, 2009). In other words, one premise holds that it is not activating events or situations that cause consequent emotional or behavioral responses, but attitudes, cognitions, or viewpoints towards such situations (Walters, 1990). Consistent with this perspective, Lira and Andrade-Palos (1993) reported that a sense of unsafety leads people to detect dangerous situations, evoking fear of crime, and ultimately the adoption of related behavioral responses. Wayne and Rubel (1982), and May and Dunaway (2000) found that students who perceived school as unsafe were highly likely to be fearful. While Crank et al. (2003) highlighted that fear of crime is affected by one’s perceptions of community and urban insecurity, Truman (2005) suggested that those who feel less safe express significantly higher levels of fear of crime. There is a limited number of studies (Schafer et al., 2006) that treated fear of crime as an indicator of perceptions of unsafety, revealing that people who express higher levels of fear of crime tend to feel less safe in their neighborhoods.

**Fear of crime and avoidance behavior.** A review of the literature suggests two opposite views regarding linkages between fear of crime and avoidance behavior (Crank et al., 2003; Ferguson & Mindel, 2007; Melde, 2009). A number of scholars (Ferguson & Mindel, 2007; Ferraro, 1995; Melde, 2009) argue that behavioral responses should be viewed as a predictor of fear of crime. This propositions is driven by the routine activity approach (Cohen & Felson, 1979) and/or lifestyle thesis, positing that people’s lifestyles and spatial activities play an important role in determining their risk of victimization.
and levels of fear of crime (Delone, 2008; Mesch, 2000a). Over three decades ago, Cohn (1978) reported that simple avoidance behavior (e.g., staying home more) had little effect on reducing levels of fear of being victimized. Wirtz and Harrell (1987) noted that rape victims who changed their phone number actually reported increased levels of fear. Mesch (2000a) found that individuals who reported spending their nights out at leisure activities more often, were less likely to express fear of crime. Interestingly, Fisher and Sloan (2003) reported that college women who undertake prevention and avoidance behaviors (i.e., always carry their keys in a defensive manner; ask someone to walk with them after dark; attend campus crime-prevention programs) tend to express elevated levels of fear of crime. In line with Fisher and Sloan (2003), Ferguson and Mindel (2007) revealed that the more specific the measures that people adopt to protect themselves and their property, the higher level of fear of crime reported, rather than the converse. Melde (2009) stated that an involvement in a delinquent lifestyle reduce adolescents’ fear of crime.

Notwithstanding, other studies (Crank et al., 2003; Ross, 1993) treat behavior as a consequence of fear of crime. Generally, people are less inclined to walk outside after dark, avoid dangerous areas and disorderly people, or even move out of their neighborhood out of fear of crime (Giblin, 2008; Skogan, 1990). Over 30 years ago, Garofalo (1979), and Gates and Rohe (1987) suggested that fear of crime leads residents to constrain their behavior. Ross (1993) stated that fear of victimization decreases people’s likelihood of walking outside of their house, leading to poor health. With respect to students, those who express being fearful or having accentuated levels of perceived risk associated with school tend to avoid attending school (Kelly & Torres, 2006; Wicox et al., 2007; Williams et al., 1994). Randa and Wilcox (2010) noted that fear of crime intensifies students’ avoidance of school activities and specific places within schools.

From a psychological perspective and laboratory evidence in animals (Rachman, 1990), fear is an avoidance motive, supporting the action of flight when there are no internal or external restraints (Epstein, 1972), stimulating and reinforcing behavior in order to avoid or prevent the recurrence of pain producing (unconditioned) stimuli.
Consequently, evidence from other disciplines (i.e., psychology) suggesting (Gabriel & Greve, 2003; Wright et al., 2006) or refuting (Mowrer, 1939; Rachman, 1976) causal linkages between fear of crime and behavioral adaptations are open to question.

**Perceived risk, perceptions of unsafety, and behavioral adaptations.** A number of studies have examined relationships between cognitive and behavioral facets of threat of victimization. Crank et al. (2003) found that residents’ out-of-house activities were affected by their perceptions of safety, rather than fear of victimization. Williams et al. (1994) revealed that perceptions of safety is related significantly to urban youth collective actions (i.e., carrying a whistle, night escort, learning self-defence, carrying a mace, leaving lights on at night, having a burglar alarm and/or guard dog, and installation of security locks). Those whose perceptions are one of being less safe are more likely to avoid walking alone at night or to carry a whistle. By contrast, Kanan and Pruitt (2002) treated behaviors as a predictor of perceptions of safety, with prevention measures intensifying residents’ perceived safety at night, but lowering or inhibiting their perceptions of neighborhood safety. Research on linkages between perceived risk and behavioral adaptations is scarce. Behavioral changes reduce the likelihood of convergence in time and space with motivated offenders (Cohen & Felson, 1979), thus decreasing their actual risk of being victimized (Ferraro, 1995; Miethe, 1995).

Studies assessing linkages between perceptions of unsafety and perceived risk are rare; there is evidence however, to suggest that heightened perceptions of neighborhood unsafety can increase perceived risk (Tulloch, 2000). Nonetheless, relationships between these two types of cognitions are not the present focus. In summary, these widely supported causal relationships between bivariate theoretical dimensions provide indirect support for the present examination of possible reciprocal relationships involving multiple DVs. The following section highlights studies (Liska et al., 1988; Rader et al., 2007) involving cyclical relationships between cognitive, emotional, and behavioral components of threat of victimization.
**Reciprocal propositions**

As shown in Table 3.1, it appears that there are relatively few studies (Liska et al., 1988; Rader, 2004) that have proposed or even empirically tested nonrecursive models involving cognitive, emotional, and behavioral facets of threat of victimization simultaneously. Specifically, Liska et al. (1988) tested a positive *escalating* (p. 827) loop between social behavior and fear of crime, demonstrating that fear limits social behavior, predisposing avoidance of seemingly dangerous situations, further intensifying fear. Ferraro (1995) failed to replicate Liska et al. (1988). Rosenbaum and Heath (1990) suggested a fear-reduction model containing an inherent disequilibrium, demonstrating that a subjective risk of victimization increases concerns of fear, leading to a decrease in crime-prevention behaviors. Behavioral changes facilitate objective crime risk, followed by a subsequent increase in subjective crime risk and fear of crime.

Rader (2004) proposed bivariate reciprocal linkages between fear of crime, perceived risk, and constrained behavior, the hypothesized relationships of which are supported partially by Rader et al. (2007). Failure to support fully these associations might be attributable to a lack of theoretical support and an overreliance on multivariate multiple regression techniques (Rader et al., 2007). Rader et al. (2007) were aware of this issue, calling for the application of second generation statistical procedures such as SEM, the procedures of which can test for nonrecursive relationships involving multiple DVs, thus raising the statistical power of analytic procedures.

Apparently, tested reciprocal relationships between bivariate variables (e.g., fear of crime, constrained behavior) predominate. Furthermore, a review of these studies (Rader, 2004; Rader et al., 2007) suggests an apparent theoretical lacuna. That is, nonrecursive propositions were specified according to what they believed as logical, rather than drawing upon a relevant theory. As a case in point, Jackson (2004) questioned the direct causal link from perceived risk to fear of crime as proposed by Ferraro (1995). Although Rader (2004) developed nonrecursive propositions on the basis of previous studies, Rader et al. (2007) were caught on the hop by the nonsignificant relationships between perceived risk and avoidance and defensive behaviors, stating that this finding was *surprising because it seems logical that one who*
believes they are likely to be the victim of a crime would engage in defensive behaviors for protection or avoid situations that they feel will increase the likelihood of their victimization. It also seems logical that one’s protective and avoidance behaviors would impact how they assess their likelihood of victimization (p. 498).

In order to address this imperative, Study 1 undertakes a nonrecursive approach, investigating concurrently the interrelationship between cognitive, emotional, and behavioral components of threat of victimization. Importantly, CBT is utilized to underpin the present interplay between fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations. CBT supports the notion that cognitions, emotions, and behaviors stand in reciprocally deterministic relationships that can continue almost indefinitely (Martens & Haase, 2006; Wright et al., 2006). Cognitive interpretations of events or circumstances determine the quality of emotions (Peters et al., 2004), leading to behavioral changes, such as avoidance and prevention. Behavioral adaptations intensify levels of cognitive assessment and emotions in turn. This cyclical relationship suggests that the development and changes in levels of fear of crime are not merely simple recursive processes (Garofalo, 1981). Accordingly, it is hypothesized that:

**H1a:** Perceived risk (cognition), fear of crime (emotion), and avoidance (behavior) are related to each other positively and reciprocally.

**H1b:** Perceptions of unsafety (cognition), fear of crime (emotion), and avoidance (behavior) are related to each other positively and reciprocally.

The following section discusses key antecedents driving threat of victimization, culminating in a number of testable hypotheses and a proposed conceptual model.
Table 3.1 Studies Involving Nonrecursive Associations between Cognitive, Emotional, and Behavioral Dimensions of Threat of Victimization

<table>
<thead>
<tr>
<th>Study</th>
<th>Reciprocal Relationships</th>
<th>Findings/propositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liska et al. (1988)</td>
<td>Emotions &amp; behaviors</td>
<td>A positive loop between social behavior and fear of crime.</td>
</tr>
<tr>
<td>Rosenbaum and Heath (1990)</td>
<td>Cognitions, emotions, &amp; behaviors</td>
<td>Subjective risk of victimization increases concerns of fear, leading to a decrease in crime-prevention behaviors, followed by an increase in objective and subjective crime risk, and fear of crime.</td>
</tr>
<tr>
<td>Ferraro (1995)</td>
<td>Emotions &amp; behaviors</td>
<td>Constrained behavior significantly and positively influences fear of crime. However, fear of crime is not a significant predictor of constrained behavior.</td>
</tr>
<tr>
<td>Rader (2004)</td>
<td>Bivariate reciprocal relationships between cognitions, emotions, &amp; behaviors</td>
<td>Fear of crime is not a consequence of, but involves a complex reciprocal relationship with perceived risk and constrained behavior.</td>
</tr>
<tr>
<td>Rader et al. (2007)</td>
<td>Bivariate reciprocal relationships between cognitions, emotions, &amp; behaviors</td>
<td>Partial support of Rader’s (2004) conceptual framework that fear of crime is related reciprocally to perceived risk, and avoidance and defensive behaviors.</td>
</tr>
</tbody>
</table>

**Personal-related Factors**

Personal-related factors (i.e., age, gender) play an important role in understanding threat of victimization, indicating individuals’ physical and social vulnerabilities to criminal risk and victimization (Skogan & Maxfield, 1981). Social demographics determine a person’s position in social space and influence the degree and nature of information about crime, cognitive judgement regarding environmental safety and risk, associated levels of fear of crime, and adopted behavioral strategies (Garofalo, 1981; Meško et al.,
As discussed below, personal-related factors investigated in Study 1 include age, gender, protective ability, and direct and indirect victimization.

**Age**

Although age is regarded as a key predictor of physical vulnerability to threat of victimization, a review of literature (Ferguson & Mindel, 2007; Melde, 2009) shows inconclusive findings. The elderly are generally viewed to express higher levels of threat of victimization than their younger counterparts (Gibson et al., 2002; Katz et al., 2003), because they perceive themselves as less agile, possessing less perceptual acuity, and less strong than younger assailants (Bennett & Flavin, 1994). Hale (1996) noted that, partly in response to fear of crime, the elderly isolate themselves from the outside world, living a life of self-imposed confinement, and are captives in their own houses.

A number of recent studies (Beck & Travis, 2004; Rader et al., 2007) however, fail to support this traditional stereotype, indicating that the prevalence of fear of crime among the elderly might be overestimated (Silverman & Della-Giustina, 2001). On the basis of life-style, researchers argued that the younger tend to report significantly higher levels of fear of crime (Kanan & Pruitt, 2002; Tulloch, 2000) and perceived risk (Rountree & Land, 1996b; Tulloch, 2000) than their older counterparts. Ferraro (1995) revealed non-linear relationships between age and threat of victimization, with high levels of fear of crime among those aged 18-24 years, decreasing until middle-age at 35-44 years of age, the findings of which was supported by Moore and Shepherd (2007). Ferraro (1995) also argued that adopting constrained behavior is lowest among youth and rises steadily in adulthood until a drop in later life.

Dissonance between age and threat of victimization can be explained by: social position (i.e., marriage status, ethnicity, education), neighborhood crime rates, environmental features, life style, a large portion of elderly female participants, statistical methods (i.e., univariate versus multivariate analyses), and the ways in which elderly is defined (i.e., use of ordinal versus continuous measures) and how fear is measured (e.g., the use of global questions versus fear of specific crimes) (Acierno et al., 2004; Chadee & Ditton, 2003; Moore & Shepherd, 2007).
When it comes to students, May and Dunaway (2000) reported that younger students are more likely to perceive their school as safe than their older counterparts, but express higher levels of fear of crime, the grades of which range from 10 to 12. Wayne and Rubel (1982) revealed that student fear is much more prevalent in junior high students, aged 13 to 15 years, than among those in senior high, aged 16-18 years. Using a sample of youth aged 10-16 years, Melde (2009) indicated that younger students are more fearful of crime, but found a nonsignificant association between age and perceived risk. Utilizing a national sample of 3776 high school students aged 12-18 years, Randa and Wilcox (2010) differentiated between general and place-specific avoidance behavior, suggesting that age is significantly and negatively related to place avoidance, but nonsignificantly associated with general avoidance activities.

In relation to tertiary students, Kaminski et al (2010) reported that, in response to the Virginia Tech and Northern Illinois University shootings, younger students expressed significantly lower levels of general fear of crime and fear of walking alone after dark, but higher levels of fear of murder and fear of weapon attack than their relatively older peers. Farina (2009) revealed that age is significantly and negatively associated with fear of property, violent, and overall crime. Accordingly, this thesis hypothesizes that:

**H2a**: Age is related negatively to perceptions of unsafety.

**H2b**: Age is related negatively to fear of crime.

**Gender**

Gender is unproblematically and non-reflexively (Lee, 2007) taken as the most potent indicator of fear of crime for both adult and adolescent population (Katz et al., 2003; Silverman & Della-Giustina, 2001); often twice as strong as other variables (Ferraro, 1995). When compared with males, females are reported to consistently express elevated levels of fear of crime (Ferguson & Mindel, 2007; May et al., 2010), perceived risk (Lira & Andrade-Palos, 1993; Rader et al., 2007), and perceptions of unsafety (Schafer et al., 2006; Tulloch, 2000); sequentially restricting their behaviors (Giblin, 2008; Killias & Clerici, 2000).
Kelly and Torres (2006) qualitative investigation of female university students’ perceptions and experiences of campus safety revealed that being a woman in a society means worrying about personal safety, experiencing sexual victimization, and being blamed for their own victimization. Kelly and Torres (2006) stated that a significant proportion of females do not feel safe to walk college campus streets out of fear. Fisher (1995) found that college women expressed elevated levels of fear of campus victimization and perceived risk. Similarly, Ferraro (1996) noted that college women tended to adopt constrained behaviors to reduce their risk of victimization. Contrary to these findings, Fabiansson (2007), and Kanan and Pruitt (2002) reported nonsignificant gender differences concerning young people’s perceptions of unsafety.

Studies (Day, 1994; Ferraro, 1996; Fisher & Sloan, 2003) advocate that females’ fear of crime can result from the so-called shadow of sexual assault, the view of which is widely supported by gender-based comparisons (Fisher & May, 2009; Fox et al., 2009; May et al., 2010). The threat of rape provides a unique explanation for females’ fear of other types of crime (Ferraro, 1995; Warr & Stafford, 1983). Further explanations include perceptions of physical and social vulnerability, and socialization to patterns of feelings of dependence and powerlessness, and low levels of aggressivity and risky-behaviors (Bennett & Flavin, 1994; Hale, 1996; Katz et al., 2003; Will & McGrath, 1995).

Women are trained to believe that they will be perceived as partially responsible, because of routine behaviors, clothing, lifestyle, if they are victims of sexual or personal crime (Vuk, 2011). Females are told to keep legs together, to keep skirt down, and to avoid talking to strange men; otherwise something bad could happen (Madriz, 1997). This perception generates a heightened fear of victimization owing to elevated levels of psychological harm associated with sexual crimes. However, increasing evidence shows a significant inconsistency females’ actual victimization and their fear of crime (King, 2009), leading to an conclusion that females’ fear of crime might be irrational (McConnell, 1997). Hall and Sandler (1984) suggested that women are socialized to inaccurately assess their own risk and to feel a false sense of security when they are among acquaintances, but to express unreasonable levels of fear when they are in the
presence of strangers. Accordingly, it is hypothesized that, when compared with their male counterparts:

**H3a:** Female tertiary students express higher levels of perceived risk.

**H3b:** Female tertiary students express higher levels of fear of crime.

**H3c:** Female tertiary students express higher levels of avoidance behavior.

**Protective ability**

Protective ability refers to individuals’ perceived abilities and capabilities to protect themselves against crime (Evans & Fletcher, 2000; Wurff et al., 1989), pointing to a degree of self-assurance, self-efficacy, and feelings of control that a person has with regard to possible threats or assault (Farrall et al., 2000; Jackson, 2009; Rachman, 1990). Hale (1996) stated that any model explaining fear needs to take into account vulnerability. Thus individuals who believe that they are unable to protect themselves might experience heightened levels of threat of victimization. Lack of protective ability can be attributed to individuals’ lack of physical prowess to ward or chase off attackers or escape an attack, inability to protect properties, or needing more time than average to recover from material or physical injuries (Gabriel & Greve, 2003; Rachman, 1990). People who believe that they lack of protective abilities are unable to cope with threatening situations (Gabriel & Greve, 2003), and consequently, intensify their levels of fear of crime and avoidance behavior (Farrall et al., 2000; Meško et al., 2008). Perceived protective ability highlights the importance of the ways in which people see themselves, others, and the world, in the genesis of threat of victimization (Rachman, 1990).

Protective ability symbolizes personal vulnerability (Jackson, 2009). Perceived vulnerability refers to a belief that one is susceptible to future negative outcomes and unprotected from danger or misfortune, accompanying with feelings of anxiety, fear, and apprehension (Perloff, 1983, p. 43). People who perceive their exposure to crime to be high, lack effective defence or protective abilities, and anticipate serious consequences of a threat are viewed to be vulnerable (Killias, 1990; Killias & Clerici, 2000). Killias and Clerici (2000) revealed that self-assessed vulnerability is associated significantly and positively with fear of crime, concerns about safety, and behavioral
changes (i.e., avoidance, taking precautions). According to Jackson (2009), personal vulnerability along with holding feelings of limited control over events play an important role in the production and distribution of fear. Lack of control over threatening situations also demonstrates a sense of helplessness, contributing to elevated levels of fear (Rachman, 1990). Accordingly, it is hypothesized that:

**H4a:** Protective ability is related negatively to perceptions of unsafety.

**H4b:** Protective ability is related negatively to fear of crime.

**H4c:** Protective ability is related negatively to avoidance behavior.

### Victimization

The current thesis investigates both direct and indirect victimization. Direct victimization refers to individuals’ direct experiences of personal harm or property loss (Clark, 2003; Mesch, 2000b). By contrast, indirect or vicarious victimization concerns interpersonal communication of other people’s victimization exposure (Garofalo, 1981), as experienced, heard, or seen by friends, acquaintances, neighbors, police, or media (Katz et al., 2003; McConnell, 1997). Victims report a sense of personal vulnerability and develop beliefs of high likelihood of being victimized further (Wyant, 2008). When a crime is perpetrated by an acquaintance (i.e., partner, friend), assumptions of interpersonal safety and security are broken down. Crimes committed by strangers culminate in a loss of trust in others (Clark, 2003).

It is generally held that experiences of victimization significantly shape fear of crime (Ferguson & Mindel, 2007; Moore & Shepherd, 2007), perceived risk (Mesch, 2000a; Rader et al., 2007), and perceptions of unsafety (Kanan & Pruitt, 2002), leading to victims avoiding particular environments or disorderly people in order to reduce their perceived vulnerability and fear (Giblin, 2008; Wyant, 2008). Criminal activities become real and manifested in victims’ psyche rather than a mere image projected by the social media or other symbols of crime (i.e., vandalism, unsupervised youth) presented in a neighborhood (Johnston, 2001).

Nonetheless, increasing evidence (Kanan & Pruitt, 2002; Melde, 2009; Mesch, 2000a) has called into question positive relationships, citing small, marginal, or even
nonsignificant associations between victimization and fear of crime. Inconclusive results can be attributed to neighborhood features, types and frequency of offenses, perceived severity and unpredictability of a crime, lifestyle, precautions taken, reported levels of self-efficacy, confidence in police, and personal characteristics (Miethe, 1995; Sacco, 1993; Tulloch, 2000). Furthermore, direct or vicarious experience of being victimized increases the threshold of sensitivity to signals associated with crime presenting in a surrounding environment rather than manifested criminal activities in a particular community (Ferguson & Mindel, 2007). Victims often learn from their mistakes and incorporate effective ways of avoiding certain dangerous areas or people in order to reduce further victimization (Wyant, 2008). These learned techniques can neutralize the impact of direct and indirect victimization on levels of threat of victimization (Agnew, 1985). Thus, it is hypothesized that:

**H5a:** Direct victimization is related positively to perceived risk.
**H5b:** Direct victimization is related positively to perceptions of unsafety.
**H5c:** Direct victimization is related positively to avoidance behavior.
**H6a:** Indirect victimization is related positively to perceived risk.
**H6b:** Indirect victimization is related positively to perceptions of unsafety.
**H5c:** Indirect victimization is related positively to avoidance behavior.

**Community-related Factors**

Owing to inconclusive findings regarding personal characteristics, research ascertaining the extent and determinants of fear of crime has moved from a focus on sociodemographics to concerns about neighborhood environment. Study 1 examines interrelationships between threat of victimization and community-based factors including social disorder (LaGrange et al., 1992; Wyant, 2008), social integration (Adams & Serpe, 2000; Gibson et al., 2002), and confidence in police (Giblin, 2008; Winkel, 1988).

**Social disorder**

Threat of victimization is not produced in a vacuum, but triggered by perceived cues in an environment that relates to various aspects of crime (Ferraro, 1995; Garofalo, 1981). People are frightened by crime, but assess their threat of victimization from information
communicated through highly visible signs of what people perceive as disorderly and disreputable behavior in their community (Biderman et al., 1967). Signs associated with crime are termed incivilities or disorder, referring to low-level breaches of community standards that signal an erosion of conventionally accepted norms and values (LaGrange et al., 1992, p. 312). Incivilities comprise social and physical dimensions, indicating a physical lack of concern about a neighborhood and a social lack of adherence to norms of public behavior (Taylor & Hale, 1986).

Social disorder, also referred to as social incivilities or public misbehavior, concerns disruptive social behaviors and obstreperous or disreputable people, involving public drunkenness, rowdy and unsupervised youth, beggars, drug users, prostitutions, inconsiderate neighbors, and disorderly people (Bennett & Flavin, 1994; LaGrange et al., 1992). Social disorder is viewed as an index of social disorganization and threats owing to associated altered and unpredictable states (Bennett & Flavin, 1994), and symbolizes the presence of a variety of subcultural groups whose behavior is regarded as different or foreign (Covington & Taylor, 1991; Jackson, 2004).

By contrast, physical incivilities allude to disorderly physical surroundings, including apparentness of excessive litter, condemned houses, burned-out storefronts, and abandoned cars (LaGrange et al., 1992). Physical disorder indicates that residents, police, and authorities either do not care, or are unwilling to or are unable to protect their neighborhoods from crime (Jackson, 2005; Wilson & Kelling, 1982). Both physical and social disorder are related significantly to threat of victimization. In comparison with physical incivilities, social disorder accounts for a higher proportion of the variance of fear of crime (Katz et al., 2003; LaGrange et al., 1992), thus a main focus of the present thesis.

Use of measures of incivilities to explain fear of crime became popular following the emergence of Wilson and Kelling’s (1982) broken window thesis. That is, when an individual subjectively believes disorder is significant, this perception becomes real in its consequences (i.e., increased fear), despite reality (Taylor, 2001; Taylor & Hale, 1986). As noted in the incivilities thesis, the signals of incivilities communicate a range
Anxiety, helplessness, withdrawal, and the propagation of disorderly conditions proliferate (Schafer et al., 2006). Residents’ levels of fear of crime and perceived risk become accentuated (Crank et al., 2003; Katz et al., 2003). Citizens tend to feel unsafe (Tulloch, 2000) and avoid certain places and dangerous people in their daily activities (Giblin, 2008), regardless of how long they have lived in a neighborhood (Ferraro, 1995), ultimately leading to a community’s decline and serious criminal activities (Katz et al., 2003). Accordingly, it is hypothesized that:

H7a: Social disorder is related positively to perceived risk.
H7b: Social disorder is related positively to perception of unsafety.
H7c: Social disorder is related positively to fear of crime.
H7d: Social disorder is related positively to avoidance behavior.

Social integration

In contrast to the negative impact of incivilities on threat of victimization, another related but distinct view takes residents’ perceptions of community dynamics as a central feature, suggesting that community concern effectively reduce levels of threat of victimization (Taylor & Covington, 1993). Social/neighborhood integration, social support, social networks, social ties, and social/neighborhood cohesion are often used interchangeably, generally dealing with consequences of social relationships for individual health and well-being (Adams & Serpe, 2000; Xu et al., 2005).

Although it is widely accepted that individuals’ levels of threat of victimization in a neighborhood are often contingent on the degree of social integration that a resident enjoys, the terminology, definition, and operationalization associated with social integration has not been consistent (Adams & Serpe, 2000; Gibson et al., 2002). Measures of social integration range diversely from homeownership, length of residence, and membership of local associations (Greenburg, 1986); number of friends (Baba & Austin, 1989); participation in formal organizations (Austin et al., 1994); residents’ perceptions of whether their neighborhood is a real home and people would help each other (McGarrell et al., 1997); perceptions of satisfaction with a neighborhood and
levels of happiness with neighbors (Adams & Serpe, 2000); knowing neighbors’ names and talking to them (Gibson et al., 2002); to frequency of friendly chats, socializing with neighbors, watching a neighbor’s home, and sharing tools or other things with neighbors (Schafer et al., 2006). It should be noted that even though there is no apparent consensus on definition and measurement, the concept of social integration is a prominent theme in social disorganization theory (Sampson & Groves, 1989).

Inevitably, these divergent measures lead to mixed results (Gibson et al., 2002; Kanan & Pruitt, 2002). For example, most studies (Delone, 2008; Ferguson & Mindel, 2007; Scarborough, 2009) support a significant and negative impact, indicating that social integration serves to diminish residents’ perceptions of unsafety, perceived risk, and fear of crime. Social integration also functions to downplay or blunt influences of disorganization factors that inhibit or restrict mobility and interaction (Rountree & Land, 1996b). However, Rountree and Land (1996a) found a significant and positive relationship between burglary-specific fear and social integration (e.g., watching property or having dinner with neighbors). Katz et al. (2003) noted a nonsignificant nexus between social integration (i.e., helping neighbors out, interacting socially with neighbors, watching neighbor’s home while they are on their vacation) and fear of crime. Consistently, studies (Schafer et al., 2006; Xu et al., 2005) report nonsignificant effects of social integration on perceptions of unsafety. Nonetheless, when differentiated further, Kanan and Pruitt (2002) argued that a real home sense, neighborhood sentiment and ties, number of known neighbors, talking with or visiting neighbors, and neighboring frequency show nonsignificant effects on worry about crime. Accordingly, it is hypothesized that:

**H8a:** Social integration is related negatively to perceived risk.

**H8b:** Social integration is related negatively to fear of crime.

**H8c:** Social integration is related negatively to avoidance behavior.

**Confidence in police**

The inclusion of police-related variables in understanding threat of victimization is not new (Ferguson & Mindel, 2007). Because of victims’ rights movements and criminal justice research, fear of crime has become a prominent issue for police (Silverman &
Della-Giustina, 2001). Traditionally, police take responsibilities in fighting crime and preventing or minimizing risks of being victimized (Garofalo, 1979). However, reducing crime rates is not a criterion that average citizens use to assess the effectiveness of police work (Xu et al., 2005). What citizens are most concerned with and confront daily are quality of life issues in their neighborhoods (Silverman & Della-Giustina, 2001; Xu et al., 2005). Fear reduction is valued as an important police function. Effective policing aims at meeting citizens’ needs and expectations; changing social conditions that breed crime, generate threats and fears, and culminate in deteriorating neighborhoods; and helping people to feel safe and less fearful in their communities (Xu et al., 2005).

Increased police presence (i.e., foot-patrols) and positive police-citizen partnerships help to maintain social stability, promote local norms of social control, and increase residents’ perceptions of safety (Johnston, 2001; Silverman & Della-Giustina, 2001). Personal direct contact with police and perceptions of policing play a potent role when citizens conceptualize crime situations and their personal vulnerability to crime (Salmi et al., 2004). When compared to dissatisfied residents, respondents who are satisfied with police are less likely to take avoidance measures (Giblin, 2008). For adolescents, seeing police more often during on-foot activities significantly reduces their levels of threat of victimization. However, studies (Ferguson & Mindel, 2007; Hwang, 2006; Scarborough, 2009) consistently report that confidence in police is not related directly to fear of crime. A possible explanation might be that a lack of confidence in police and fear of crime might be driven by similar factors (Bennett & Flavin, 1994). Thus, it hypothesizes that:

H9a: Confidence in police is related negatively to perceived risk.
H9b: Confidence in police is related negatively to perception of unsafety.
H9c: Confidence in police is related negatively to avoidance behavior.
METHOD

This section describes the present research design, participants, the Threat of Victimization Questionnaire (TVQ) and associated measures, data collection procedures, tests for common method bias and instrument validity, statistical procedures, and a discussion of ethical consideration, highlighting issues relating to nonrecursive identification. This section concludes with a Summary.

Research Design

Study 1 utilizes a quantitative approach, the predominant methodology in the fear of crime area (Ferguson & Mindel, 2007; Meško et al., 2008). Large scale surveys are popular in social sciences (Pauwels & Pleysier, 2008). Survey methodologies in the fear of crime field have expanded rapidly since the late 1960s (Meško et al., 2008), owing to criticisms of bias in official measurement instruments, specifically those pertaining to police statistics (Pauwels & Pleysier, 2008). Official statistics tend to underestimate actual crime rates, and appear to be seriously biased with respect to ethnicity, gender, and social class (Pauwels & Pleysier, 2008). In addition, large scale surveys on crime-victim (e.g., the NCS and GSS) limit the possibility of working with a precise and theoretically justified set of questions (Wurff et al., 1989).

Participants

As noted earlier, the present thesis aims to investigate tertiary students’ threat of victimization. In accordance with this research objective, purposive sampling was utilized. This thesis defines tertiary students as those individuals currently undertaking undergraduate or postgraduate programs either full-time or part-time at either government or private institutions. 1170 tertiary students across four Melbourne-based universities were recruited, 518 students from RMIT University (city campus), 481 from Melbourne University (Parkville campus), 82 from Monash University (Parkville campus), and 89 from Victoria University (city Flinders Lane Campus).

It should be emphasized that relatively high proportion of crime perpetrated against international and local tertiary students have been reported in Melbourne (Marginson et
Reasons of choosing Melbourne as a research destination include a focus on the Melbourne CBD area, rather than different campuses or universities; and high rate of the growth of the international educational market in Melbourne which can be regarded as dynamic. It is well known that crime rates and risk vary between geographical areas, but, only inner-city campuses of the four universities are chosen. This selection is in line with higher education enrolment trends in Melbourne with more than 25,000 higher education students (10% of the state’s total) residing in the Melbourne CBD precinct (City of Melbourne, 2009). It is noteworthy that these four universities as a whole have captured a major proportion of student number since 1997 (Cameron, 2002).

Table 3.2 shows socio-demographical characteristics and percentages of students reporting having been victimized directly over the previous 12 month. 82.5% of respondents are under 25 years of old. 58.2% are female and 81.1% of students are undergraduates. Only 10.0% of participants rated their health as poor. In terms of direct victimization experience, it appears that there are significantly high proportions of students who reported having been cheated out of money (20.4%) or being attacked, threatened, or verbally abused owing to their ethnic origin (22.8%).
Table 3.2 Descriptive Statistics on Tertiary Students’ Demographics and Percentage of Students Reporting Having Been Victimized Directly

<table>
<thead>
<tr>
<th>Demographics/Direct Victimization</th>
<th>%  (n=1107)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>under 20</td>
<td>49.9</td>
</tr>
<tr>
<td>21-25</td>
<td>32.6</td>
</tr>
<tr>
<td>26 Plus</td>
<td>17.5</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>41.8</td>
</tr>
<tr>
<td>Female</td>
<td>58.2</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>81.1</td>
</tr>
<tr>
<td>Postgraduate Degree (e.g., MBA and Doctorate)</td>
<td>18.9</td>
</tr>
<tr>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>10.0</td>
</tr>
<tr>
<td>Good</td>
<td>36.9</td>
</tr>
<tr>
<td>Excellent</td>
<td>53.1</td>
</tr>
<tr>
<td>Direct Victimization</td>
<td></td>
</tr>
<tr>
<td>Having your room broken into while you are there</td>
<td>4.6</td>
</tr>
<tr>
<td>Being raped, sexual assaulted, or harassed</td>
<td>7.0</td>
</tr>
<tr>
<td>Being physically attacked (e.g., assaulted or kidnapped)</td>
<td>7.0</td>
</tr>
<tr>
<td>Having your room broken into while you are away</td>
<td>7.2</td>
</tr>
<tr>
<td>Being robbed or mugged</td>
<td>7.5</td>
</tr>
<tr>
<td>Having your car stolen or things stolen from your car</td>
<td>7.9</td>
</tr>
<tr>
<td>Being cheated out of money</td>
<td>20.4</td>
</tr>
<tr>
<td>Being attacked/harassed, threatened, or verbally abused owing to ethnic origin</td>
<td>22.8</td>
</tr>
</tbody>
</table>

**Note.** 63 cases were eliminated as over 10% of data were missing (Hair et al., 2010).

The Threat of Victimization Questionnaire

This section describes the present Threat of Victimization Questionnaire (TVQ), the measures of which were adapted from the pertinent literature (Adams & Serpe, 2000; Evans & Fletcher, 2000; Gibson et al., 2002). The TVQ comprises 11 sections, incorporating 78 closed items, regarding students’ views of perceived risk, perceptions of unsafety, fear of crime, avoidance behavior, social disorder, social integration, protective ability, confidence in police, victimizations (i.e., direct & indirect), demographic characteristics (e.g., age, gender, education, student status, length of residency, health, English speaking ability), and social desirability. Appendices 3.1 and 3.2 provide the plain language statement and TVQ items. Except for demographics, all items were rated on 5-point Likert scales, in which a score of one indicates a low value.
on that measure. The following section discusses measures (variables) adapted for the TVQ and hypothesized quantitative model.

Fear of crime (emotion). As discussed earlier, there is no optimal measurement of fear of crime. However, based on ongoing criticism, scholars (Farrall et al., 1997; Gabriel & Greve, 2003) suggested several principals, involving explicating crime types before posing a question; making reference to emotional states of fear; avoiding the use of hypothetical scenarios; and bringing a touch of reality to questions. Accordingly, multi-item crime-specific measures were utilized to assess participants’ levels of fear of crime. Participants rate on a 5-point Likert scale, ranging from 1=Not at all Afraid to 5=Extremely Afraid, in response to the question: During your everyday life in Melbourne, how AFRAID are you of becoming a victim of eight offenses? This question and the associated eight items, adapted from Ferraro (1995), and Moore and Shepherd (2007), have shown sound levels of reliability (Beck & Travis, 2004). These eight offenses are: being cheated out of money; having your room broken into while you are away; having your room broken into while you are there; being raped, sexually assaulted, or harassed; being physically attacked (e.g., assaulted, kidnapped, or murdered); having your car stolen or things stolen from your car; being robbed or mugged; being attacked/harassed, threatened, or verbally abused owing to ethnic origin.

Perceived risk (cognition). As suggested by Ferraro (1995), the same eight offenses were used to tap participants’ cognitive assessment of the likelihood of being victims over the ensuing 12 months. Sections of Fear of Crime and Perceived Risk are not contiguous in the TVQ so that participants are unlikely to recall their ratings for fear of a crime when estimating perceived risk for the same crime (Podsakoff et al., 2003). Respondents were asked to rate on 5-point Likert scales, ranging from 1=Very Unlikely to 5=Very Likely, in response to the question: How LIKELY do you think it is that the following will happen to you over the next 12 months?

Perceptions of unsafety (cognition). As alluded to earlier, a limited number of studies (Killias & Clerici, 2000; Schafer et al., 2006) began to differentiate between concepts of perceptions of unsafety and fear of crime, the measures of which have been used
interchangeably (Xu et al., 2005). A notable step is to employ a traditional single-item fear of crime question to measure safety perception (Tulloch, 2000): How safe do you feel or would you feel being out alone in your neighborhood at night? Nonetheless, scholars (Farrall et al., 1997) criticize this question on the grounds that the words would you feel creates an hypothesized scenario rather than encouraging participants to recall a reality. This thesis makes a further contribution by asking respondents: During your everyday life in Melbourne, how SAFE do you feel … It has been consistently reported that people tend to express significantly higher levels of fear of crime and avoid going out during night-time than daytime (Fabiansson, 2007). Accordingly, multiple items adapted for the current thesis focus on participants’ perceptions of unsafety when engaging different activities after dark: Walking in the city alone after dark; Walking in your neighborhood after dark; Using public transport after dark; and Visiting night spots/clubs/bars (Killias & Clerici, 2000). 5-point Likert scales were used, ranging from 1=Very Safe to 5=Very Unsafe.

Avoidance behavior. A review of literature (Crank et al., 2003; Giblin, 2008) suggests that there are only a limited number of studies (Liska et al., 1988) that have investigated behavioral adaptations, and the ways in which avoidance adaptation occurs. It appears that the most popular way to assess this phenomenon is to generally ask participants whether they have limited or changed their activities over the previous year because of crime and/or fear of crime (Ferraro, 1995; Liska et al., 1988; Skogan & Klecka, 1977). According to Gabriel and Greve (2003), a behavior that can reflect a motive (action tendency) can be regarded as constitutive for the state of fear (p. 604). Thus, participants rate on 5-point Likert scales, ranging from 1=Never to 5=Often, in response to the question: how often does fear of crime prevent you from doing the following activities: walking in your neighborhood/city after dark; leaving home when it is dark; opening the door to strangers in the evening or at night; attending outside activities or events (e.g., sports, religious, events, or movie); visiting night spots/clubs/bars; visiting certain areas. In order to increase construct validity and reliability, multi-item measurements were utilized, the items of which were adapted from Gates and Rohe (1987), Ferraro (1995), and Giblin (2008).
**Victimization.** As suggested by Evans and Fletcher (2000), and Katz et al. (2003), measures of both direct and indirect victimization experiences were employed to evaluate their impact on threat of victimization. According to Garofalo (1979), victimization that had occurred more than 12 months before the interview/survey would have little impact on fear of crime at the time of interview, unless they were extremely serious. In relation to direct victimization experiences, participants were asked: *Over the previous 12 months (or since your arrival in Melbourne), have you been exposed to the following crimes (e.g., being cheated out of money; having your room broken into while you are away ... )?* By contrast, students were asked to rate experiences of indirect (vicarious) victimization in response to the question: *Has someone close to you (friend, relative, or acquaintance) been exposed to following crimes (e.g., being cheated out of money; having your room broken into while you are away ... )?* The same eight offense types for variables of fear of crime and perceived risk were utilized for both types of victimization. Responses were coded as 1=*Yes* and 0=*No*. In order to reduce the nonnormality of data, composite variables were used for measures of direct and indirect victimization, respectively.

**Social disorder.** Community disorder is a broad and elusive concept (Perkins & Taylor, 1996). It seems unlikely that an optimal set of disorder indicators will be accepted by all academics (Worrall, 2006). Aiming to tap tertiary students’ perceptions of their environment, participants assess the seriousness of six types of social disorders, adapted from LaGrange et al. (1992), Evans and Fletcher (2000), and Katz et al. (2003). These six types are: *groups of teenagers fighting, vandalizing, or harassing; people drunk in public; prostitution; harassment, threatening behavior, or verbal abuse in the street; drug dealing and drug offers; racial harassment or attack.* According to Worrall (2006), such measurement is preferable over on-site assessments and related data collection methods. 5-point Likert scales were used, ranging from 1=*Not at all serious* to 5=*Very serious.*

**Social integration.** There seems to be no optimal measure of social integration, leading to mixed results regarding the impact of social integration on threat of victimization. Considering that multiple items show relatively high levels of validity and reliability
(Hair et al., 2010), three items from Adams and Serpe (2000), and two items from Gibson et al. (2002) were adapted to form the present social integration scale. In accordance with the aims of this thesis, minor changes were made. These five items are: I feel that Melbourne is more of a real home than just a place to study; I often talk with my neighbors or local people; On the whole, I am satisfied with Melbourne; I am happy with the kind of people in Melbourne; I have a lot of things in common with people in Melbourne. Participants rate five statements on 5-point Likert scales, ranging from 1=Strongly Disagree to 5=Strongly Agree.

**Protective ability.** Protective abilities indicate individuals’ levels of physical vulnerabilities to threatening situations (Jackson, 2009), communicating capabilities of openness to attack, powerlessness to resist, and exposure to the physical and emotional consequences of being attacked (Skogan & Maxfield, 1981). Killias and Clerici (2000) suggested that asking respondents directly about their self-assessed ability to defend themselves or to resist or flee in case of an attack might lead to more valid measures of vulnerability. Accordingly, an alternative to ratings of three statements: If someone assaulted me, I could protect myself; I think I am capable of chasing off a potential assailant; I am capable of escaping or resisting an attack by an assailant, were utilized in this thesis to evaluate participants’ self-assessed protective ability and confidence of their own efficacy. These items were adapted from Adams and Serpe (2000), and Wurff et al. (1989). Measures were rated on 5-point Likert scales, ranging from 1=Strongly Disagree to 5=Strongly Agree.

**Confidence in police.** Measures of confidence in police were operationalized by 3 indicators: Overall, the police do a good job; Police are effective in clearing up crime and catching criminals; Police respond quickly to calls for assistance, adapted from Evans and Fletcher (2000). Participants rate these statements on 5-point Likert scales, ranging from 1=Strongly Disagree to 5=Strongly Agree.

**Personal-related characteristics.** Information concerning students’ socio-demographical factors was sought, with age and gender being of particular research interest of Study 1.
Data Collection Procedures

The present procedure involved the use of both an online survey and hand-out hardcopy questionnaires to on-campus students across four universities as noted earlier. Respondents were assured of confidentiality prior to participation. The online survey was hosted on the RMIT University website. A GroupWise (global) email was sent to all students seeking their participation. A follow-up email was sent after three weeks, and a second reminder email was sent another two weeks later. Online newsletters distributed by universities, International Student Information and Support, and Student Unions also featured as part of the present study. 263 students participated online, culminating in a response rate 7%.

Also, the present investigator distributed hardcopy questionnaires with reply-paid return envelopes attached, at the main food court of four city campuses across four Universities. Of 1200 questionnaires distributed, 887 students returned their questionnaires immediately upon completion and 20 students mailed back within 3 weeks, resulting in a response rate 97.5%, representing an overall response rate of appropriately 52.25%. Data were collected during the period of early March to late May, 2009, prior to the subcontinental Indian students’ protest in Australia on 31st May.

Statistical Procedures

Data analyses involved four principal stages: data screening, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and path analysis. SPSS 18.0 was utilized to undertake EFA, while AMOS 18.0, a SEM tool, was used to conduct CFA and to test a full structural model. The following sections describe the principal issues associated with each of these four stages, followed by the description of Goodness-of-fit indices for CFA and path analysis, highlighting the examination of instrument validity and nonrecursive identification.
Stage 1: Data screening

Prior to multivariate analyses, data were checked for entry accuracy, missing values, outliers, and for violations of multivariate statistical assumptions, involving tests of normality and multicollinearity.

**Missing values.** Although there are *no firm guidelines for how much missing data can be tolerated for a sample of a given size* (Tabachnick & Fidell, 2001, p. 59), Hair et al. (2010) recommend that those with greater than 10% of missing data should be deleted. Expectation-Maximization (EM) iterative methods using SPSS 18.0 were used to remedy the remaining data. The major advantages of EM algorithm are: simplicity; generality; safety; ease of programming in specific cases, as in the proposed model; the allowance of simple adaptation of complete data methods; and providing fitted values for missing data (Malhotra, 1987).

**Outliers.** Outliers, or observations, appearing inconsistent with the remainder of the dataset, can distort estimates of regression coefficient (Barnett & Lewis, 1994). Examinations of frequency, histogram, and Z-score were used to test outliers in the present data.

**Normality.** Normality is one of the most fundamental assumptions in multivariate analyses, concerning the normal distribution of data (Hair et al., 2010). Sufficiently large variations from normality as determined by measures of kurtosis and skewness can invalidate results. For the current thesis, normality was checked graphically through examination of residual plots (expected normal probability and detrended normal probability).

**Multicollinearity.** Multicollinearity alludes to the degree to which explanatory variables are correlated with one another (Hair et al., 2010). Collinearity diagnostics include an analysis of Tolerance and the Variance Inflation Factor (VIF) values. Multicollinearity exists when Tolerance is less than 1; and VIF is greater than 10 or an average much greater than 1.
Stage 2: Exploratory factor analysis

EFA was employed to test for reliability, discriminant validity, and as a guide for determining the initial patterns of latent constructs and their respective items for subsequent use in Stage 3: the CFA process (Fabrigar et al., 1999; Tabachnick & Fidell, 2001). Under an a priori assumption that any indicator might be associated with any factor, the primary purpose of EFA is to arrive at a more parsimonious conceptual understanding of a set of measured variables by determining the number and nature of common factors needed to account for the pattern of correlations among the measured variables (Fabrigar et al., 1999, p. 274).

The Maximum Likelihood (ML) method with Direct Oblimin Rotation was used to assess the number of factors associated with the present latent constructs. ML method has a more formal statistical foundation than principal axis factors extraction methods, providing capabilities for statistical inference, such as the computation of a wide range of indices to ascertain goodness-of-fit of a model, statistical significance testing of factor loadings and correlations among factors, and determination of confidence intervals (Fabrigar et al., 1999). Utilization of ML in EFA is also consistent with statistical procedures used in CFA and path analysis.

A number of statistical and related criteria were applied to extract factors for the present data: Kaiser-Meyer-Olkin (KMO), communality, eigenvalues, variance percentage, scree plot tests, and prior research (Hair et al., 2010). KMO values exceeding 0.6 are generally recommended. According to Hair et al. (2010), eigenvalues measures the amount of variation and percentage of variance of a total sample accounted for by each factors. Factors with eigenvalues less than 1.0 can be viewed as contributing little explanation of variance in variables, and thus can be considered redundant, and subsequently are excluded. Survey items with low communality (<0.3), and that load on multiple factors were also eliminated to increase levels of reliability (Fabrigar et al., 1999).

EFA can be regarded as primarily a data-driven procedure. No a priori number of common factors is specified and few restrictions are placed on the patterns of relations
between the common factors and the measured variables (Fabrigar et al., 1999, p. 227).

In contrast, CFA, a theory-driven approach, was utilized subsequently to test how well measured variables represent a smaller number of constructs (Hair et al., 2010), as discussed below.

**Stage 3: Confirmatory factor analysis**

CFA is similar to EFA in some respects, but philosophically quite different (Hair et al., 2010). When compared with EFA, CFA requires researchers to specify a priori a small set of competing models postulating different numbers of variables, patterns of factor loadings, or both (Fabrigar et al., 1999). CFA allows for explicit representation of the degree of correspondences between observed measures and latent concepts, and for unambiguous assignment of meaning to estimated constructs (Anderson 1988). Instead of relying on statistical methods to determine the number of factors, CFA enables us to tell how well measured variables represent constructs and match actual data (Hair et al., 2010), to either confirm or reject preconceived theory and/or null models. Compared with EFA, CFA has the advantage of testing whether theoretical relationships between indicators or items and their hypothesized factors are supported by the data.

One-factor and multi-factor congeneric measurement models were tested in the current thesis (Holmes-Smith & Rowe, 1994). A one-factor congeneric measurement model is the simplest form of a measurement model and represents the regression of a set of observed variables on a single latent variable. Such models provide a realistic interpretation of data by considering varying degrees to which each item contributes to an overall measure, and thus providing a quasi test of validity. For a model to fit, individual items must measure a composite variable of the same kind, and must be a valid measure of a single latent trait (Holmes-Smith & Rowe, 1994).

As initially specified models almost invariably fail to provide acceptable fit (Anderson & Gerbing, 1988, p. 411), model modification procedures through examinations of residual statistics and modification indices were used to guide model improvement and delete nonsignificant parameters (Byrne, 2010). Modification indices represent an expected drop in the overall \( \chi^2 \) value when a parameter is freely estimated. However,
this method is controversial. Any changes should be justified and driven by prior research and theory (Kline, 2004; Schumacker & Lomax, 1996). Based on theoretical and content considerations (Anderson & Gerbing, 1988), each scale was examined for possible redundant items, so that only those that best measure a construct were retained. It should be noted however, that a re-specified model demonstrating excellent fit with the current data might not be applicable to other samples (Diamantopoulos & Siguaw, 2000). A standard CFA model with a single factor possesses at least three indicators (Schumacker & Lomax, 1996). Single factors involving two indicators are just identified, whereas factors with four or more items are over identified (Kline, 2004).

Anderson and Gerbing (1988) proposed a two-step approach to building a structural model: the validation of measurement models through CFA procedures, and then the development and testing of a conceptual model. CFA is first used to evaluate factor structures within a measurement model, to determine how well the measurement model fits the data (Bollen, 1989), to provide a comprehensive confirmatory assessment of construct validity (Bentler, 1990), and to verify dimensionality (Anderson & Gerbing, 1988). When rules for an acceptable fitting model are achieved, the development and testing of a conceptual model can proceed, the procedures of which are discussed below.

Stage 4: Path analysis

Using the ML estimation method, path analysis was employed to test a full structural model, assessing the extent to which the present hypothesized model adequately represents the present sample (Byrne, 2010; Hair et al., 2010). The Type I error rate was set at $\alpha=.05$. Path analysis provides a way of testing more explicit causal models and underlies much of the rationales behind current structural equation modelling. This approach extends regression analysis by providing testing the adequacy of a model through examination of differences or residuals between sample and model implied correlations. Path analysis also allows for simultaneous analysis of more than one dependent variable (Bozionelos, 2003), and for eliminating non-causal effects which has been employed in prior literature (Ferguson & Mindel, 2007). Its ability to decompose effects into direct and indirect effects also enables researchers to provider a holistic view of relationships (Bozionelos, 2003).
Guidelines proposed by Byrne (2010) were followed to determine adequacy and goodness-of-fit of the present hypothesized models, and to detect sources of poor estimation within the structural framework. Post hoc model testing, involving trimming (deleting non-significant paths) and/or adding new paths (Kline, 2004) were utilized to detect and identify sources of poor model fit in an originally hypothesized model (Diamantopoulos & Siguaw, 2000). The goodness-of-fit indices employed for the present thesis are discussed below.

**Goodness-of-Fit**

The assessment of goodness-of-fit of hypothesized models is one of the primary goals in the application of SEM techniques. In accord with Hu and Bentler (1998), multiple criteria were used, including Normed Chi-square (i.e., the ratio of $\chi^2$ to df - $\chi^2$/df), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root-Mean-Square Residual (SRMR). Testing models with large samples is always desirable, and the question that needs to be addressed deals with how well a model approximates observed data, rather than whether or not the model fits the data (Hoelter, 1983). The following section briefly describes these indices.

**Chi-square statistics.** The Chi-square test is the only statistic for model fit associated with a test of significance, and hence is referred to in order to assess statistical fit of a model. According to Rubio et al. (2001), rather than indicating the strength of evidence in favour of the null hypothesis, the interpretation of significance tests is for rejecting the null hypothesis. The Chi-square statistic is extremely sensitive to large sample size and to deviations from normality, even when a model associated with the null hypothesis predicts the data well.

**Incremental indices.** Incremental fit indices, also known as comparative fit indices, measure the proportionate amount of improvement in fit when a target model is compared with a null and nested baseline model in which all observed variables are uncorrelated (Hu & Bentler, 1998). The Tucker Lewis Index (TLI) (Tucker & Lewis,
1973) and the Comparative Fit Index (CFI) (Bentler, 1990), derived from the Chi-square statistic, are two commonly used incremental fit indices. TLI, often known as the Non Normed Fit Index (NNFI), originally proposed by Tucker and Lewis in 1973, estimates the relative improvement per degree of freedom of a target model over an independence model. TLI has been consistently found to be independent of sample size (Anderson & Gerbing, 1988) and to be more sensitive to the presence of model misspecification than other fit indices (Hutchinson & Olmos, 1998). CFI, proposed by Bentler (1990), measures the improvement in going from a target model to an independence model. CFI is relatively independent of sample size (Bentler, 1990) and minimally sensitive to lack of model fit (Hutchinson & Olmos, 1998). Both TLI and CFI values range between 0 to 1. Values greater than 0.95 are generally considered satisfactory fit, and a value greater than 0.90 indicates a reasonable fit of a model to the data (Hu & Bentler, 1998).

Root Mean Square Error of Approximation (RMSEA). The RMSEA is the degree to which the covariance matrix implied by a model matches an observed model (Steiger, 1990). The logic underlying RMSEA is that because no model will ever fit exactly in the population, the best one can ever hope for is a close approximation to reality (Browne & Cudeck, 1993). An optimal fit is indicated by a value of zero. A value of about 0.05 or less reflects a model of close fit, whereas values between 0.05 and 0.08 indicate reasonable fit (Browne & Cudeck, 1993). According to Hu and Bentler (1998), the ML-based RMSEA is less sensitive to distribution and sample size, moderately sensitive to simple model misspecification, and very sensitive to complex model misspecification. MacCallum and Austin (2000) strongly recommended the application of the RMSEA fit index in the light of its availability of confidence intervals which provide important information about the precision of estimate of fit, a feature that is not available for other fit indices. When the confidence interval around RMSEA is entirely above 0.05, one would reject the null hypothesis that a model has close fit. Otherwise, close fit remains tenable.

Standardized Root Mean Square Residual (SRMR). The SRMR is the average difference between corresponding elements of the sample and model-implied
correlation matrices. An average value less than 0.5 suggests that a model fits the data well. Large values of SRMR might indicate outliers in the data.

In sum, for the present thesis, the criteria of \( \chi^2/df \leq 5 \); TLI and CFI values exceeding 0.90; a RMSEA less than 0.08; and a SRMR less than 0.5 were adopted to assess an adequate fit for measurement models and path analyses. Because the ML-based RMSEA is less sensitive to distribution and sample size than Chi-square (Hu & Bentler, 1998), it is regarded as the main criterion, followed by CFI and TLI. As Study 1 utilizes a nonrecursive approach that requires a further clarification of issues relating to model identification, as discussed below.

**Nonrecursive identification**

Generally, it is held that experimentation or longitudinal data are more appropriate than cross-sectional data when testing reciprocal models. Despite this position, researchers (Billings & Wroten, 1978; Wong & Law, 1999) however, argue that there is merit in using cross-sectional data to test reciprocal relations, particularly given that the application of SEM makes it possible mathematically. This section provides a discussion on necessary and sufficient conditions that a nonrecursive model must achieve, including time lag between the cross-lagged effects (Wong & Law, 1999), order condition (Blunch, 2008), rank condition (Kaplan, 2009), and the stability index (Bentler & Freeman, 1983).

**Time lags.** The major problem of testing reciprocal relationships with the cross-sectional data is the time factor. The basic premise is that, if a reciprocal relationship exists, it should not be observed at the same time because cause should precede effect (Wong & Law, 1999). According to Schaubroeck (1978), there are two types of nonrecursive models entailing time lags. The feedback effect with a sufficiently short time lag is self-constrained; while those feedback intervals long enough to allow additional theoretical factors to influence each other are cyclical recursive models. Cyclical relationships are most frequently tested in the literature (Kemery et al., 1987); the variable \( X_i \) at time 1 affects \( X_i \) at time 2, in turn affecting \( X_i \) at time 3.
In some cases, the assumption of cross-lagged effects is literally impossible (Riger & Gordon, 1979, p. 32). According to Finkel (1995), because the cross-sectional data are collected at a single point in time, reciprocal effects models can be specified only with synchronous, or simultaneous, causal influences from one variable to the other, and the estimation of reciprocal causal effects would proceed by incorporating outside variables in an instrumental variable. Following this lead, Wong and Law (1999) argued that, when time intervals between causes and effects are sufficiently small, a cross-sectional model with synchronous reciprocal effects is more appropriate than a recursive model even when longitudinal panel data are available. Using a cross-sectional data from 890 university employees, Kemery et al. (1987) tested three conceptual models, explicating a reciprocal relationship between job satisfaction and physical symptomatology, the necessary condition of which is that both variables tend to rapid change and that stress is immediately manifest in physical symptoms.

These cases (Kemery et al., 1987; Riger & Gordon, 1979) suggest that from a pragmatic point of view, although causes should precede effects, the exact time lag between them is difficult to identify. Without knowing the exact duration of this time lag, using longitudinal data may not be preferable to cross-sectional data … even if the exact time lag is known, it may not be practically possible for researchers to measure the constructs according to the appropriate time lag owing to organizational and psychological constraints (Wong & Law, 1999, p. 71). On the basis of these arguments, Wong and Law (1999) tested four models: the time-lagged model that was an appropriation model to be used when analysing reciprocal causal effects; a correct time-lagged model but with missing instrumental variables; a cross-sectional nonrecursive model that does not specify covariances between disturbance terms of endogenous variables; and a cross-sectional nonrecursive models with the specification of covariances between disturbance terms of endogenous variables.

Perhaps surprisingly, Wong and Law (1999) concluded that model comparisons (i.e., parameters, sensitivity analyses) suggested that specification of covariances between disturbance terms of endogenous variables, in a cross-sectional nonrecursive model, correctly represent a true unidirectional relation between endogenous constructs. The
The present thesis investigates reciprocal relationships between cognition, emotion, and behavior, the time-lagged effects of which can be viewed as sufficiently short. Thus, in line with Wong and Law (1999), this thesis tests a nonrecursive model with cross-sectional data, specifying covariances between disturbance terms of endogenous variables.

**The order condition.** Except for time lags, Wong and Law (1999), and Schaubroeck (1978) contended that instrumental variables must be included to make a nonrecursive model with cross-sectional data meaningful and overidentified. Underidentification occurs when there is an insufficient number of equations to provide a unique solution for a parameter...... to identify a model, it is necessary to have more correlations among the variables than there are parameters estimated (Schaubroeck, 1990, p. 19), where, \( n(n-1)/2 \geq p \); \( n \) is the number of variables and \( p \) is the number of parameters estimated.

Instrumental variable refers to an exogenous variable that predicts only one of the endogenous variables in a nonrecursive model (Schaubroeck, 1990). The inclusion of specified instrumental variables is referred to as the order condition for a nonrecursive model, where that the number of excluded exogenous variables is at least as large as the number of endogenous variables (Blunch, 2008). Berry (1984) pointed out that instrumental variables should be specified a priori based on sound theory. However, the grounds for specifying that a given exogenous variable is directly related or unrelated to an endogenous variable are seldom overwhelming, either theoretically or empirically (Page & Jones, 1979).

For the present thesis, as discussed in the Hypothesis Development section, certain exogenous variables (i.e., victimization) that are directly unrelated to established endogenous variables (i.e., fear of crime) are specified with reasonable confidence based on previous studies (Ferguson & Mindel, 2007; Rader et al., 2007). It should be noted that decisions about identification are made on an equation-by-equation basis (Ross & Duff, 1982). As shown in Figure 3.1, for the proposed hypothesized model of threat of victimization, the number of equations for each feedback loop equals 3. Table
3.4 shows the order identification matrix based on the development of hypotheses. To satisfy order condition, we need 3-1=2 at least zeros in each row. It appears that there are more than 2 zeros in all rows, indicating that the current order condition is met (Ross & Duff, 1982). Thus, minimal identification assumptions are achieved.

**The rank identification.** The order condition is necessary but not sufficient for identification; while the rank condition is necessary and sufficient. Rank identification suggests that *an equation in a model of k linear equations is identified if and only if at least one nonzero determinant of k-1 rows and columns is contained in the matrix of coefficients of the structural equations remaining after omitting all columns of coefficients not having a zero entry in the equation in question and omitting the row of coefficients of the equation* (Asher, 1976, p. 53). Rank identification depends not only on the structure of a model, but also on parameter values, reported in the following Results section. It is noteworthy that explicitly including variables (i.e., social disorder) affecting all endogenous variables reduces correlations between error terms of equations and problems associated with equation misspecification (Liska et al., 1988). Trimming nonsignificant paths can also empirically strengthen identification (Liska et al., 1988).

**Stability index.** To address issues relating to system equilibrium, Bentler and Freeman (1983) developed the stability index. As discussed in the Time Lag section, a nonrecursive model using cross-sectional data, in actual fact, acknowledges a time lag between cause and effect. This feedback interval tends to change rapidly and the system reaches equilibrium. Accordingly, *the variances and covariances of the variables in question, and the structural and measurement attributes of the model, are unchanging* (Williams & Williams, 2010, p. 457; see also Kessler & Greenberg, 1981). The cut-off stability index for a nonrecursive model falls between -1 and 1. The following section addresses issues regarding the validity and reliability of TVQ scales.
Table 3.3 The Order Identification Matrix for Feedback Loops between Fear of Crime, Perceived Risk, Perceptions of Unsafety, and Avoidance Behavior

<table>
<thead>
<tr>
<th>Perceived Risk</th>
<th>Perceptions of Unsafety</th>
<th>Fear of Crime</th>
<th>Avoidance Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>N</td>
<td>N</td>
<td>X14</td>
</tr>
<tr>
<td>H</td>
<td>N</td>
<td>I</td>
<td>X13</td>
</tr>
<tr>
<td>N</td>
<td>I</td>
<td>H</td>
<td>X12</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>H</td>
<td>X11</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
<td>H</td>
<td>X8</td>
</tr>
<tr>
<td>H</td>
<td>N</td>
<td>H</td>
<td>X7</td>
</tr>
<tr>
<td>H</td>
<td>N</td>
<td>H</td>
<td>X8</td>
</tr>
<tr>
<td>H</td>
<td>N</td>
<td>H</td>
<td>X5</td>
</tr>
<tr>
<td>H</td>
<td>H</td>
<td>H</td>
<td>X6</td>
</tr>
<tr>
<td>H</td>
<td>H</td>
<td>H</td>
<td>X3</td>
</tr>
<tr>
<td>H</td>
<td>H</td>
<td>N</td>
<td>gender</td>
</tr>
<tr>
<td>H</td>
<td>H</td>
<td>N</td>
<td>age</td>
</tr>
</tbody>
</table>

Note. N=nonhypothesized path; H=hypothesized path
**Instrument validity**

Taylor (1998, 2002) raised a number of issues regarding the validity and reliability in the fear of crime research. Specifically, Taylor (1998, 2002), inter alia (Woldoff, 2006), questioned the discriminant validity of five measures, involving incivilities, neighborhood crime, personal victimization, social integration, and collective efficacy. For the current investigation, cognitive, emotional, and behavioral dimensions of threat of victimization are assumed to be highly correlated. Therefore, testing of convergent and discriminant validity are prerequisite in order to assess the quality of measurement models.

Reliability evaluates the degree of consistency between multiple measurements of a variable (Hair et al., 2010), whereas validity refers to the degree to which a scale measures a purported construct (Peter, 1981). Content and construct validity are two particular forms applicable to the current thesis. Content validity, known also as face validity, evaluates how well the content of an empirical scale represents a measure (Hair et al., 2010). As noted earlier, all measures employed in the current thesis are adapted from the established literature (Evans & Fletcher, 2000; Ferguson & Mindel, 2007), and have therefore been subjected to tests of validity.

Construct validity assesses the extent to which a measure is related to other measures based on theoretical concepts (Carmines & Fiske, 1979), comprising three related issues: uni-dimensionality, and convergent and discriminant validity. Baumgartner and Homburg (1996) encouraged researchers to report at least one measure of construct reliability based on estimated model parameters (e.g., composite reliability or average variance extracted).

**Uni-dimensionality.** Uni-dimensionality refers to the degree to which a set of items that form an instrument measure an underlying construct (Hair et al., 2010), and is usually evaluated through Cronbach’s alpha test of reliability. Alpha values ($\alpha$) greater than 0.7 represent reasonable fit (Nunnally & Bernstein, 1994). Lower alpha values ($\alpha$$<$$0.7$) are often caused by the presence of too few items or relatively little commonality among items (Churchill, 1979).
**Convergent validity.** Convergent validity refers to the extent to which items assess the same construct. The present construct convergent validity was evaluated through individual item reliability (Iacovou et al., 2009), construct reliability (CR) (Bollen, 1989), and the variance extracted estimates (VE) (Hair et al., 2010). CR measures internal consistency of a range of measures, whereas VE reflects the overall amount of variance in indicators accounted for by a latent construct (Bollen, 1989; Fornell & Larcker, 1981). CR and VE were calculated using Fornell and Larcker’s (1981) formula (see below). CR values of .7 or higher, and VE values of .5 or higher suggest adequate convergence and good reliability. CR between .6 and .7 can be viewed as acceptable (Hair et al., 2010).

Fornell and Larcker’s Formula (1981)

\[
\rho_{\eta} = \frac{(\sum \lambda_i)^2}{[\sum (\lambda_i)^2 + \sum \varepsilon_i]}
\]

\[
\rho_{uc(\eta)} = \frac{\sum \lambda_i^2}{[\sum (\lambda_i)^2 + \sum \varepsilon_i]}
\]

\(\lambda_i\) is the standardized loading of each observed variable, and \(\varepsilon_i\) is the measurement error variance associated with each observed variable.

**Discriminant validity.** Discriminant validity is the degree to which measures differ (Hair et al., 2010), the tests of which have been largely ignored in the fear of crime area (Taylor, 2002). For the current thesis, discriminant validity was evaluated by four techniques: multi-factor analyses, the examination of structure coefficients; comparisons of the average of variance extracted estimates (AVE) with the square of correlations (SC) between latent construct; and standardized construct-to-construct loadings and cross-loadings.
Testing for Common Method Bias

As the present thesis utilizes self-administered questionnaires, measurements are subject to cognitive bias from participants seeking to present themselves in a favourable manner (Thompson & Phua, 2005, p. 541). Method bias is one of the main sources of measurement error, threatening the validity of conclusions concerning relationships between measures (Podsakoff et al., 2003). Nonetheless, in the fear of crime literature, it appears that only a limited number of studies (Sutton & Farrall, 2005) addressed this issue.

Self-reported fear of crime surveys possess inherent methodological limitations (Gabriel, 1999), involving difficulties verifying whether a reported victimization has actually occurred and participants are really fearful. Sutton and Farrall (2005) revealed that males and females are affected differently by social pressure to downplay fears about crime. Men who are most concerned with distorting their responses for self-presentation reasons report the lowest levels of fear. As well, self-report victimization is based on peoples’ recall or memory, the processes of which are influenced by coping mechanisms, leading to dramatizing and extenuating effects. Impact of victimization on fear of crime decreases with time but can increase with severity (Garofalo, 1979). As noted earlier however, when compared to official statistics, surveys provide a quantitative or numeric description of trends, attitudes, or opinions of a sample (Creswell, 2003).

To minimize effects of common method bias, five techniques were utilized when the TVQ was under development (Aulakh & Gencturk, 2000; Podsakoff et al., 2003; Podsakoff & Organ, 1986): selecting measures from different sources; protecting respondent anonymity; reducing participants’ evaluation apprehension by avoiding questions with right or wrong answers; counterbalancing question order, such as adding few sections between perceived risk and fear of crime in order to control the retrieval cues prompted by a similar question context; and reverse coding of some items.

Furthermore, two statistical techniques were utilized: the application of Harman’s one-factor test (Podsakoff et al., 2003) and adoption of Marlowe and Crowne’s (1961) test
of social desirability. Harman’s one-factor (or single-factor) test is one of the most widely used techniques to address the issue of common method variance (Podsakoff et al., 2003). EFA was used to load all variables in the TVQ and examine the unrotated factor solution to determine the number of factors that are necessary to account for the variance in variables. The underlying assumption is that if a substantial amount of common method variance is present, either a single factor will emerge from the factor analysis, or one general factor will account for the majority of the covariance among the measures (Podsakoff et al., 2003, p. 889).

Social desirability refers to the need for social approval and acceptance and the belief that it can be attained by means of culturally acceptable and appropriate behaviors (Marlow & Crowne, 1961, p. 109). It is the tendency on the part of individuals to present themselves in a favourable light, regardless of their true feelings about an issue or topic (Podsakoff et al., 2003, p. 881). Social desirability has been viewed as problematic because of its potential to bias the answers of responses, and mask true relationships between two or more variables (Podsakoff et al., 2003). The Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) has been used widely, although a number of studies (Ballard, 1992; Fraboni & Cooper, 1989) criticize the 33-item scale as being excessive. The present thesis employed Reynolds’ (1982) shorten version of Forms A, recognized for its high levels of internal-consistency reliability (Loo & Thorpe, 2000). 11 true-false items concerning everyday behaviors (Beretvas et al., 2002) are shown in Table 3.4. Four words (i.e. resentful vs. angry (hurt), get even vs. take revenge, irked and irritated vs. annoyed) were changed after pilot testing of the TVQ.

In order to assess the potential effect of common method bias, comparisons between Models A, B, and C were undertaken. Model A is a multi-factor measurement model involving eight tested latent constructs with their respective items. Extending Model A, Model B loads all items on both eight latent constructs and the latent variable of social desirability. Rather than using the social desirability construct, Model C tests items loading on eight latent constructs and an unmeasured variable representing a common method bias factor. A change in the CFI of less than .01 between three models and
higher factor loading values on their purported constructs than social desirability and common method bias variables indicate that common method bias is not a potential threat to the present findings (Cheung & Rensvold, 2002; Podsakoff et al., 2003).

### Table 3.4  Measures of Social Desirability (SDb)

<table>
<thead>
<tr>
<th>Do you AGREE or DISAGREE with the following statements a b</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDb1: It is sometimes hard for me to go on with my work if I am not encouraged.</td>
</tr>
<tr>
<td>SDb2: I sometimes feel angry (hurt) when I don’t get my way.</td>
</tr>
<tr>
<td>SDb3: No matter who I’m talking to, I’m always a good listener.</td>
</tr>
<tr>
<td>SDb4: There have been occasions when I took advantage of someone.</td>
</tr>
<tr>
<td>SDb5: I’m always willing to admit it when I make a mistake.</td>
</tr>
<tr>
<td>SDb6: I sometimes try to take revenge rather than forgive and forget.</td>
</tr>
<tr>
<td>SDb7: I am always courteous, even to people who are disagreeable.</td>
</tr>
<tr>
<td>SDb8: I have never been annoyed when people express ideas very different from my own.</td>
</tr>
<tr>
<td>SDb9: There have been times when I was quite jealous of the good fortune of others.</td>
</tr>
<tr>
<td>SDb10: I am sometimes annoyed by people who ask favours of me.</td>
</tr>
<tr>
<td>SDb11: I have never deliberately said something that hurt someone’s feelings.</td>
</tr>
</tbody>
</table>

**Note.** "Adapted from Reynolds (1982)." a 1=Agree, 2=Disagree.

### Ethnical Consideration

This thesis followed Ethics Guideline Procedures as outlined by RMIT University’s Review Process. Ethics approval was obtained in June, 2008. The present student investigator prepared questionnaires based on the pertinent literature (Meško et al., 2008; Wyant, 2008), and recruited participants, in a way consistent with ethics approval.

### Summary

This section reported on the methodology used in Study 1. Underpinning the quantitative research design, 1170 tertiary students across four Melbourne-based universities participated in this study by completing either an online or hand-out hardcopy TVQ, measures of which were adapted from the pertinent literature (Adams & Serpe, 2000; Evans & Fletcher, 2000; Gibson et al., 2002). Statistical procedures involve four principal stages: data screening, EFA, CFA, and path analyses, utilizing SPSS 18.0 and AMOS 18.0. EFA was employed as the preliminary step to test for reliability and discriminant validity, and to determine the initial patterns of latent
constructs. The ML method with Direct Oblimin Rotation, associated with a number of criteria (i.e., KMO, eigenvalues, communalities, variance percentages, and scree plot) was utilized to extract factors.

On the basis of EFA results, one-factor and multi-factor congeneric measurement models were used to test whether measured variables represent constructs and adequately match the actual data, followed by the development and testing of a conceptual structural model. In order to assess goodness-of-fit of hypothesized models, $\chi^2$/df 1-5, RMSEA < 0.08, CFI > 0.90, TLI > 0.90, and SRMR < 0.5 indices and respective values were adopted as the main criteria. Tests for common method bias, nonrecursive identification, and instrument validity were regarded as essential steps. Findings relating to above procedures and associated tests are reported in the following section.

RESULTS

This section reports on findings relating to data analytical procedures as described earlier, involving data screening, EFA, CFA, and path analysis. An assessment of instrument validity, testing for common method bias, and examination of nonrecursive identification are addressed. Where appropriate, results are reported in regard to tests of hypotheses, as discussed in the Hypothesis and Model Development section.

Stage 1: Data Screening

The present sample involved 1170 participants, sixty three of which were deleted because more than 10% of data were missing (Hair et al., 2010). The present sample has no significant outliers. As shown in Appendix 3.3, items representing variables of direct and indirect victimization are skewed positively, the values of which range from 1.30 to 4.34, and .64 to 2.30, respectively. Kurtosis values for these items vary from -.31 to 16.84, and -.1.59 to 3.30. Understandably, the majority of students reported zero levels of victimization experience, as noted in the Participants section (Table 3.1). In order to decrease nonnormality of the present data, composite scales were developed for variables of direct victimization and indirect victimization. In terms of multicollinearity, tolerance values range from 0.63 to 0.97; and VIF values vary between 1.03 and 1.59,
indicating that the present data have no multicollinearity problems. Tests for violations of statistical assumptions suggest that multivariate analyses are appropriate.

**Stage 2: Exploratory Factor Analysis**

The valid sample \(n=1107\) was split randomly in half for EFAs and CFAs to confirm both reliability and goodness-of-fit of theory-based measures (Fabrigar et al., 1999; Marsh et al., 1988; Rhodes & Arceo, 2004). Using the maximum likelihood (ML) estimation method with Direct Oblimin Rotation, EFA with the first split-half sample \(n=548\) shows the presence of twelve factors and that factor structures match those identified in the present conceptual model. These twelve factors are perceived risk, perceptions of unsafety, fear of crime, avoidance behavior, social disorder, social Integration, confidence in police, protective ability, age, gender, and direct and indirect victimization.

Table 3.5 shows EFA results for eight factors, the items of which load on their purported constructs. Constructs of direct and indirect victimization are not shown in this table due to composite scales. Most literature (Moore & Shepherd, 2007; Salmi et al., 2004) follow Ferraro and LaGrange (1992), classifying fear of crime into two types: fear of property crime and fear of personal crime. However, consistent with Melde (2009), the present EFAs suggest one factor solution for fear of crime and perceived risk. Appendix 3.4 shows descriptive statistics, factor loadings, communalities, and correlation coefficients for eight constructs, respectively.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
<th>KMO</th>
<th>Initial Eigenvalues</th>
<th>Total Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fear of Crime</td>
<td>8</td>
<td>.93</td>
<td>.91</td>
<td>5.28</td>
<td>66.02</td>
</tr>
<tr>
<td>2. Perceived Risk</td>
<td>8</td>
<td>.91</td>
<td>.90</td>
<td>4.91</td>
<td>61.34</td>
</tr>
<tr>
<td>3. Perceptions of Unsafety</td>
<td>4</td>
<td>.82</td>
<td>.80</td>
<td>2.59</td>
<td>64.73</td>
</tr>
<tr>
<td>4. Avoidance Behavior</td>
<td>7</td>
<td>.89</td>
<td>.89</td>
<td>4.23</td>
<td>60.48</td>
</tr>
<tr>
<td>5. Social Disorder</td>
<td>6</td>
<td>.88</td>
<td>.88</td>
<td>3.77</td>
<td>62.76</td>
</tr>
<tr>
<td>6. Social Integration</td>
<td>5</td>
<td>.78</td>
<td>.76</td>
<td>2.74</td>
<td>54.85</td>
</tr>
<tr>
<td>7. Confidence in Police</td>
<td>3</td>
<td>.80</td>
<td>.71</td>
<td>2.15</td>
<td>71.65</td>
</tr>
<tr>
<td>8. Protective Ability</td>
<td>3</td>
<td>.85</td>
<td>.71</td>
<td>2.31</td>
<td>77.15</td>
</tr>
</tbody>
</table>
Stage 3: Confirmatory Factor Analysis

A distinctive feature of EFA is that factors are derived from statistical results, rather than a theory (Hair et al., 2010). By contrast, CFA helps to determine whether the number of factors and loadings of indicative variables on factors conform to what is expected on the basis of pre-established theory. As discussed below, one-factor and multi-factor congeneric models were assessed.

One-factor congeneric measurement models

Another split-half sample \((n=559)\) was used to evaluate eight independent one-factor congeneric models. Figure 3.2 provides an example of sound fit one-factor congeneric measurement model of fear of crime construct. Originally, there were eight items loading on this construct. However, CFA statistics and related criteria (i.e., theory, prior research, modification indices, residual statistics) suggested that four items (i.e., FC1, FC2, FC4, FC6) should be deleted to obtain the sound model fit. Goodness-of-fit statistics are: \(\chi^2=3.795, \text{df}=2, p=.150, \chi^2/\text{df}=1.898, \text{RMSEA}=.041, \text{TLI}=.996, \text{CFI}=.999, \) and \(\text{SRMR}=.008.\)

![Fear of Crime (Emotion) measurement model](image)

Figure 3.2 One-factor Congeneric Measurement Model of Fear of Crime

Table 3.6 shows standardized coefficients, \(t\)-values, goodness-of-fit statistics, and indicator reliability for eight independent one-factor models. Constructs of social integration, protective ability, and confidence in police are just identified. The remains of one-factor models demonstrate a sound level of goodness-of-fit, with \(p\) value greater
than .05. Standardized coefficients range from .57 to .95, indicating that all items possess sound levels of reliability.

**Multi-factor analysis**

Multi-factor analysis was undertaken to test for multi-dimensionality of theoretical constructs and discriminant validity. Figure 3.3 shows a four-factor measurement model of the threat of victimization construct, comprising perceived risk, perception of unsafety, fear of crime, and avoidance behavior. As demonstrated by goodness-of-fit statistics, this model fits the data well ($\chi^2=588.15$, $df=98$, $\chi^2/df=6.00$, CFI=.949, TLI=.938, RMSEA=.067, and SRMR=.043). All coefficients are significant at $p<.001$. As expected, correlations between avoidance behavior, fear of crime, perceived risk, and perceptions of unsafety, respectively, are middling to high (ranging between .24 and .62), suggesting that these four dimensions are unique and distinct. It appears that the constructs of avoidance behavior and perceptions of unsafety are moderately inter-correlated (.62) (Fox, 1991).

By contrast, Figure 3.4 shows a higher order construct model of threat of victimization. As indicated by goodness-of-fit statistics, this model fits the data well ($\chi^2=634.82$, $df=100$, $\chi^2/df=6.35$, CFI=.945, TLI=.934, RMSEA=.070, and SRMR=.057). All coefficients are significant at $p<.001$. However, the goodness-of-fit indices for this higher order construct of threat of victimization are not as good as that for a four-factor congeneric measurement model. Rubio et al. (2001) stated that when a construct is multidimensional, the oblique factor model fit the data significantly better. The factor loading from perceived risk (.42) to threat of victimization is relatively low. In the light of the current research objectives, perceived risk, perception of unsafety, fear of crime, and avoidance behavior are viewed as parallel dimensions, rather than a higher order construct of threat of victimization.

When benchmarks for acceptable one-factor and multi-factor fitting models are achieved, a second step proceeds to the development and testing of a conceptual model. However, prior to the path model analysis, tests for convergent and discriminant validity are imperative.
Table 3.6 Confirmatory Factor Analysis: Standardized Loadings, $t$-values, and Goodness-of-fit Indices

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Loadings</th>
<th>$t$-value</th>
<th>$\chi^2$/df</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of Crime (FC)</td>
<td>1.89</td>
<td>.999</td>
<td>.996</td>
<td>.041</td>
<td>.008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>During your everyday life in Melbourne, how AFRAID are you of becoming a victim of the following crimes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC3: Having your room broken into while you are there</td>
<td>.80</td>
<td></td>
<td>19.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC5: Being physically attacked (e.g., assaulted, kidnapped)</td>
<td>.89</td>
<td></td>
<td>21.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC7: Being robbed or mugged</td>
<td>.85</td>
<td></td>
<td>20.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC8: Being attacked/harassed, threatened or verbally abused due to your ethnic origin</td>
<td>.76</td>
<td></td>
<td>Scaling $^a$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Risk (PR)</td>
<td>1.49</td>
<td>.999</td>
<td>.998</td>
<td>.021</td>
<td>.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How LIKELY do you think it is that the following will happen to you over the next 12 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR1: Being cheated out of money</td>
<td>.57</td>
<td>Scaling $^a$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR5: Being physically attacked (e.g., assaulted, kidnapped)</td>
<td>.83</td>
<td></td>
<td>18.95</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR7: Being robbed or mugged</td>
<td>.86</td>
<td></td>
<td>19.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR8: Being attacked/harassed, threatened or verbally abused due to your ethnic origin</td>
<td>.76</td>
<td></td>
<td>18.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptions of Unsafety (PU)</td>
<td>1.76</td>
<td>.999</td>
<td>.997</td>
<td>.026</td>
<td>.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>During your everyday life in Melbourne, how SAFE do you feel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU1: Walking in the city alone after dark</td>
<td>.82</td>
<td>Scaling $^a$</td>
<td>1.76</td>
<td>.999</td>
<td>.997</td>
<td>.026</td>
<td>.009</td>
</tr>
<tr>
<td>PU2: In your neighborhood after dark</td>
<td>.67</td>
<td></td>
<td>21.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU3: Using public transport after dark</td>
<td>.78</td>
<td></td>
<td>24.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU4: Visiting night spots/clubs/bars</td>
<td>.64</td>
<td></td>
<td>20.21</td>
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</table>

Table 3.6 continues ...
## Constructs

### Avoidance Behavior

*How OFTEN does fear of crime prevent you from doing ...*

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<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB1: Walking in your neighborhood after dark</td>
<td>.86</td>
<td>Scaling $^a$</td>
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</tr>
<tr>
<td>AB2: Walking in the city after dark</td>
<td>.83</td>
<td>35.51</td>
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</tr>
<tr>
<td>AB3: Leaving home when it is dark</td>
<td>.87</td>
<td>35.33</td>
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</tr>
<tr>
<td>AB4: Refusing to open the door to strangers in the evening or at night</td>
<td>.64</td>
<td>23.01</td>
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</tr>
</tbody>
</table>

### Social Disorder

*How SERIOUS do you think are the following incivilities in Melbourne?*

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<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD1: Groups of teenagers fighting, vandalizing, or harassing</td>
<td>.83</td>
<td>14.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD3: Prostitution</td>
<td>.62</td>
<td>Scaling $^a$</td>
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</tr>
<tr>
<td>SD4: Harassment, threatening behavior or verbal abuse in the street</td>
<td>.80</td>
<td>14.37</td>
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<td></td>
</tr>
<tr>
<td>SD6: Racial harassment or attack</td>
<td>.80</td>
<td>14.37</td>
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### Social Integration $^b$

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<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SI1: I feel that Melbourne is more of a real home than just a place to study</td>
<td>.62</td>
<td>Scaling $^a$</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI3: On the whole, I am satisfied with Melbourne</td>
<td>.95</td>
<td>18.58</td>
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<td></td>
</tr>
<tr>
<td>SI4: I am happy with the kind of people in Melbourne</td>
<td>.74</td>
<td>20.05</td>
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</table>

### Confidence in Police $^b$

<table>
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<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP1: Overall, the police do a good job</td>
<td>.76</td>
<td>13.44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP2: Police are effective in clearing up crime and catching criminals</td>
<td>.78</td>
<td>13.45</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CP3: Police respond quickly to calls for assistance</td>
<td>.68</td>
<td>Scaling $^a$</td>
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<td></td>
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</table>

### Protective Ability $^b$

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<th>t-value</th>
<th>$\chi^2$/df</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA1: If someone assaulted me, I could protect myself</td>
<td>.89</td>
<td>17.59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA2: I think I am capable of chasing off a potential attacker</td>
<td>.82</td>
<td>17.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA3: I am capable of escaping or resisting an attack by an attacker</td>
<td>.72</td>
<td>Scaling $^a$</td>
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</tr>
</tbody>
</table>

---

**Note.** $t$-values are significant at $p<.001$. $p$ values are based on two-tail tests. For all items, 5-point Likert scales were used (i.e., 1=Strongly Disagree, 5=Strongly Agree). $^a$ Initial loading was fixed to 1 to set the scale of the construct. $^b$ Just-identified/saturated model.
Figure 3.3 Four-factor Congeneric Measurement Model of Threat of Victimization
Figure 3.4 A Higher Order Construct Model of Threat of Victimization
Instrument Validity

As described in the Method section, the present constructs were assessed for convergent and discriminant validity.

Convergent validity

Convergent validity was assessed utilizing four methods: item reliability (Iacovou et al., 2009), Cronbach’s alpha (Cronbach, 1951), construct reliability (CR) (Bollen, 1989; Hair et al., 2010), and variance extracted estimates (VE) (Bollen, 1989; Hair et al., 2010), the results of which are reported below.

Item reliability. Item reliability was assessed through standardized item-to-construct loadings. As shown in Table 3.6, the standardized item-to-construct loadings range from .57 (PR1) to .94 (SI3), suggesting that the current individual items possess sound levels of reliability (Hair et al., 2010).

Internal reliability. For each construct, Cronbach’s alpha (Cronbach, 1951) was calculated to assess the internal consistency of scales. As shown in Table 3.7, Cronbach’s alpha for scales range between $\alpha = .79$ (social integration) to $\alpha = .90$ (fear of crime), demonstrating that constructs have sound levels of internal consistency (Nunnally & Bernstein, 1994).

Construct reliability (CR) and variance extracted estimates (VE). As shown in Table 3.7, CR range from .73 (confidence in police) to .89 (fear of crime, avoidance behavior), whilst VEs range between .48 (confidence in police) and .66 (fear of crime), indicating high internal consistency levels.

In summary, item reliability, Cronbach’s alpha, CR, and VE for eight latent constructs are acceptable, supporting a conclusion of sound levels of convergent validity and appropriate item reliability. The subsequent section discusses issues relating to discriminant validity.
Table 3.7 Cronbach’s alpha, Construct Reliability, and Variance Estimates

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Cronbach’s Alpha (α)</th>
<th>Construct Reliability</th>
<th>Variance Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fear of crime</td>
<td>.90</td>
<td>.89</td>
<td>.66</td>
</tr>
<tr>
<td>2. Perceived risk</td>
<td>.84</td>
<td>.83</td>
<td>.55</td>
</tr>
<tr>
<td>3. Perceptions of unsafety</td>
<td>.82</td>
<td>.82</td>
<td>.53</td>
</tr>
<tr>
<td>4. Avoidance behavior</td>
<td>.88</td>
<td>.89</td>
<td>.65</td>
</tr>
<tr>
<td>5. Social disorder</td>
<td>.86</td>
<td>.84</td>
<td>.57</td>
</tr>
<tr>
<td>6. Social integration</td>
<td>.79</td>
<td>.76</td>
<td>.51</td>
</tr>
<tr>
<td>7. Protective ability</td>
<td>.85</td>
<td>.79</td>
<td>.55</td>
</tr>
<tr>
<td>8. Confidence in police</td>
<td>.80</td>
<td>.73</td>
<td>.48</td>
</tr>
</tbody>
</table>

Discriminant validity

Discriminant validity was evaluated through three methods: an examination of structure coefficients (Thompson, 1997); comparisons of the average of variance extracted estimates (AVE) with the square of correlations (SC) between latent constructs (Fornell & Larcker, 1981); and standardized construct-to-construct loadings and cross-loadings. Findings are reported below.

In terms of standardized structure coefficients, as shown in Table 3.8 intra-construct item correlations (bold figures) are higher than inter-construct item correlations. Table 3.9 indicates that AVE exceeds SC between any pair of latent constructs. Table 3.10 shows standardized construct-to-construct loadings and cross-loadings. Cross-loading values of .63 between direct and indirect victimization, and .62 between avoidance behavior and perceptions of unsafety appear to be potentially problematic, however, according to Fox (1991), only correlations above .80 indicate potential danger. Overall, these statistics indicate that constructs utilized in the present thesis exhibit sound levels of discriminant validity. The next section reports on issues relating to common method bias.
### Table 3.8 Standardized Item-to-construct Loadings

<table>
<thead>
<tr>
<th></th>
<th>FC</th>
<th>PU</th>
<th>PR</th>
<th>AB</th>
<th>PA</th>
<th>CP</th>
<th>SI</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC3</td>
<td>0.79</td>
<td>0.31</td>
<td>0.28</td>
<td>0.32</td>
<td>-0.13</td>
<td>-0.10</td>
<td>-0.12</td>
<td>0.22</td>
</tr>
<tr>
<td>FC5</td>
<td>0.89</td>
<td>0.35</td>
<td>0.32</td>
<td>0.36</td>
<td>-0.14</td>
<td>-0.11</td>
<td>-0.13</td>
<td>0.25</td>
</tr>
<tr>
<td>FC7</td>
<td>0.86</td>
<td>0.34</td>
<td>0.31</td>
<td>0.35</td>
<td>-0.14</td>
<td>-0.11</td>
<td>-0.13</td>
<td>0.24</td>
</tr>
<tr>
<td>FC8</td>
<td>0.78</td>
<td>0.31</td>
<td>0.28</td>
<td>0.32</td>
<td>-0.12</td>
<td>-0.10</td>
<td>-0.12</td>
<td>0.22</td>
</tr>
<tr>
<td>PU1</td>
<td>0.32</td>
<td>0.82</td>
<td>0.19</td>
<td>0.51</td>
<td>-0.31</td>
<td>-0.20</td>
<td>-0.10</td>
<td>0.15</td>
</tr>
<tr>
<td>PU2</td>
<td>0.27</td>
<td>0.70</td>
<td>0.16</td>
<td>0.43</td>
<td>-0.26</td>
<td>-0.17</td>
<td>-0.08</td>
<td>0.13</td>
</tr>
<tr>
<td>PU3</td>
<td>0.30</td>
<td>0.76</td>
<td>0.17</td>
<td>0.48</td>
<td>-0.29</td>
<td>-0.18</td>
<td>-0.09</td>
<td>0.14</td>
</tr>
<tr>
<td>PU4</td>
<td>0.25</td>
<td>0.64</td>
<td>0.15</td>
<td>0.40</td>
<td>-0.24</td>
<td>-0.15</td>
<td>-0.08</td>
<td>0.12</td>
</tr>
<tr>
<td>PR1</td>
<td>0.20</td>
<td>0.57</td>
<td>0.18</td>
<td>-0.02</td>
<td>-0.10</td>
<td>-0.09</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>PR5</td>
<td>0.30</td>
<td>0.84</td>
<td>0.27</td>
<td>-0.02</td>
<td>-0.15</td>
<td>-0.13</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>PR7</td>
<td>0.30</td>
<td>0.85</td>
<td>0.27</td>
<td>-0.02</td>
<td>-0.15</td>
<td>-0.13</td>
<td>0.16</td>
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</tr>
<tr>
<td>AA1</td>
<td>0.35</td>
<td>0.54</td>
<td>0.27</td>
<td>0.86</td>
<td>-0.24</td>
<td>-0.05</td>
<td>-0.12</td>
<td>0.12</td>
</tr>
<tr>
<td>AA2</td>
<td>0.34</td>
<td>0.52</td>
<td>0.26</td>
<td>0.83</td>
<td>-0.23</td>
<td>-0.05</td>
<td>-0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>AA3</td>
<td>0.36</td>
<td>0.54</td>
<td>0.28</td>
<td>0.87</td>
<td>-0.24</td>
<td>-0.05</td>
<td>-0.12</td>
<td>0.12</td>
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<td>AA4</td>
<td>0.27</td>
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<td>0.65</td>
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<td>-0.04</td>
<td>-0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>PA1</td>
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<td>-0.27</td>
<td>-0.02</td>
<td>-0.20</td>
<td>0.71</td>
<td>0.06</td>
<td>0.10</td>
<td>0.03</td>
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<td>0.08</td>
<td>0.12</td>
<td>0.03</td>
</tr>
<tr>
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<td>-0.31</td>
<td>-0.02</td>
<td>-0.23</td>
<td>0.84</td>
<td>0.08</td>
<td>0.11</td>
<td>0.03</td>
</tr>
<tr>
<td>CP1</td>
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<td>-0.13</td>
<td>-0.05</td>
<td>0.07</td>
<td>0.76</td>
<td>0.17</td>
<td>-0.04</td>
</tr>
<tr>
<td>CP2</td>
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<td>-0.14</td>
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<td>0.07</td>
<td>0.80</td>
<td>0.18</td>
<td>-0.04</td>
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<tr>
<td>CP3</td>
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<td>-0.17</td>
<td>-0.12</td>
<td>-0.04</td>
<td>0.06</td>
<td>0.71</td>
<td>0.16</td>
<td>-0.04</td>
</tr>
<tr>
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<td>-0.07</td>
<td>-0.10</td>
<td>-0.08</td>
<td>0.08</td>
<td>0.14</td>
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<td>-0.12</td>
<td>-0.10</td>
<td>0.10</td>
<td>0.16</td>
<td>0.75</td>
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<td>0.03</td>
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<td>0.10</td>
<td>0.81</td>
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<tr>
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<td>0.12</td>
<td>0.09</td>
<td>0.02</td>
<td>-0.04</td>
<td>0.08</td>
<td>0.66</td>
</tr>
<tr>
<td>SD4</td>
<td>0.24</td>
<td>0.16</td>
<td>0.16</td>
<td>0.11</td>
<td>0.03</td>
<td>-0.05</td>
<td>0.10</td>
<td>0.84</td>
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<td>SD6</td>
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<td>0.03</td>
<td>-0.05</td>
<td>0.10</td>
<td>0.81</td>
</tr>
</tbody>
</table>

**Note.** FC=Fear of Crime; PR=Perceived Risk; PU=Perceptions of Unsafety; AB=Avoidance Behavior; PA=Protective Ability; CP=Confidence in Police; SI=Social Integration; and SD=Social Disorder. The reported standardized loadings for items are based on the final full structural model. See Appendix 3.2 for detailed wording corresponding to each item.
Table 3.9  Square of Correlations and the Average of the Variance Extracted Estimates

<table>
<thead>
<tr>
<th></th>
<th>PA</th>
<th>CP</th>
<th>SI</th>
<th>SD</th>
<th>PU</th>
<th>PR</th>
<th>AB</th>
<th>FC</th>
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<tbody>
<tr>
<td>AVE</td>
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<td>AVE</td>
<td>SC</td>
<td>AVE</td>
<td>SC</td>
<td>AVE</td>
<td>SC</td>
<td>AVE</td>
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<td></td>
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<td></td>
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<tr>
<td>CP</td>
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<td>0.01</td>
<td>0.48</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI</td>
<td>0.53</td>
<td>0.02</td>
<td>0.50</td>
<td>0.05</td>
<td>0.51</td>
<td>1.00</td>
<td></td>
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</tr>
<tr>
<td>SD</td>
<td>0.56</td>
<td>0.00</td>
<td>0.53</td>
<td>0.00</td>
<td>0.54</td>
<td>0.02</td>
<td>0.57</td>
<td>1.00</td>
</tr>
<tr>
<td>PU</td>
<td>0.54</td>
<td>0.15</td>
<td>0.51</td>
<td>0.06</td>
<td>0.52</td>
<td>0.02</td>
<td>0.55</td>
<td>0.04</td>
</tr>
<tr>
<td>PR</td>
<td>0.55</td>
<td>0.00</td>
<td>0.52</td>
<td>0.02</td>
<td>0.53</td>
<td>0.02</td>
<td>0.56</td>
<td>0.03</td>
</tr>
<tr>
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<td>0.00</td>
<td>0.58</td>
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<td>0.61</td>
<td>0.02</td>
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<tr>
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<td>0.01</td>
<td>0.59</td>
<td>0.02</td>
<td>0.62</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Note. AVE= the average of the variance extracted estimates; SC= the square of the correlation; PA=Protective Ability; CP=Confidence in Police; SI=Social Integration; SD=Social Disorder; PU=Perceptions of Unsafty; PR=Perceived Risk; AB=Avoidance Behavior; and FC=Fear of Crime.
Table 3.10  Loadings and Cross-loadings of Constructs, Mean Scores, and Standard Deviation

<table>
<thead>
<tr>
<th></th>
<th>Indirect Victimization</th>
<th>Direct Victimization</th>
<th>Protective Ability</th>
<th>Confidence in Police</th>
<th>Social Integration</th>
<th>Social Disorder</th>
<th>Perceptions of Unsafety</th>
<th>Perceived Risk</th>
<th>Avoidance Behavior</th>
<th>Fear of Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect Victimization</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Direct Victimization</td>
<td>0.63</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective Ability</td>
<td>0.09</td>
<td>0.09</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence in Police</td>
<td>-0.16</td>
<td>-0.11</td>
<td>0.09</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Integration</td>
<td>-0.10</td>
<td>-0.09</td>
<td>0.13</td>
<td>0.22</td>
<td>1.00</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Social Disorder</td>
<td>0.17</td>
<td>0.06</td>
<td>0.04</td>
<td>-0.06</td>
<td>0.12</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceptions of Unsafety</td>
<td>0.09</td>
<td>-0.07</td>
<td>-0.38</td>
<td>-0.24</td>
<td>-0.12</td>
<td>0.19</td>
<td>1.00</td>
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<tr>
<td>Perceived Risk</td>
<td>0.36</td>
<td>0.31</td>
<td>-0.03</td>
<td>-0.17</td>
<td>-0.16</td>
<td>0.19</td>
<td>0.23</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance Behavior</td>
<td>0.12</td>
<td>0.08</td>
<td>-0.28</td>
<td>-0.06</td>
<td>-0.13</td>
<td>0.14</td>
<td>0.62</td>
<td>0.32</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Fear of Crime</td>
<td>0.12</td>
<td>0.06</td>
<td>-0.16</td>
<td>-0.13</td>
<td>-0.15</td>
<td>0.28</td>
<td>0.39</td>
<td>0.36</td>
<td>0.41</td>
<td>1.00</td>
</tr>
<tr>
<td>Mean</td>
<td>0.22</td>
<td>0.07</td>
<td>3.01</td>
<td>3.26</td>
<td>3.36</td>
<td>3.23</td>
<td>2.80</td>
<td>1.96</td>
<td>2.91</td>
<td>2.93</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0.27</td>
<td>0.18</td>
<td>0.97</td>
<td>0.79</td>
<td>0.82</td>
<td>1.01</td>
<td>0.97</td>
<td>0.81</td>
<td>1.20</td>
<td>1.13</td>
</tr>
</tbody>
</table>
Common Method Bias

Since the present data are self-reported, the following section discusses effects of common method bias, involving Harman one-factor test and tests of social desirability (Podsakoff et al., 2003). An EFA using ML method with Direct Oblimin rotation was performed for Harman one-factor test, culminating in 9 factors. No single factor is apparent in the unrotated factor structure, with Factor 1 accounting for only 19.77% of the variance.

In terms of social desirability, three models (Appendix 3.5, 3.6, and 3.7) were compared to assess common method bias. Model A is a multi-factor congeneric measurement model with all tested variables. Model B and Model C extend Model A, with Model B loads items on a social desirability construct, while Model C loading items on an unmeasured factor termed common method bias. Changes in CFIIs between these three models are less than the recommended value of .01 (Byrne, 2010). As shown in Table 3.11, factor loadings on purported constructs were significantly higher than on variables of social desirability and common method bias. Accordingly, post hoc tests indicate that common method effects are not a likely contaminant of results observed in Study 1. The next section reports on findings of the present full structural model and hypotheses.
Table 3.11 Testing for Common Method Bias

<table>
<thead>
<tr>
<th>Item</th>
<th>Model A Factor Loading</th>
<th>Model B Factor Loading</th>
<th>Model C Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC3: Having your room broken into while you are there</td>
<td>.79</td>
<td>.78</td>
<td>.11</td>
</tr>
<tr>
<td>FC5: Being physically attacked (e.g., assaulted, kidnapped)</td>
<td>.88</td>
<td>.88</td>
<td>.06</td>
</tr>
<tr>
<td>FC7: Being robbed or mugged</td>
<td>.86</td>
<td>.87</td>
<td>.00</td>
</tr>
<tr>
<td>FC8: Being attacked/harassed, threatened or verbally abused due to</td>
<td>.78</td>
<td>.76</td>
<td>.16</td>
</tr>
<tr>
<td>your ethnic origin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR1: Being cheated out of money</td>
<td>.57</td>
<td>.57</td>
<td>.02</td>
</tr>
<tr>
<td>PR5: Being physically attacked (e.g., assaulted, kidnapped)</td>
<td>.83</td>
<td>.83</td>
<td>.07</td>
</tr>
<tr>
<td>PR7: Being robbed or mugged</td>
<td>.85</td>
<td>.86</td>
<td>.01</td>
</tr>
<tr>
<td>PR8: Being attacked/harassed, threatened or verbally abused due to</td>
<td>.76</td>
<td>.76</td>
<td>.05</td>
</tr>
<tr>
<td>your ethnic origin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU1: Walking in the city alone after dark</td>
<td>.81</td>
<td>.82</td>
<td>-.04</td>
</tr>
<tr>
<td>PU2: In your neighborhood after dark</td>
<td>.70</td>
<td>.69</td>
<td>.08</td>
</tr>
<tr>
<td>PU3: Using public transport after dark</td>
<td>.77</td>
<td>.77</td>
<td>-.02</td>
</tr>
<tr>
<td>PU4: Visiting night spots/clubs/bars</td>
<td>.64</td>
<td>.64</td>
<td>.17</td>
</tr>
<tr>
<td>AB1: Walking in your neighborhood after dark</td>
<td>.86</td>
<td>.85</td>
<td>.15</td>
</tr>
<tr>
<td>AB2: Walking in the city after dark</td>
<td>.83</td>
<td>.83</td>
<td>.10</td>
</tr>
<tr>
<td>AB3: Leaving home when it is dark</td>
<td>.87</td>
<td>.85</td>
<td>.19</td>
</tr>
<tr>
<td>AB4: Refusing to open the door to strangers in the evening or at night</td>
<td>.65</td>
<td>.64</td>
<td>.10</td>
</tr>
<tr>
<td>SD1: Groups of teenagers fighting, vandalizing, or harassing</td>
<td>.81</td>
<td>.80</td>
<td>-.12</td>
</tr>
<tr>
<td>SD3: Prostitution</td>
<td>.66</td>
<td>.67</td>
<td>.05</td>
</tr>
<tr>
<td>SD4: Harassment, threatening behavior or verbal abuse in the street</td>
<td>.84</td>
<td>.83</td>
<td>-.04</td>
</tr>
<tr>
<td>SD6: Racial harassment or attack</td>
<td>.81</td>
<td>.80</td>
<td>-.16</td>
</tr>
<tr>
<td>SI1: I feel that Melbourne is more of a real home than just a place</td>
<td>.63</td>
<td>.62</td>
<td>-.01</td>
</tr>
<tr>
<td>SI3: On the whole, I am satisfied with</td>
<td>.94</td>
<td>.93</td>
<td>-.08</td>
</tr>
<tr>
<td>SI4: I am happy with the kind of people in Melbourne</td>
<td>.75</td>
<td>.75</td>
<td>-.12</td>
</tr>
<tr>
<td>CP1: Overall, the police do a good job</td>
<td>.76</td>
<td>.76</td>
<td>-.04</td>
</tr>
<tr>
<td>CP2: Police are effective in clearing up crime and catching</td>
<td>.80</td>
<td>.79</td>
<td>-.10</td>
</tr>
<tr>
<td>criminals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP3: Police respond quickly to calls for assistance</td>
<td>.71</td>
<td>.71</td>
<td>.10</td>
</tr>
<tr>
<td>PA1: If someone assaulted me, I could protect myself</td>
<td>.71</td>
<td>.71</td>
<td>.08</td>
</tr>
<tr>
<td>PA2: I think I am capable of chasing off a potential attacker</td>
<td>.89</td>
<td>.89</td>
<td>.02</td>
</tr>
<tr>
<td>PA3: I am capable of escaping or resisting an attack by an attacker</td>
<td>.83</td>
<td>.83</td>
<td>.02</td>
</tr>
</tbody>
</table>
Stage 4: Full Structural Model, Tests of Hypothesis

Using the ML estimation method, SEM was employed to assess the extent to which the present hypothesized model adequately represents the current sample. The Type I error rate was set at $\alpha=.05$. Respectively, Table 3.12 shows related statistical results of hypothesis testing. Goodness-of-fit indices exceed acceptable levels ($\chi^2=1350.56$, $df=440$, $\chi^2/df=3.069$, TLI=.936, CFI=.947, RMSEA=.041 with 90% confidence interval (.041, .046), SRMR=.037, and stability index=.189), representing reliable and robust fit between the current conceptual model and sample covariances. Figure 3.5 shows the final path model with omitted nonsignificant paths, the goodness-of-fit indices of which are: $\chi^2=1357.34$, $df=444$, $\chi^2/df=3.057$, TLI=.937, CFI=.947, RMSEA=.043 with 90% confidence interval (.041, .046), SRMR=.037, and stability index=.196. It should be noted that coefficient values for Table 3.12 and Figure 3.5 are different because nonsignificant paths have been omitted from the final analyses.

In terms of explanatory power, the present model accounts for 50.5% of the variance in perceptions of unsafety, 30.1% of the variance in fear of crime, 26.2% of the variance in perceived risk, and 24.6% of the variance in avoidance behavior, all of which are sufficiently high to make the examination of path coefficients practically meaningful. With respect to structural paths, 20 out of 26 hypothesized relationships are supported. The following section discusses findings relating to hypothesized relationships.

Perceived risk (cognition), perceptions of unsafety (cognition), fear of crime (emotion), and avoidance (behavior). Findings show significant positive and reciprocal relationships between cognitive (perceived risk, perceptions of unsafety), emotional (fear of crime), and behavioral (avoidance) facets of threat of victimization. Perceived risk and perceptions of unsafety are related positively and significantly to fear of crime ($\gamma=.24$, $t=5.81$, $p<.05$; $\gamma=.22$, $t=2.71$, $p<.05$). Fear of crime significantly facilitates avoidance behavior ($\gamma=.42$, $t=4.03$, $p<.05$), which significantly and positively influences perceived risk ($\gamma=.37$, $t=2.08$, $p<.05$) and perceptions of unsafety ($\gamma=.49$, $t=13.21$, $p<.05$) in turn. Accordingly, H1a and H1b are supported fully.
Table 3.12 Results of Hypothesis Tests (with nonsignificant paths)

<table>
<thead>
<tr>
<th></th>
<th>Personal-related Factors</th>
<th></th>
<th></th>
<th>Community-related Factors</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypothesis</td>
<td>Path Loadings</td>
<td>t-value</td>
<td>Hypothesis</td>
<td>Path Loadings</td>
<td>t-value</td>
</tr>
<tr>
<td><strong>Perceived Risk (Cognition)</strong></td>
<td>H2a (S)</td>
<td>-.07</td>
<td>-2.78**</td>
<td>H2b (S)</td>
<td>-.09</td>
<td>-3.03**</td>
</tr>
<tr>
<td><strong>Perceptions of Unsafety (Cognition)</strong></td>
<td>H3a (S)(^b)</td>
<td>-.15</td>
<td>-2.37(^*)</td>
<td>H3c (S)</td>
<td>.14</td>
<td>4.02***</td>
</tr>
<tr>
<td><strong>Fear of Crime (Emotion)</strong></td>
<td>H4a (S)</td>
<td>-.22</td>
<td>-7.06***</td>
<td>H4b (NS)</td>
<td>-.12</td>
<td>-1.86</td>
</tr>
<tr>
<td><strong>Avoidance (Behavior)</strong></td>
<td>H5a (S)</td>
<td>.11</td>
<td>2.55**</td>
<td>H5b (S)</td>
<td>-.20</td>
<td>-5.01***</td>
</tr>
<tr>
<td><strong>Direct Victimization</strong></td>
<td>H6a (S)</td>
<td>.19</td>
<td>3.88***</td>
<td>H6b (S)</td>
<td>.14</td>
<td>3.30***</td>
</tr>
<tr>
<td><strong>Indirect Victimization</strong></td>
<td>H7a (S)</td>
<td>.13</td>
<td>3.47***</td>
<td>H7b (S)</td>
<td>.09</td>
<td>3.20***</td>
</tr>
<tr>
<td><strong>Social Disorder</strong></td>
<td>H8a (S)</td>
<td>-.09</td>
<td>-2.24(^*)</td>
<td>H8b (S)</td>
<td>-.11</td>
<td>3.34***</td>
</tr>
<tr>
<td><strong>Social Integration</strong></td>
<td>H9a (S)</td>
<td>-.08</td>
<td>-1.97(^*)</td>
<td>H9b (S)</td>
<td>-.18</td>
<td>-5.99***</td>
</tr>
<tr>
<td><strong>Confidence in Police</strong></td>
<td>H10a (S)</td>
<td>.24</td>
<td>5.81***</td>
<td>H10b (S)</td>
<td>.49</td>
<td>13.21***</td>
</tr>
</tbody>
</table>

Note. *p<0.05.  **p<0.01.  ***p<0.001.  \(^a\)NS=Not supported; \(^b\)S=supported.  \(^p\)values are based on two-tail tests.
Note. *p<0.05. **p<0.01. ***p<0.001. *p values are based on two-tail tests.

Figure 3.5 Final Full Structural Model (without nonsignificant paths)
Age. Age has a significant and negative effect on fear of crime ($\gamma=-.09$, $t=-3.03$, $p<.05$) and perceptions of unsafety ($\gamma=-.07$, $t=-2.71$, $p<.05$), supporting H2a and H2b.

Gender. When compared with their male counterparts, female tertiary students report significantly higher levels of fear of crime ($\gamma=.14$, $t=4.02$, $p<.05$) and are more likely to adopt avoidance strategies ($\gamma=.17$, $t=4.45$, $p<.05$), but surprisingly, communicate lower levels of perceived risk ($\gamma=-.15$, $t=-2.37$, $p<.05$), supporting H3b and H3c, respectively, but failing to support H3a.

Protective ability. Protective ability significantly and negatively influences perceptions of unsafety ($\gamma=-.22$, $t=-7.09$, $p<.05$) and avoidance behavior ($\gamma=-.15$, $t=-4.27$, $p<.05$), supporting H4a and H4c, respectively. Nonetheless, protective ability is related nonsignificantly to fear of crime, failing to support H4b.

Victimization. Direct victimization has a significant and positive influence on perceived risk ($\gamma=.11$, $t=2.55$, $p<.05$), supporting H5a, but an unexpected negative impact on perceptions of unsafety ($\gamma=-.20$, $t=-5.01$, $p<.05$) and a nonsignificant effect on avoidance behavior, failing to support H5b and H5c, respectively. By contrast, indirect victimization significantly facilitates perceived risk ($\gamma=.19$, $t=3.88$, $p<.05$), perceptions of unsafety ($\gamma=.14$, $t=3.30$, $p<.05$), and avoidance behavior ($\gamma=.10$, $t=2.79$, $p<.05$), supporting H6a, H6b, and H6c, respectively.

Social disorder. Findings reveal that social disorder significantly heightens perceived risk ($\gamma=.13$, $t=3.47$, $p<.05$), perceptions of unsafety ($\gamma=.09$, $t=3.20$, $p<.05$), and fear of crime ($\gamma=.18$, $t=5.27$, $p<.05$), supporting H7a, H7b, and H7c, respectively. Social disorder is related nonsignificantly to avoidance behavior, failing to support H7d.

Social integration. Social integration is related significantly and negatively to perceived risk ($\gamma=-.09$, $t=-2.24$, $p<.05$) and fear of crime ($\gamma=-.11$, $t=-3.34$, $p<.05$), supporting H8a and H8b. However, there is a nonsignificant relationship between social integration and avoidance behavior (H8c).
Confidence in police. Confidence in police is related significantly and positively to perceived risk ($\gamma = -0.07$, $t=-2.00$, $p<.05$) and perceptions of unsafety ($\gamma = -18$, $t=-5.99$, $p<.05$), supporting H9a and H9b, respectively; but associated nonsignificantly with avoidance behavior (H9c). It should be noted that, in Figure 3.5, relationship between confidence in police and perceived risk becomes nonsignificant when nonsignificant paths are omitted from statistical tests involving the final path model. The next section highlights issues relating to the present nonrecursive model identifications.

Nonrecursive Model Identification

As referred to earlier, three important assumptions need to be met for a meaningful nonrecursive model. These assumptions relate to order and rank condition, and stability index. Order condition was addressed in the Statistical Procedures section, with certain exogenous variables (i.e., victimization) being specified to be directly unrelated to endogenous variables (i.e., fear of crime) with empirical support (Ferguson & Mindel, 2007; Rader et al., 2007). The stability index values of .189 (with nonsignificant paths) and .196 (without nonsignificant paths) fall within the acceptable level between -1 and +1 (Bentler & Freeman, 1983).

With respect to rank identification, table 3.13 shows coefficients obtained for the final full model with omitted all nonsignificant hypothesized paths (Figure 3.5). According to Ross and Duff (1982), if more than one nonzero determinant can be found, then the equation in question is overidentified (p. 412). For example, in terms of equation for perceived risk (X12), zero values appear in columns of X11, X6, X5, and X1. After omitting the row for perceived risk, a 2×2 matrix (table 3.14) is obtained. According to Ross and Duff (1982), the determinant of a 2×2 matrix is equal to the product of the major diagonal elements minus the product of the minor diagonal (p. 413). In this case, the determinant equals $(1\times0) - (.45\times.23) = 0.1$. It should be noted that, assessment of identification is based on equation-by-equation basis (Ross & Duff, 1982). Following the same procedure, there appears to be more than two nonzero determinants, indicating that the equation for perceived risk is overidentified. On the basis of this formula, it can be concluded that the present nonrecursive model is overidentified, thus the a priori
restriction on a nonrecursive model is achieved (Berry, 1984). The following section
discusses the present salient findings in accord with the prior research and theories.
Table 3.13  The Rank Identification Matrix

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Risk</td>
<td></td>
<td>.41**</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>.13***</td>
<td>-.11**</td>
<td>0</td>
<td>0</td>
<td>.12**</td>
<td>.19***</td>
</tr>
<tr>
<td>Perceptions of Unsafty</td>
<td></td>
<td>.48***</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>.09***</td>
<td>0</td>
<td>-.18***</td>
<td>-.22***</td>
<td>-.20***</td>
<td>.14***</td>
</tr>
<tr>
<td>Fear of Crime</td>
<td></td>
<td>0</td>
<td>1</td>
<td>.20**</td>
<td>.23***</td>
<td>.19***</td>
<td>-.12***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>.14***</td>
</tr>
<tr>
<td>Avoidance Behavior</td>
<td></td>
<td>1</td>
<td>.45***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-.15***</td>
<td>0</td>
<td>.10**</td>
<td>.16***</td>
</tr>
</tbody>
</table>

Note. **p<.01. ***p<.001. P values are based on two-tail tests.

Table 3.14  The 2x2 Matrix for the Equation for Perceived Risk

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>.23</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.45</td>
<td>0</td>
</tr>
</tbody>
</table>
DISCUSSION

Drawing upon CBT (Beck, 1976; Martin & Sandra, 2005), the victimization model (Gates & Rohe, 1987; Skogan & Maxfield, 1981), the incivilities thesis (Taylor, 1998, 2001), Garofalo’s (1981) fear of crime model, Study 1 developed and tested a nonrecursive model to explicate key drivers of tertiary students’ threat of victimization. Study 1 culminates in a number of significant findings, reflecting previous work yet extending conclusions drawn from the fear of crime literature (Ferguson & Mindel, 2007; Melde, 2009; Rader et al., 2007). A number of findings run against prevailing views and can be attributed to the application of a nonrecursive model of threat of victimization, and possibly the utilization of a sample of tertiary students. The following section provides an in-depth discussion of key findings, culminating in a number of implications. Limitations of Study 1 are outlined.

Key Findings

This section discusses key findings of Study 1, beginning with the present nonrecursive proposition. The impact of key antecedents on cognitive, emotional, and behavioral dimensions of threat of victimization is considered.

Nonrecursive proposition. The present nonrecursive model proposes and demonstrates positive reciprocal effects between cognitive, emotional, and behavioral dimensions of threat of victimization, indicating that CBT is an appropriate approach for understanding causes and consequences of threat of victimization. As expected, cognitive assessments of potential risk of crime and perceptions of unsafety regarding an environment facilitate levels of fear of crime, discouraging people from walking in their neighborhood/city after dark or leaving home when it is dark. Behavioral changes accentuate perceived risk and perceptions of unsafety, intensifying fear of crime in turn. These feedback loops challenge predominant frameworks adopted in the fear of crime literature, proposing either mediated recursive causal associations (Melde, 2009) or bivariate reciprocal relationships (Rader et al., 2007). This cyclic model also provides empirical support for Garofalo’s (1981) conceptual proposition, promulgated over 30 years ago.
Consistent with recent research (May et al., 2010; Rader et al., 2007), the present findings reveal that fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior are distinct constructs in their own right, involving important and significant etiological differences (Ferraro, 1995; Rountree & Land, 1996b). The impact of perceptions of unsafety on fear of crime is as strong as perceived risk, echoing Melde (2009) that fear of crime is not a direct result of risk perceptions alone but is also reflective of the general attitudes or beliefs one has about crime and victimization. Overall views on crime, victimization, and environment are highly likely to influence one’s emotional reaction to threat of victimization. Thus, it is preferable to include perceptions of unsafety as an important indicator or dimensions of threat of victimization. The following sections discuss how personal- and community-related factors contribute to tertiary students’ levels of threat of victimization.

**Age.** Findings show that younger tertiary students express significantly higher levels of fear of crime and perceptions of unsafety than their older peers, in line with the literature (May & Dunaway, 2000; Melde, 2009). These results can be attributed partly to young people’s perceived vulnerabilities, lifestyle, or routine activities: such as going to public spaces more often, having greater contact with strangers, and engaging in high-risky activities or delinquent behaviors (Ho et al., 2007; Melde, 2009). Activated by feelings of fearfulness and a desire for new and novel experiences, younger people are more likely to engage in delinquent behavior and crime, rather than avoiding dangerous places and disorderly people (Melde, 2009). This active and risky lifestyle can foster their perceptions of unsafety, and arouses heightened levels of fear of crime (Lira & Andrade-Palos, 1993).

**Gender.** Consistent with the literature (Fisher, 1995; Fisher & Sloan, 2003; McConnell, 1997), female tertiary students report significantly higher levels of fear of crime, and thus tend to adopt avoidance behavior when compared with their male counterparts. Surprisingly, male students report significantly higher levels of perceived risk than females, demonstrating that men and women differ on their cognitive, emotional, and behavioral responses to threat of victimization (Rader et al., 2007). There appears to be a number of reasons for females’ disproportionate levels of fear of crime, including
physical vulnerability to crime (Will & McGrath, 1995), gender socialization processes (Hale, 1996), victim-blaming cultures (Kelly & Torres, 2006), sexual assault shadow (Ferraro, 1995), and fear of intimate violence (Mesch, 2000b). These factors contribute to females’ psychological conceptions of vulnerability, emotional damage, stress, and behavioral changes (May et al., 2010; Whitley & Prince, 2005). By contrast, social and media portrayal of males as strong, unafraid, and capable of managing dangerous situations can challenge young males to admit openly to being afraid (Fabiansson, 2007) and live in a more risky lifestyle. These stereotypical gender roles and life styles explain the present findings that male students report less levels of fear of crime but higher levels of perceived risk than their female counterparts (Gabriel & Greve, 2003).

Victimization. In terms of victimization, some things which seem like common sense are shown not to be (Ferraro, 1995, p. 120). Both direct and indirect victimization are related significantly to perceived risk and perceptions of unsafety. Direct victimization is nonsignificantly related to avoidance behavior; whereas indirect victimization significantly facilitates students’ avoidance strategies. Results reflect conclusions drawn from the literature (Hwang, 2006; Melde, 2009) that victimization is related strongly to how people interpret and redefine their experiences of being victimized than to emotional fears, particularly among tertiary students (Ferguson & Mindel, 2007; May & Dunaway, 2000). Both direct and indirect victimization experiences facilitate students’ perceived risk of being victimized over the coming 12 months, but differently influence tertiary students’ perceptions of unsafety, with indirect victimization increasing perceptions of unsafety. The unexpected negative impact of direct victimization on perceptions of unsafety might because most experiences of victimization are regarded as not serious, that is, not fear provoking and not influencing people’s overall views regarding safety (Miethe, 1995).

The present nonsignificant impact of victimization on fear of crime and avoidance behavior can be attributed partly to a relatively low reported incidence of victimization (Garofalo, 1979); a use of composite scales in order to decrease the nonnormality of the data (Truman, 2005); and a research design which utilizes a cross-sectional data (Tulloch, 2000). Moreover, reciprocal effects and an application of intervening causal
processes between victimization and fear of crime possibly contributed to the low association as well (Miethe, 1995). Scholars (Delone, 2008; Lira & Andrade-Palos, 1993) argue that the impact of victimization on threat of victimization vary according to offense types. For example, Delone (2008) indicated that assault victimization had a positive and significant effect on fear of crime, but theft, robbery, and burglary appears to be nonsignificantly related to fear of crime. Kanan and Pruitt (2002) noted that property related victimization positively and significantly influences worry about crime, perceived safety at night, but impacts negatively on neighbourhood safety; whereas personal-oriented victimization shows a nonsignificant effect on all three dependent variables.

Protective ability. Victimization often communicates a message of vulnerability and lack of control. When people believe that they can protect themselves, avoid or prevent a situation leading to victimization, or feel they can cope well in situations or consequences of threat, their fear of crime reduces (Garofalo, 1981; Tulloch, 2000). It appears that there are no studies that have investigated the impact of protective ability on threat of victimization. Results show that protective ability significantly inhibits students’ perceptions of unsafety and avoidance behavior. Those with low levels of reported capabilities to protect themselves, to chase off a potential attacker, and to escape an attack tend to perceive their environment as unsafe and are more likely to adopt avoidance strategies. The nonsignificant relationship between protective ability and fear of crime partly results from the majority of participant (90%) rating their health as excellent.

Social disorder. Positive causal relationships between incivilities, fear of crime, perceived risk, and perceptions of unsafety are confirmed in Study 1, supporting the incivilities thesis (Markowitz et al., 2001; Taylor, 2001). Heightened perceptions of social disorder increase individuals’ levels of perceived risk, perceptions of unsafety, and fear of crime, but nonsignificantly influence avoidance behavior. The current findings suggest that an understanding of threat of victimization requires an in-depth consideration of local issues beyond that of crime, demonstrating that feeling of comfort in an environment is critical (Rountree & Land, 1996a). Social disorder, such as public
drunkenness, demonstrates the presence of people who can cause harm, communicating an inability of social norms to control behavior and potential crime (i.e., drug users financing their habits through crime).

As noted by Kanan and Pruitt (2002), incivilities constitute a better operationalization of social vulnerability than do individual characteristics. Disorders serve as important signals of crime and danger, symbolizing the deterioration and decay of social structures and commonly accepted norms and values, communicating that people and authorities are losing control over a community. Culture of fear among the public can evoke feelings of discomfort and anxiety on a daily basis (Jackson, 2004; LaGrange et al., 1992; Xu et al., 2005), threatening the quality of peoples’ lives (Rountree & Land, 1996b; Schafer et al., 2006). Social disorder also signals the presence of a variety of subcultural groups whose behavior is viewed as different or even foreign, suggesting the need for developing social integration, promoting informal social control, and improving communities and authorities’ abilities to ensure order (Covington & Taylor, 1991; Jackson, 2004).

**Social integration.** The present findings show that social integration is associated negatively with fear of crime and perceived risk, but has a nonsignificant impact on avoidance behavior, reflecting the literature (Adams & Serpe, 2000). That is, a real home sense and feelings of general content with local people and environment can effectively inhibit tertiary students’ emotional fear and perceived risk. Gibson et al. (2002) stated that social integration is an initial step in the process of people getting to know each other. Accordingly, residents who feel more integrated into their neighborhoods and/or communities are more likely to perceive their neighbors as trustworthy and willing to intervene as agents of informal social control, which, in turn, help to reduce fear of crime (Adams & Serpe, 2000).

**Confidence in police.** Confidence in the effectiveness of police is related directly and negatively to perceived risk and perceptions of unsafety, but has a nonsignificant impact on fear of crime and avoidance behavior, suggesting that cognitive assessment of policing plays an important role in understanding threat of victimization, particularly
when people conceptualize a crime situation and feel vulnerable (Salmi et al., 2004). As Scarborough (2009) stated, policing is more than crime prevention. People may be satisfied with and confident in police, but this attitude is unrelated to their emotional fears because threat of victimization might not be perceived as a primary function of police. Accordingly, students might perceive that police do a good job, are effective in clearing up crime and catching criminals, and respond quickly to calls for assistance, but these perceptions can be ineffective in reducing victimization and/or threat of victimization. The nonsignificant impact can be attributed to the high proportion of participants reporting having had no direct contact with police. The following section discusses the important implications derived from Study 1, along with the limitations and suggestions for future studies.

**Implications for Theory, Research, and Practice**

Study 1 culminates in a number of important implications. Conceptually, Study 1 reveals important aetiological differences, both at personal and community levels, between perceived risk, perceptions of unsafety, fear of crime, and avoidance behavior. These significant differences demonstrate that these four dimensions are conceptually and empirically distinct. Thus, it is preferable to analyse cognitive, emotional, and behavioral dimensions of threat of victimization separately, rather than to amalgamate these dimensions into a single index (Killias & Clerici, 2000). By focusing on only emotional responses and/or neglecting perceptions of unsafety as an important cognitive dimension, researchers are likely to take a narrow approach and possibly miss the complexities and nuances of this multidimensional phenomenon (Jackson, 2005; Rader, 2004).

Theoretically, positive reciprocal relationships between cognitive, emotional, and behavioral facets of threat of victimization suggest that CBT is an appropriate approach to understanding threat of victimization, in particular, the causes and consequences of fear of crime. Almost two decades ago, a number of scholars (Gabriel & Greve, 2003; Wurff et al., 1986) highlighted that there has been little theorizing about fear of crime from a psychological perspective and even less empirical support for those theoretical ideas that have been proposed. Study 1 fills this void by utilizing CBT to help
understand relationships between cognitive, emotional, and behavioral dimensions of threat of victimization.

Methodologically, Study 1 makes significant strides with respect to analytical and statistical techniques. These improvements include the utilization of SEM to develop valid instruments, incorporate multiple DVs, integrate theories with measurement, and finally to test an hypothesized nonrecursive model. Specifically, EFA and CFA were utilized in a complementary way to develop sound fit constructs that represent the present data. Multiple methods were used to assess content and discriminant validity, and reliability of applied constructs. Importantly, driven by robust theory and supported by statistical techniques, a nonrecursive model of threat of victimization is developed and tested, challenging the predominant recursive causal and bivariate nonrecursive models, providing new insights into the fear of crime research and practice.

On a political level, the present positive feedback loops suggest that changing perceived risk and perceptions of unsafety is an important avenue for policy makers. People judge their threat of victimization from information communicated through interpersonal relationships and the social media, and the interpretation of self-identity and symbols of crime in their surroundings (Bannister, 1993; Pain, 2000). As Rader (2004) suggested, these positive reciprocal relationships are important for research and policy to reflect. For example, behavioral changes (i.e., avoidance) heighten perceptions of risk and unsafety, exacerbating levels of fear of crime. As well, although victimization experiences and confidence in police show nonsignificant effects on reducing fear of crime, these factors contribute to influencing students’ cognitive facets of threat of victimization, which, in turn, can help to decrease levels of fear of crime indirectly.

On an applied level, Study 1 accommodates tertiary students’ threat of victimization within personal and community contexts, providing practical implications for educators and policy makers. It is impossible to completely eliminate fear of crime. However, a decrease in signals of public misbehaviors, an improvement in students’ protective abilities and confidence in police, and an increase in levels of social integration serve effectively to reduce levels of threat of victimization. Residents should be provided with
balanced well-informed news about what is happening in their local environment and globally. Young people should be given an accurate view of their immediate society, thus balancing their fear of constructed and natural phenomena, and assisting them to feel safe (Fabiansson, 2007). The following section discusses the limitations of Study 1, suggesting directions for future research.

**Limitations**

The present findings and associated explanations should be interpreted in the light of a number of limitations associated with cross-sectional designs and generalizability of results. Although the present nonrecursive model is underpinned by theory and guided by robust statistical techniques, investigations are encouraged to utilize longitudinal data sets to test CBT and the effect of pertinent interventions (i.e., social disorder, social integration) for reducing threat of victimization. This investigation was conducted in one metropolitan area in Australia, the results of which might not be generalizable to other cities or countries. Furthermore, although post hoc tests indicated that common method effects resulting from utilizing self-administration questionnaires were not a likely contaminant of results observed in Study 1, self-reported fear of crime surveys possess inherent methodological limitations (Gabriel, 1999) and should be noted in future studies.

The present thesis is the first step to develop and test nonrecursive relationships between cognitive, emotional, and behavioral dimensions of threat of victimization, with only avoidance behavior and a limited number of personal- and community-related factors being investigated. These variables were selected to enable testing of research hypotheses and to answer research questions outlined a priori. Obviously not all variables or combination of variables can be investigated in a study or for that matter, a series of investigations. Thus, this thesis, like any other research is open to criticisms of omitted variable bias. For the present thesis, variables were also selected (or not included) to ensure the development of an elegant and simple model (based on the principle of Occum’s Razor) which can be tested statistically in the light of the resources available. Future studies, however, would benefit from testing nonrecursive
relationships between multiple dimensions of threat of victimization utilizing different components (i.e., prevention behavior, protective behavior).

Despite these limitations, by expanding Rader’s (2004) reconceptualization, Study 1 developed and empirically tested a nonrecursive model of threat of victimization, concurrently involving perceived risk, perceptions of unsafety, fear of crime, and avoidance behavior. It appears that this is the first piece of research to utilize CBT, a psychology-based epistemology, to understand the causes and consequences of threat of victimization, filling a long-standing theoretical gap. Moreover, the present nonrecursive model challenges predominant recursive models and nonrecursive frameworks involving only bivariate DVs in the fear of crime literature. Understanding tertiary students’ feelings of threat of victimization is of special interest because they are part of country’s future.
CHAPTER 4
STUDY 2: TESTS OF MEASUREMENT EQUIVALENCE ON THREAT OF VICTIMIZATION, INTERNATIONAL VERSUS LOCAL TERTIARY STUDENTS

Chapter 4 reports on Study 2, which aims to assess the measurement equivalence of cohorts of international and local tertiary students, on eight latent constructs developed and tested in Study 1. This chapter provides a review of literature on international students, highlighting the difficulties, crimes, and threat of victimization encountered by this sector. The present methodology is described, followed by a report on results and a discussion of salient findings.

Study 1 examined key personal and community-level factors driving tertiary students’ threat of victimization, accommodated within a nonrecursive model. However, a number of questions relating to the impact of ethnicity on threat of victimization remain unanswered. Extending Study 1, Study 2 aims to explore differences between international and local students on their social-demographics, direct victimization, and measurement equivalence on eight latent constructs tested in Study 1. These eight constructs are fear of crime, perceived risk, perceptions of unsafety, avoidance behavior, social disorder, social integration, protective ability, and confidence in police. Two main research questions drive this investigation: Do international and local tertiary students differ on their levels of threat of victimization? Alternatively, are the latent constructs tested in Study 1 invariant across two cohorts? If constructs are not invariant, where do these differences across cohorts lie?

Over the previous three decades, the number of students enrolled outside their country of citizenship has risen dramatically, from 0.6 million worldwide in 1975 to 2.9 million in 2006, a more than fourfold increase (OECD, 2008). Taking Australia as an example, in 2005, the number of overseas visitors for educational purposes was 375,000, representing approximately 18% of all Australian higher education students (DEST, 2005), more than double the number 137,000 education arrivals in 1995, and more than ten times the number (30,000) that arrived in 1985 (ABS, 2007). In 2008, international
enrolments (543,898) exceeded 500,000 in a calendar year (AEI, 2009). However, international education is not always a win-win situation (Marginson et al., 2010).

Crimes perpetrated against international students have been reported internationally, contributing to heightened levels of threat of victimization among on-shore and prospective students, threatening the educational reputation of a host country (Marginson et al., 2010). For example, in 2009, following a number of racially-oriented physical attacks against subcontinental Indian international students and subsequent protests in support of international students’ safety (Millar, 2009; Millar & Doherty, 2009), a sizeable proportion of Indian students terminated their study in Australia (Das et al., 2009; Mercer, 2010). In the subsequent semesters of 2009 and 2010, international students’ visa applications to Australia dropped by 50% mainly due to the reported violence (Das, 2010; Rao, 2010). Enrolments in tertiary education in 2009-10 from India was only 13.5% (AEI, 2010c), in comparison with 27.7% in 2005 (ABS, 2007). When compared with 2008-09, enrolments from India increased by just 0.7% and commencements fell by 6.1% (AEI, 2010c). In New Zealand, the number of international students fell from 126,919 in 2002 to 90,934 in 2007 (28.4%), partly in response to student safety issues (Marginson et al., 2010). Another example is a significant decrease in the number of Chinese students studying in Malaysia because of increasing reports of Chinese students being insulted, raped, or even murdered (Robby, 2005).

It can be argued that crimes perpetrated against international students might be viewed as selective and case sensitive; and declines in student visa applications can be attributed, in part, to the current global financial crisis. Crimes encountered by international students however, are a potential threat to international education, and thus should not be ignored. Safety is an important hygiene factor influencing prospective and onshore international students (AEI, 2007). In an Australian Education International 2007 Survey, safety was ranked as the second most important reason for choosing Australia (AEI, 2007), nominated by 87% of participants. For Indonesians (94%), Continental Indians (93%), and Singaporeans and Malaysians (90%), it was the top ranked reason. Surprisingly, studies (Forbes-Mewett & Nyland, 2008; Li, 2008;
Marginson et al., 2010) involving international students’ threat of victimization are highly underrepresented, with qualitative approaches predominating. Within this context, Study 2 compares international and local tertiary students on their levels of threat of victimization and perceptions of social and environmental characteristics. Students are differentiated on the basis of their reported student visa status. Methodologically, when comparing cross-cultural or multiple groups, testing measurement equivalence is an imperative, thus, the central interest of Study 2. The following section provides a discussion on theoretical conceptualizations underpinning this investigation.

THEORETICAL CONCEPTUALIZATION

As considered in Chapter 2, the culture shock thesis (Beck, 1963, 1964, 1976), the subcultural-diversity model (Merry, 1981), and the group position thesis (Blumer, 1958) underpin Study 2. The culture shock thesis has been used widely to investigate international students’ psychological, social, cultural, and academic adjustment in host countries, positing that those who have been suddenly transplanted abroad are predisposed to anxiety resulting from losing familiar signals and symbols of social connections (Oberg, 1954). While originally focusing on a dominant group’s beliefs about status and entitlement, the group-position thesis has been extended to propose that ethnic minority groups tend to perceive dominant ethnic groups as threatening (Bobo & Hutchings, 1996). The subcultural-diversity model advocates that fear of crime results primarily from individuals’ worries about people from different cultural and ethnic backgrounds (Merry, 1981).

These three models provide theoretical rationales for undertaking the present comparative approach, addressing the important role of ethnicity and/or culture in constructing different levels of threat of victimization. Although the culture shock thesis has not been applied in the fear of crime area, as yet, the other two models provide a valid and reliable base for interpreting threat of victimization. It should be noted however that, testing these three models is not the purpose of Study 2. The following section provides an in-depth review of literature on international students, suggesting that this line of inquiry is not only relevant, but also timely.
LITERATURE REVIEW

Perhaps not surprising, there is an extensive body of literature base on international students (Bonazzo & Wong, 2007; Simpson & Tan, 2008), emanating from different perspectives (i.e., economic, psychological, cultural). Given this breadth of literature, it is imperative to review associated definitions, to contextualize international education markets, to examine mainstream research, and to report upon difficulties, crimes, and threat of victimization encountered by this population, as discussed below.

Who are International Students?

A review of the pertinent literature (Marginson et al., 2010; Vistawide, 2010; Zhou et al., 2008) fails to provide a consistent definition of what is meant by international students. Confounding this problem is the observation that terms international, overseas, internationally mobile, and foreign students are used interchangeably. Moreover, countries differ in their conceptions and criteria of what is an international student (UNESCO, 2006). As a case in point, the Australian Bureau of Statistics (ABS) places significant weight on the notion of overseas visitors arrivals for education, referring to overseas arrivals where education has been nominated as the main purpose of the journey, without regard to whether a student visa is held, including arrivals by New Zealand citizens and other people who do not require student visas (such as people undertaking short-term study) (ABS, 2007, p. 109).

The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines international students as those who have crossed a national or territorial border for the purpose of education and are now enrolled outside their country of origin (UNESCO, 2008, p. 285). The UNESCO definition has been used by a number of studies (Fritz et al., 2008), and is thus adopted by the current thesis. This definition identifies international students as those who are not citizens or permanent residents of, or those who have received their upper secondary education and enrolled in tertiary programs in, a host country in which they pursue their studies (UNESCO, 2006). Students in short exchange programs of one-year or less are excluded. The UNESCO definition marks a departure from a traditional understanding of foreign students which has a negative connotation (Pedersen, 1991; Spencer-Rodgers, 2001) and is based upon
a criterion of citizenship (UNESCO, 2008). According to Organisation for Economic Co-operation and Development (OECD), foreign students includes permanent residents in the country of study as a result of immigration – their own or that of their parents (OECD, 2010, p. 311).

Global International Education Market

This section provides a brief overview of the global international education market. Cross-national education and research are crucial for the 21st century (Das, 2008). The OECD (2010) noted that the general trend towards freely circulating capital, goods and services, coupled with changes in the openness of labour markets, has translated into growing demand for international sharing of education and training. As world economies become increasingly interconnected, the international skills needed to operate on a global scale have become increasingly important (p. 310). The economic impact of the internationalisation of tertiary education goes beyond short-term economic benefits, providing opportunities for host countries to improve the cost-efficiency of education; to recruit highly skilled immigrants; to redistribute labour forces within common labour markets; to engage in international activities for educational reputation building; and to optimize educational programs (OECD, 2010).

Students travel and study abroad for a multitude of reasons, including receiving a high grade education, career development and enhancement, experiencing different cultures, and migration (Constantine et al., 2005; Mazzarol & Soutar, 2002, 2008). The number of students enrolled outside their country of citizenship has raised dramatically, a 70% increase from 2000-2009, with an average annual grow of 9% (OECD, 2010). In 2008, the number of enrolments by foreign students worldwide was over 3.3 million, more than fourfold increase compared to 0.8 million in 1975 (OECD, 2010).

According to the OECD (2010), in 2008, the six top countries sharing the international education market were US (18.7%), UK (10%), Germany (7.3%), France (7.3%), Australia (6.9%), and Canada (5.5%). Russian Federation (4.3%) replaced Japan (3.8%) as the 7th ranked nation. The US remains the leading exporter in terms of size and power of attraction, despite focusing on international student quality rather than quantity.
(Marginson et al., 2010). It should be noted that figures for Australia, the UK, and the US stand for international students. In regard to international tertiary students mobility, Australia (20.6%), Austria (15.5%), New Zealand (12.9%), Switzerland (14.1%), and UK (14.7%) predominate. Notably, China and India lead among countries of origin of international students.

Recruitment of international students has brought substantial and diverse benefits to host countries (ABS, 2007; Andrade, 2006), making significant contributions to economies, employment, cultural diversity, and optimizing educational programs quality (ABS, 2007; Braley et al., 2008). Undoubtedly, internationalisation of higher education enriches universities by helping staff, students, and institutions to create personal, cultural, and intellectual relationships with universities and businesses in other countries (Das, 2008). In relation to the exports of educational services in English-speaking nation from 2000 to 2005, the US was the largest export earner with US$14.1 billion, well ahead of the UK ($6.1 billion) and Australia ($5.6 billion) (Marginson et al., 2010). Given the economic, academic, cultural, national, and global importance, it is not surprising that international students have attracted a heightened research interest (Shupe, 2007; Wei et al., 2007).

**Australian Market**

Australia has experienced a dramatic rise in popularity (Cohen, 2003). From 1985 to 2005, the number of international students multiplied three times worldwide, but over 12 times in Australia (Marginson et al., 2010). Between 1990 and 2008, the number of enrolments by international students in Australian institutions grew from 25,000 to 543,898 (AEI, 2009). In terms of the higher education sector, compared with 2008, international student enrolments increased by 12.1% to 203,324 in 2009, with an average annual growth rate of 5.7% since 2005 (AEI, 2010c). International student enrolments and commencements in higher education 2005-2008 show similar trends. Asia leads among regions of origin of international students, with 83.2% of enrolments and 82.0% of commencements in higher education in 2009 (AEI, 2010c). Respectively, China and India attracted the highest number of enrolments (31.7%; 13.5%) and commencements (33.8%; 12.6%).
Full-fee paying overseas students are an important source of revenue for Australian universities, represented 15% of all revenue within the higher education sector in 2005 (DEST, 2005). Education services provided in Australia to overseas students were valued at $17.3 billion in export earnings in the financial year 2008–09 (AEI, 2010a); making it Australia’s fourth largest export dollar earner after coal, iron ore, and gold (AEI, 2009). Of this return, $16.6 billion was generated by onshore students (AEI, 2008), with 22% from Mainland China alone (ABS, 2008). In the financial year 2009-10, international education activities contributed $19.1 billion, $10.6 billion of which was generated by the higher education sector (57.4% of total on-shore earnings). Education service was ranked as Australia’s largest services export industry in 2009-10 (AEI, 2010a).

Education exports are particularly significant for a number of Australian states. New South Wales and Victoria, respectively, had the highest proportions of enrolments (33.8%; 31.5%) and commencements (32.9%; 31.1%) in 2009 (AEI, 2010c). In 2009-10, export income generated in New South Wales by education services was $6.8 billion, 36.9% of which came from onshore students (AEI, 2010b). Export income in Victoria and Queensland was $5.9 billion and $2.8 billion, respectively. In Victoria, international education exports constituted the state’s biggest export earner in 2007-08, contributing $4.45 billion (ABS, 2008). Education is one of the main industries in a number of regional centres. Take Bendigo as an example, more than $3 million dollars of direct economic activities was attributed to an influx of only 232 tertiary international students (Yao & Bai, 2008).

Despite the importance of this sector, a growing perception is that Australia’s international students have been exploited and neglected (Marginson et al., 2010). According to Das (2008), a sizeable and vocal minority are furious about ... callous lack of welfare support for students navigating their way through a crippling lack of affordable housing, workplace exploitation, cultural roadblocks and threats to personal safety ... fears among education experts that negative publicity overseas and within Australia about the plight of international students could start a reputational bushfire with serious ramifications for the international market (p. 3). Prior to discussing
difficulties and crimes experienced by this group, the following section reviews mainstream research on international students.

**Mainstream Research on International Students**

This section provides a brief review of literature on international students’ adjustments from affective, behavioral, and cognitive perspectives. Studies (Bonazzo & Wong, 2007; Zhou et al., 2008) driven by cognitive approaches propose that cross-cultural adjustment relies on international students’ ability to make sound attributions about cultural values, beliefs, behaviors, and norms of a host society, concentrating on inter-group perceptions and relations. International students ineffectively use their own culture to interpret, judge, and behave in a new culture, thus increasing the likelihood of interpreting perceived events as prejudicial, discriminatory, or threatening when interacting with host nationals.

Behavioral-based perspectives suggest that culture shock occurs when international students are unfamiliar with systems of rewards and punishment associated with verbal and nonverbal behaviors in a host culture (Adrian-Taylor et al., 2007; Chapdelaine & Alexitch, 2004; Shupe, 2007). On one side, behaviors that are positively reinforced in a home country can elicit aversive stimuli in a host country. On the other, international students can benefit socially, psychologically, and academically from their interactions with host nationals (Ho et al., 2007).

Affective-based views demonstrate that international students suffer from severe affective, psychological, social, and/or cultural adjustments (Abbasi & Stacks, 2007; Hechanova-Alampay et al., 2002; Khawaja & Dempsey, 2008). Psychological adjustment relates to international students’ feelings of well-being in a host culture such as experiences of cultural dissimilarities, feelings of loneliness, and anxiety (Fritz et al., 2008; Sawir et al., 2007; Wang & Mallinckrodt, 2006). Social adjustment concerns international students’ ability to interact effectively with host members, in the face of having an appropriate level of cultural knowledge about a host country and/or strong home-based cultural identity that would make it less likely to adapt to a host culture (Atri et al., 2007; Chapdelaine & Alexitch, 2004).
From a methodological perspective, Shupe (2007) classified investigations into three main streams: treating adjustment as an independent variable or predictor to examine consequences of living in another culture, such as sociological and psychological adjustment (Ward et al., 2001; Ward et al., 1998); viewing adjustment as a DV to test factors contributing to successful adaptation; and investigating dynamic natures of adjustment, for example, the U-curve theory (Ward et al., 1998). The following section highlights a number of difficulties experienced by international students.

**Difficulties Encountered by International Students**

A review of the salient literature (Poyrazli & Lopez, 2007; Sawir et al., 2007) suggests that international students experience a wide range of difficulties similar to and/or different from their local peers. Similar problems include distress, academic challenges, and identity conflicts related to personal development in late adolescence and early adulthood (Khawaja & Dempsey, 2008; Ward et al., 2001). As well, international students encounter difficulties usually not found, or of a less serious nature, in the indigenous student population, such as language challenges (Poyrazli & Lopez, 2007), feelings of homesickness (Li & Kaye, 1998) and loneliness (Sawir et al., 2007), utilization of dysfunctional coping strategies (Khawaja & Dempsey, 2008), a lack of social support (Li & Kaye, 1998), accentuated levels of incongruence between expectations and experiences of university life (Khawaja & Dempsey, 2008), and negative life events (Jung et al., 2007; Lee & Rice, 2007).

These heterogeneous difficulties can be attributed in part to geographical (Khawaja & Dempsey, 2008) and cultural distance gaps (Hechanova-Alampay et al., 2002) between students’ home countries and host nations. The more different or novel a host culture is to a student’s home culture, the more difficult are the adjustments (Hechanova-Alampay et al., 2002; Parker & McEvoy, 1993). Overall, students from Asia and other developing countries tend to experience more difficulties than those from Western Europe (Li & Kaye, 1998). One possible explanation is that students from Asia hold collectivistic orientations (Triandis, 1999) that promote inhibition and restraint (Khawaja & Dempsey, 2008). Also, intrapersonal (e.g., sense of loss) and interpersonal factors (e.g., stress) cause problems (Sandhu & Asrabadi, 1994). All non-citizen students who cross borders
for study face common issues and problems (Marginson et al., 2010), although individuals differ from the magnitude and extent of difficulties as well as associated consequences (Forbes-Mewett & Nyland, 2008).

In summary, international students tend to be exposed to a number of vulnerabilities, and can suffer from severe cognitive, psychological, social, cultural, and behavioral adjustment difficulties (Jung et al., 2007). Literature (Lee, 2006) suggests that these difficulties stem from international students’ inability to adapt or to adjust to local cultures, assuming that students themselves are solely responsible for overcoming these challenges. However, a number of studies (Lee, 2006; Marginson et al., 2010) allude to or even highlight the ways in which locals or host institutions inadvertently or purposely foster a hostile or unfriendly environments that marginalize international students (Das, 2010; Mercer, 2010; Rao, 2010). The following section highlights crime perpetrated against international students.

**Crimes Perpetrated Against International Students**

International students do not always enjoy full security and safety in a host country (Marginson et al., 2010). In recent times, crimes perpetrated against international students have been reported extensively in the electronic and print media (Das, 2009, 2010; Illing, 2005; Millar, 2009), raising public and academic awareness, questions about racially-oriented victimization, and a need for appropriate preventative strategies. These crimes culminate in murder (Green & Rood, 2005; Li, 2008), racially-oriented violence and physical attacks (ABC, 2009; Millar, 2009; Millar & Doherty, 2009; Teferra, 2007), theft (Allen, 1999; Ho et al., 2007; Levett, 2008), sexual assaults (Robby, 2005), and ethnically-oriented discrimination and neo-racism (Hanassab, 2006; Lee, 2006; Lee & Rice, 2007).

Hate crime, racial profiling, and neo-racism are the most frequently experienced types of victimizations reported by international students (Lee, 2006; Marginson et al., 2010). Criminals are inclined to choose suitable targets on the basis of victims’ race (actual or perceived), national origin, ethnicity, sexual orientation, disability, or gender. Racial profiling by law enforcement officers involves identifying perpetrators, potential or
other on the basis of ethnicity, national origin, or race, rather than behavior. Neo-racism justifies discrimination on the grounds of cultural differences or national origin rather than physical characteristics alone (Lee, 2006).

Countries hosting international students differ in regard to crime rates and reputation as a safe place to study and live (Marginson et al., 2010). Despite its popularity, the US has been identified as an unsafe country with high crime rates. Safety and security issues became important after September 11, 2001, leading to a number of Arab Students in US heading home owing to growing hostility (McMurtrie, 2001). In Russia, there is a proliferation of reports relating to hate crime. For example, a number of African students were beaten brutally, maimed, and killed by a fringe neo-Nazi group in 2006 (Teferra, 2007). There are reports of international students being attacked violently in the Ukraine (MacWilliams, 2004). In New Zealand, international student safety is a long-standing problem, culminating in murder, violence, kidnapping, traffic offences, extortion, and drug- and sexual-related crimes (Ho et al., 2007; Li, 2008).

Australian universities have long emphasized their country’s relatively low rates of gun-related violence, especially when compared with the US (Cohen, 2003), the marketing strategy of which has played a prominent role in attracting international students. However, reality and reputation do not always coincide (Marginson et al., 2010). Crimes perpetrated against international students have been reported extensively by the mass media (Mercer, 2010; Millar & Doherty, 2009) and in academic publications (Marginson et al., 2010). International students rated Sydney and Melbourne as the most unfriendly and unsafe Australian liveable cities. Levett (2008) surveyed 100 Chinese students studying in Sydney, and reported that more than one in four had been a victim of crime: 20 had been burgled at home, six had been robbed, with several at knifepoint. As a case in point, Chinese student, Cao Zhongjun, was attacked by several Australian youth for so-called curry bashing, a concept referring to assault and robbery of foreign students (Green & Rood, 2005).

As noted earlier, in 2009, a number of violent attacks against subcontinental Indian international students (Millar, 2009) triggered protests in support of international
onshore students safety (Millar & Doherty, 2009). Indian government warned prospective and onshore Indian students about their safety and security issues in Australia (Mercer, 2010). These reports and warnings culminated in a sharp drop in applications to study in Australia, orchestrating a national debate on racism and whether Australia is a preferred education destination (Das, 2010; Rao, 2010). Apparently, international education is not always a win-win situation as suggested on graduation days (Marginson et al., 2010). With recent media attention dedicated to violence aimed at international students and the overall importance of this sector, it is timely to compare international students’ threat of victimization against their local counterparts. The following section describes the present method.

**Ethnicity and Threat of Victimization**

Utilizing ethnicity and/or cultural backgrounds to understand differences in levels of threat of victimization has become popular in recent times (Bennett & Flavin, 1994; Katz et al., 2003). In the fear of crime area, a number of studies (Kanan & Pruitt, 2002; LaGrange et al., 1992) involve comparisons between whites and nonwhites (e.g., blacks), with mixed findings being reported. Generally, ethnicity is viewed as one of the strongest predictors of fear of crime (Bennett & Flavin, 1994; Carmen et al., 2000). May and Dunaway (2000), Beck and Travis (2004), and Truman (2005) found that nonwhites express elevated levels of fear of crime. Ferguson and Mindel (2007), and LaGrange et al. (1992) however, argued that ethnicity influences fear of crime indirectly via perceived risk. Notwithstanding, Xu et al. (2005) noted a nonsignificant relationship between ethnicity and perceptions of unsafety. Kanan and Pruitt (2002) stated that blacks feel safer at night, but there are no significant differences between whites and blacks in relation to their levels of worry about crime and perceptions of neighborhood safety. Running against these trends, Giblin (2008) revealed that blacks tended to avoid going out at night or alone.

In terms of other ethnic minorities, Wayne and Rubel (1982) reported that minority students are more fearful than their white counterparts. Carmen et al. (2000) observed that Asian American and African American students enrolled at the University of Texas were more likely to express higher levels of fear of violence than Whites and Hispanics.
However, Delone (2008) argued that African American and Whites are less fearful than Hispanic and other minorities. Acierno et al. (2004) revealed that ethnic minority individuals express higher levels of fear of crime than Caucasians. Lane and Meeker (2004) found that Vietnamese and Latinos expressed higher levels of perceived risk than non-Hispanic Whites. Recently, Melde (2009) noted that Hispanic youth report higher levels of fear of crime than blacks and other minority individuals. Nonetheless, the aforementioned studies fail to assess for measurement equivalence. Furthermore, it seems that there is a limited number of studies (Ho et al., 2007; Li, 2008; Marginson et al., 2010) that have investigated international students’ threat of victimization, particularly when compared with their local peers. Study 2 fills this void. The following section describes the present method.

METHOD

Study 2 utilizes the same data set collected for Study 1, but differentiates participants on the basis of their student visa status: either international or local. This section describes participants, measures, and statistical procedures. Issues relating to the TVQ and associated measures, data collection procedures, common method bias, instrument validity, and ethical consideration were discussed in Study 1, and will not be repeated here.

Participants

1170 tertiary students were classified as either international (n=591) or local (n=579) on the basis of their self-reported student visa status. It is arguable whether permanent residents should be classified into local or international cohorts. On the basis of the UNESCO (2006, 2008) definition however, international students are citizens of another country holding a student visa. Local students include Australia citizens (Australia-born and immigrant) and Permanent Residents.

Table 4.1 shows socio-demographical characteristics and percentages of students reporting having been victimized directly over the previous 12 month (or since their arrival in Melbourne), categorized into local and international cohorts. A number of
tests (e.g., t test, Chi-square) were run to assess for any differences between two groups on their socio-demographics and victimizations. As expected, international students differ significantly from their local counterparts on length of residence, $t(924.51) = 31.58, p<.05$; English proficiency, $t(742.94) = 14.82, p<.05$; and education, $t(989.08) = -6.153, p<.05$, with a significantly higher number of international students undertaking postgraduate qualifications (7.3% versus 1.6%). There are no significant differences between cohorts on age, gender, and self-reported health.

In terms of direct victimization experience, both groups report relatively high levels of *having been cheated out of money* (20.3% versus 20.6%); and *having been attacked, threatened, or verbally abused owing to ethnic origin* (18.4% versus 27.1%). Perhaps not surprisingly, crosstabulations (Table 4.1) show that significantly, more local students report *having their car stolen or things stolen from their car* (5.0% versus 10.0%); and *having been attacked, threatened, or verbally abused owing to ethnic origin* (18.4% versus 27.1%).

**Measures**

Measures assessed in Study 2 are eight latent variables investigated in Study 1, involving fear of crime (Ferraro, 1995; Moore & Shepherd, 2007), perceived risk (Ferraro, 1995), perceptions of unsafety (Killias & Clerici, 2000; Tulloch, 2000), avoidance behavior (Ferraro, 1995; Gates & Rohe, 1987; Giblin, 2008), social disorder (Evans & Fletcher, 2000; LaGrange et al., 1992), social integration (Adams & Serpe, 2000; Gibson et al., 2002), protective ability (Adams & Serpe, 2000; Wurff et al., 1989), and confidence in police (Evans & Fletcher, 2000). The description of these eight constructs is provided in Study 1, the Threat of Victimization Questionnaire section, and is not repeated, here.
Table 4.1  Descriptive Statistics on Students’ Demographic Characteristics and Percentage of International versus Local Students Reporting Having Been Victimized Directly

<table>
<thead>
<tr>
<th>Demographics/Direct Victimization</th>
<th>International % (n=558)</th>
<th>Local % (n=549)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>under 20</td>
<td>43.0</td>
<td>57.0</td>
</tr>
<tr>
<td>21-25</td>
<td>40.0</td>
<td>25.1</td>
</tr>
<tr>
<td>26 Plus</td>
<td>17.0</td>
<td>17.9</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>39.2</td>
<td>44.4</td>
</tr>
<tr>
<td>Female</td>
<td>60.8</td>
<td>55.6</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>98.4</td>
<td>92.7</td>
</tr>
<tr>
<td>Postgraduate Degree (e.g., MBA and Doctorate)</td>
<td>1.6</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Length of Residency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 6 months</td>
<td>37.3</td>
<td>6.4</td>
</tr>
<tr>
<td>Between 6 and 12 months</td>
<td>30.6</td>
<td>8.4</td>
</tr>
<tr>
<td>1-2 years</td>
<td>31.9</td>
<td>21.5</td>
</tr>
<tr>
<td>More than 3 years</td>
<td>0.2</td>
<td>63.8</td>
</tr>
<tr>
<td><strong>English Proficiency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Fluent</td>
<td>8.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Fluent</td>
<td>32.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Very Fluent</td>
<td>58.8</td>
<td>95.3</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>9.3</td>
<td>10.6</td>
</tr>
<tr>
<td>Good</td>
<td>39.8</td>
<td>34.1</td>
</tr>
<tr>
<td>Excellent</td>
<td>50.9</td>
<td>55.3</td>
</tr>
<tr>
<td><strong>Direct Victimization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having your room broken into while you are there</td>
<td>4.5</td>
<td>4.7</td>
</tr>
<tr>
<td>Being physically attacked (e.g., assaulted or kidnapped)</td>
<td>5.9</td>
<td>8.1</td>
</tr>
<tr>
<td>Having your car stolen or things stolen from your car*</td>
<td>5.9</td>
<td>10.0</td>
</tr>
<tr>
<td>Having your room broken into while you are away</td>
<td>6.6</td>
<td>7.8</td>
</tr>
<tr>
<td>Being robbed or mugged</td>
<td>7.3</td>
<td>7.7</td>
</tr>
<tr>
<td>Being raped, sexual assaulted, or harassed</td>
<td>8.0</td>
<td>5.9</td>
</tr>
<tr>
<td>Being attacked/harassed, threatened, or verbally abused owing to ethnic origin **</td>
<td>18.4</td>
<td>27.1</td>
</tr>
<tr>
<td>Being cheated out of money</td>
<td>20.3</td>
<td>20.6</td>
</tr>
</tbody>
</table>

**Note.** 63 cases were eliminated as over 10% of data were missing (Hair et al., 2010). *p<0.05.  **p<0.01.  ***p<0.001.  p values are based on two-tail tests.
Statistical Procedures

When undertaking cross-cultural or multiple group studies, comparisons are meaningful only when constructs from different cohorts are invariant. Multiple group confirmatory factor analyses with covariance and mean structures were used to test whether the same constructs were measured across international and local tertiary students (Byrne, 2010; Vandenberg & Lance, 2000). Measurement invariance/equivalence, tests for associations of observed scores to the latent variable(s), is one of the biggest challenges when comparing different cultural or ethnic minority groups (Chen & West, 2008; Dumka et al., 1996). According to Byrne (2010), terms equivalence and invariance are interchangeable. Testing for measurement invariance can be used to detect potential bias in cross-cultural/group comparisons, such as the degree of construct overlap in different cultures, differential item function, response styles, social desirability, social deprivation, varying reference points in responding, and differential random variation across different groups (Chen & West, 2008, p. 264).

According to Anderson and Gerbing (1988), and Vandenberg and Lance (2000), measurement invariance should be tested prior to structural invariance (tests of associations of latent variables with each other), as it is important to understand what one is measuring before testing associations among what is measured. Accordingly, a five-stage approach was undertaken for the present comparisons, involving baseline model development; omnibus test; and testings for configurational, metric, and scalar invariance. Appendix 4.1 shows a flowchart of the present tests of measurement equivalence, as proposes by Vandenberg and Lance (2000). The following section discusses these five stages in some detail.

Stage 1: Baseline model development

According to Byrne (2010), the determination of a baseline model for each group should be undertaken prior to an omnibus test. Baseline model represents the one that best fits the data from the perspectives of both parsimony and substantive meaningfulness (Byrne, 2010, p. 199). The estimation of baseline models involves no between-group constraints, the data of which can thus be analysed respectively. It is noteworthy that because instruments are often group specific in the ways they operate, it
is possible that these baseline models might not be completely identical across groups (Byrne, 2010). In contrast to the CFAs of Study 1 which involved deleting items to achieve model fit, a principle of developing a baseline model is to add error covariance in order to retain most representative items. Upon completion of baseline models, tests for measurement equivalence can be conducted across international and local students at each of several increasingly stringent levels (Byrne, 2010, p. 199).

Stage 2: Omnibus test

A general consensus holds that an omnibus test of equality of covariance matrices across groups should be conducted first (Jörekog, 1971; Vandenberg & Lance, 2000). When covariance matrices do not differ significantly across cohorts, measurement equivalence is established. Thus, further testing of measurement equivalence is not necessary. Nonetheless, this omnibus test often leads to contradictory findings with respect to equivalencies across groups, owing to a lack of baseline models for testing of invariant variance (Byrne, 2010).

Stage 3: Testing for configural invariance

When covariance matrices differ, configural invariance should be tested next. Configural invariance is a test of the null hypothesis that the a priori pattern of free and fixed factor loadings imposed on the measures’ components (e.g., items) is equivalent across groups (Vandenberg & Lance, 2000, p. 36). That is, an unrestricted model is specified in which each group has the same factor structure (e.g., the same item loaded on the same factor), but values of parameters (i.e., the factor loadings, intercepts) are allowed to be different. If factor loadings are not invariant across groups, further tests are unwarranted because observed measures represent different constructs within each group. Accordingly, an unconstrained model was specified to test configural invariance of whether a priori patterns of free and fixed factor loadings imposed on constructs are equivalent across international and local cohorts.
Stage 4: Testing for metric invariance

Although there is inconsistency regarding what constitute an appropriate sequencing of tests, most scholars (Chen & West, 2008) agree that metric and scalar invariance should be tested following configural invariance. Metric invariance, also named as factor loading invariance, is a stronger test of factorial invariance than is the test of configural invariance in that in addition to specifying an invariant factor pattern, loadings of like items within that pattern are now constrained to be equal (Vandenberg & Lance, 2000, p. 37). When this level of invariance is achieved, either fully or partially, regression slopes or change scores across groups can be compared (Cheung & Rensvold, 2002; Vandenberg & Lance, 2000). Hair et al. (2010) suggested that for each construct, partial invariance needs at least two loading estimates to be equal across cohorts.

Stage 5: Testing for scalar invariance

Test for scalar invariance, often termed intercept invariance across groups, are one of the least frequently conducted tests (Vandenberg & Lance, 2000). When testing for scalar invariance, intercepts of measured variables are constrained to be equal across groups, in addition to constraining equal factor loadings. By comparing metric with scalar invariance models, testings for whether intercepts (e.g., origin of a scale) are the same across cohorts can be met. When measurement invariance is achieved at the scalar level, mean differences between different populations can be compared. When constructs possess full or partial scalar invariance across groups, further tests of factor variance and covariance can proceed (Cheung & Rensvold, 1999; Vandenberg & Lance, 2000).

Goodness-of-fit Indices

In order to assess baseline model fit, the $\chi^2$ statistics and goodness-of-fit indices as discussed in Study 1 were used. Furthermore, the $\chi^2$, CFI, RMSEA, and SRMR differences were utilized to compare configural, metric, and scalar invariance models. A significant $\chi^2$ difference between two nested models implies a lack of invariance at the tested level. However, as $\chi^2$ difference statistics are sensitive to sample size and violations of multinormality, changes in CFI, RMSEA, and SRMR were also used.
According to Byrne (2010), and Chen and West (2008), the cut-off points are: .01 for CFI, .015 for RMSEA, and .03 for SRMR when testing for metric (loading) invariance; .01 for CFI, .015 for RMSEA, and .01 for SRMR when testing for scalar (intercept) invariance. The following section reports on results with respect to these five stages.

**RESULTS**

This section reports multiple group analyses results for eight latent constructs: fear of crime, perceived risk, perceptions of unsafety, avoidance behavior, social disorder, social integration, protective ability, and confidence in police. Appendix 3.2 shows the exact wording of associated items for these variables. Table 4.2 shows goodness-of-fit statistics in determination of baseline models for each construct. Table 4.3 summarizes fit statistics for configural, metric, and scalar invariance models across international and local students. Table 4.4 shows intercepts across cohorts on all constructs. The following section reports on the present findings.

**Fear of Crime**

After deleting item FC2 and specifying error covariances between items (FC4 & FC5, FC1 & FC2), a baseline model of fear of crime (Figure 4.1) was developed for international and local students. Goodness-of-fit indices are: \( \chi^2(12)=31.88, \text{CFI}=.991, \text{RMSEA}=.055 \) with PCLOSE=.328 for local students; and \( \chi^2(12)=42.26, \text{CFI}=.988, \text{RMSEA}=.067 \) with PCLOSE=.088 for international cohorts (Table 4.2). The omnibus test is significant, indicating that data do not support the structural covariances model, \( \chi^2(35)=236.95, p=.000. \)
A model for configural invariance fits the data well, $\chi^2(24)=74.14$, $p<.001$; RMSEA=.043; SRMR=.025; CFI=.989 (Table 4.3). There is significant $\chi^2$ difference between factor loading invariance and configural invariance models, $\Delta\chi^2=779.14$ ($\Delta df=6$). As indicated earlier, $\chi^2$ difference statistics are sensitive to sample size and violations of multinormality. In terms of other goodness-of-fit indices, there are no significant increases in CFI (.989 vs. .988), RMSEA (.043 vs. .041), and SRMR (.025 vs .023), indicating that factor loadings are invariant across international and local students. In relation to scalar invariance, there are significant changes in $\chi^2$ ($\Delta\chi^2=576$, $\Delta df=7$), CFI (.988 vs. .949), RMSEA (.041 vs. .077), and SRMR (.023 vs. .026), demonstrating that intercepts are different across both cohorts. Further inspection shows that intercepts are higher for international students than for their local counterparts on all of the seven tested items (FC1, FC2, FC4, FC5, FC6, FC7, FC8).

**Perceived Risk**

A baseline model of perceived risk was developed after deleting items PR3 and PR2, and specifying error covariances between items (PR4 & PR5, PR6 & PR8, PR1 & PR4), as shown in Figure 4.2. Goodness-of-fit indices are: $\chi^2(6)=3.18$, CFI=1.00, RMSEA=.000 with PCLOSE=.987 for local students; and $\chi^2(6)=19.95$, CFI=.992, RMSEA=.065 with PCLOSE=.189 for international cohorts (Table 4.2).
Figure 4.2 Modified Baseline Model of Perceived Risk

An omnibus test is significant, $\chi^2(27)=149.99$, $p=.000$, suggesting a need for further testing of configural invariance. As shown in Table 4.3, the configural invariance model fits the data adequately, $\chi^2(2)=.179$, $p>.05$; RMSEA=.000; SRMR=.004; CFI=1.000. A comparison between configural and metric invariance models reveals that there are no significant changes in $\chi^2$ difference ($\Delta \chi^2=3.11$, $\Delta df=5$), CFI (.997 vs. .997), RMSEA (.029 vs. .022), and SRMR (.015 vs. .017), demonstrating that factor loadings are invariant across international and local participants. Nonetheless, comparisons between metric and scalar invariance shows significant changes in $\chi^2$ (26.24 vs. 129.21), CFI (.997 vs. .967), and RMSEA (.022 vs. .065), indicating that intercepts differ between groups, with intercepts being significantly higher for international students than for their local counterparts on 5 (PR1, PR4, PR5, PR7, PR8) of the six tested items.

Perceptions of Unsafety

An hypothesized model with four items (PU1, PU2, PU3, PU4) fits the data well for international and local students, respectively. Goodness-of-fit indices are: $\chi^2(2)=.42$, CFI=1.00, RMSEA=.000 with PCLOSE=.945 for local students; and $\chi^2(2)=2.68$, CFI=.999, RMSEA=.025 with PCLOSE=.640 for international cohorts (Table 4.2). An omnibus test is significant, $\chi^2(14)=166.69$, $p=.000$. There are no significant changes in the $\chi^2$ difference ($\Delta \chi^2=5.34$, $\Delta df=3$), CFI (1.00 vs. .999), RMSEA (.000 vs. .014), and SRMR (.014 vs. .015) between metric and configural invariance models, indicating that
factor loadings are invariant across cohorts. However, comparisons involving metric and scalar invariance reveal significant changes in $\chi^2$ (8.44 vs. 152.14), CFI (.907 vs. .999), RMSEA (.014 vs. .108); but nonsignificant differences on SRMR (.015 vs. .015), suggesting that intercepts are different across groups, with international students expressing higher levels of perceptions of unsafety than their local peers on the four tested items.

**Avoidance Behavior**

A baseline model of avoidance behavior with four items (AB1, AB2, AB3, AB4) fits the data adequately. Goodness-of-fit indices are: $\chi^2(2)=3.53$, CFI=1.00, RMSEA=.000 with PCLOSE=.945 for local students; and $\chi^2(2)=2.68$, CFI=1.00, RMSEA=.000 with PCLOSE=.809 for international students (Table 4.2). An omnibus test is significant, $\chi^2(14)=160.51$, $p=.000$, suggesting a further test of configural invariance. As shown in Table 4.3, there are significant $\chi^2$ difference ($\Delta\chi^2=107.12$, $\Delta df=4$), but no significant increases in CFI (1.00 vs. .992) and SRMR (.024 vs. .019), indicating that factor loadings are invariant across cohorts. In terms of comparisons between factor loadings and intercepts models, there are significant changes in $\chi^2$ (26.13 vs. 133.25), CFI (.992 vs. .948), and RMSEA (.050 vs. .101), demonstrating that international and local students differ on intercepts. Further inspection shows that intercepts are higher for international students than for their local counterparts on four tested items.

**Social Disorder**

After deleting item SD2 and specifying an error covariance between items SD4 and SD5, a baseline model of social disorder was developed, as shown in Figure 4.4. Goodness-of-fit indices are: $\chi^2(4)=15.77$, CFI=.992, RMSEA=.073 with PCLOSE=.128 for locals; and $\chi^2(4)=13.49$, CFI=.993, RMSEA=.065 with PCLOSE=.212 for the present international cohorts (Table 4.2).
Figure 4.3 Modified Baseline Model of Social Disorder

An omnibus test is significant, $\chi^2(20) = 144.42, p = .000$. Comparisons between metric and configural invariance models suggest that there is significant $\chi^2$ difference, $\Delta \chi^2 = 17.71, \Delta df = 4$. However, there are no significant increases in CFI (.992 vs. .987), RMSEA (.049 vs. .051), and SRMR (.033 vs. .033), indicating that factor loadings are invariant across groups. In regard to intercepts invariance and factor loading invariance models, there are significant changes in the $\chi^2$ difference (46.97 vs. 141.97), CFI (.987 vs. .956), RMSEA (.051 vs. .081), and SRMR (.033 vs. .036), demonstrating that intercepts are different, with a higher level of intercepts on the five tested items (SD1, SD3, SD4, SD5, SD6) for local participants when compared with their international peers.

Social Integration

A baseline model of social integration is just identified. An omnibus test is significant, $\chi^2(9) = 223.06, p = .000$. Comparisons between configural and metric invariance models show that factor loadings are invariant across groups, $\Delta \chi^2 = .358, \Delta df = 2, \Delta CFI = 0.00, \Delta RMSEA = .002, \Delta SRMR = .024$. There are however, significant changes in $\chi^2$ (.358 vs. 220.76), CFI (.800 vs. 1.00), RMSEA (.180 vs. .198), and SRMR (.028 vs. .022), suggesting that international and local students differ on their reported levels of social integration. Further inspection indicates that intercepts are higher for local students than for their international counterparts on the three tested items.
Protective Ability

A baseline model of protective ability is also just identified. An omnibus test is significant, $\chi^2(9)=89.0$, $p=.000$. When comparing configural and metric invariance models, there are nonsignificant difference in changes in $\chi^2$ ($\Delta\chi^2=2.52$, $\Delta df=2$), CFI (1.00 vs. 1.00), RMSEA (.015 vs. .098), and SRMR (.008 vs. .005), revealing that factor loadings are invariant across international and local students. With respect to comparisons between metric and scalar invariance models, there are significant changes in $\chi^2$ (2.52 vs. 57.93), CFI (1.00 vs. .965), RMSEA (.098 vs. .100), and SRMR (.008 vs. .030), demonstrating that intercepts are different across two cohorts, with a higher levels of intercepts on all of the three tested items of protective ability for local students.

Confidence in Police

A baseline model of confidence in police is just identified. An omnibus test is significant, $\chi^2(9)=27.59$, $p=.001$. Comparisons between configural and metric invariance models show that factor loadings are invariant across groups, $\Delta\chi^2=107.12$, $\Delta df=4$, $\Delta$CFI=0.00, $\Delta$RMSEA=.003, $\Delta$SRMR=.000. When comparing metric and scalar invariance models, there appears to be nonsignificant changes in $\chi^2$ (5.05 vs. 1.48), CFI (1.00 vs. 1.00), RMSEA (.000 vs. .003), and SRMR (.008 vs. .008), suggesting that international and local students do not differ on intercept invariance. Because only variable of confidence in police shows scalar invariance across cohorts, further tests of factor variance and covariance are stopped (Vandenbergh & Lance, 2000).
<table>
<thead>
<tr>
<th>Models</th>
<th>Local Students</th>
<th>International Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\chi^2$</td>
<td>df</td>
</tr>
<tr>
<td>Fear of Crime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Hypothesized model with eight items</td>
<td>255.82***</td>
<td>20</td>
</tr>
<tr>
<td>2. Model 1 with FC2 deleted</td>
<td>119.91***</td>
<td>14</td>
</tr>
<tr>
<td>3. Model 2 with one error covariance specified (item FC4 and FC5)</td>
<td>47.80***</td>
<td>15</td>
</tr>
<tr>
<td>4. Model 3 with one error covariance specified (item FC1 and FC2)</td>
<td>31.88***</td>
<td>12</td>
</tr>
<tr>
<td>Perceived Risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Hypothesized model with eight items</td>
<td>212.40***</td>
<td>20</td>
</tr>
<tr>
<td>2. Model 1 with PR3 deleted</td>
<td>44.33***</td>
<td>14</td>
</tr>
<tr>
<td>3. Model 2 with one error covariance specified (item PR4 and PR5)</td>
<td>32.01**</td>
<td>13</td>
</tr>
<tr>
<td>4. Model 3 with one error covariance specified (item PR6 and PR8)</td>
<td>25.88*</td>
<td>12</td>
</tr>
<tr>
<td>5. Model 4 with PR2 deleted</td>
<td>8.37</td>
<td>7</td>
</tr>
<tr>
<td>6. Model 5 with one error covariance specified (item PR1 and PR4)</td>
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**Note.**  *p*<0.05, **p*<0.01, ***p*<0.001. *p* values are based on two-tail tests. CFT=Comparative fit index; RMSEA= root mean square error of approximation; SRMR=the standardized root mean square residual.
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**Note.** ***p<0.001. *p<0.05. p values are based on two-tail tests. CFI=Comparative fit index; RMSEA= root mean square error of approximation; SRMR=the standardized root mean square residuals.
### Table 4.4 Intercepts Difference between International and Local Students

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**Note.** See Appendix 3.2 for detailed wording corresponding to each item.
DISCUSSION

Driven by the culture shock thesis (Oberg, 1954, 1960), the subcultural-diversity model (Merry, 1981), and the group position thesis (Blumer, 1958), Study 2 compares international and local tertiary students by testing measurement invariance on eight constructs investigated in Study 1. Testing measurement invariance is important when comparing across cultural or ethnic groups. Comparisons can be fraught with problems when measurement invariance is not fulfilled (Pauwels & Pleysier, 2008). The following section provides a discussion on key findings and contributions to research and practice. Limitations of this investigation are outlined, along with suggestions for future research.

Key Findings

As expected, international students differ significantly from their local counterparts on length of residence, \( t(924.51)=31.58, p<.05 \); English proficiency, \( t(742.94)=14.82, p<.05 \); and educational levels, \( t(989.08)=-6.153, p<.05 \), with a significantly higher number of international students undertaking postgraduate qualifications (7.3% versus 1.6%). There are nonsignificant differences between cohorts on age, gender, and self-reported health. Perhaps not surprisingly, cross-tabulations show that significantly, more local students report having their car stolen or things stolen from their car (5.0% versus 10.0%); and having been attacked, threatened, or verbally abused owing to ethnic origin (18.4% versus 27.1%).

With respect to the present results, multiple-group analyses reveal that, when compared with their local counterparts, international students report significantly higher levels of threat of victimization. While local students express significantly higher levels of social integration, perceived social disorder, and self-assessed protective ability. Groups however, do not differ on their reported levels of confidence in police. Specifically, an omnibus test of equality of covariance matrices on all constructs is significant, suggesting a need for further tests for configural invariance (i.e., equality of factor structures). Models for configural invariance fit data adequately for each construct, indicating that unidimensional congeneric measurement models are plausible across cohorts.
Comparisons of models for configural and metric invariance reveal that factor loadings are fully invariant across international and local participants on all constructs. Comparisons of models for metric and scalar invariance show that except for confidence in police, intercepts differ significantly across groups for all constructs. Specifically, intercepts are higher for international students than their local counterparts on all tested items of fear of crime, perceptions of unsafety, avoidance behavior, and five out of six items of perceived risk. Nonetheless, intercepts for social disorder, social integration, and protective ability are significantly higher for local than international students on tested items.

In summary, Study 2 reveals that international students tend to report significantly higher levels of threat of victimization, but lower levels of social disorder, social integration, and protective ability than their local counterparts. Consistent with the pertinent literature (Acierno et al., 2004; Gabriel, 1999; Lane & Meeker, 2004), these results highlight the important role of ethnic or cultural background in understanding threat of victimization and associated factors, supporting the culture shock thesis (Oberg, 1954, 1960), the subcultural-diversity model (Merry, 1981), and the group position thesis (Blumer, 1958).

Implications and Significance for Research and Practice

Study 2 culminates in a number of important contributions to research and practice. First, this investigation extends Study 1, filling an apparent literature gap by comparing international and local tertiary students on their perceptions of levels of threat of victimization and associated social and environmental factors (i.e., perceptions of social integration, social disorder, protective ability, confidence in police). Research on international students’ threat of victimization are important because of the dramatic growth in the number of students who cross national or territorial borders for the purpose of education and the widely reported crimes encountered by this population. Crimes perpetrated against international students arouse intense questions about race and equal rights for this unique sector. The present comparisons suggest a pressing need to investigate associated issues and develop effective strategies to reduce overseas students’ negative feelings, and consequently improve their wellbeing.
Victimization and threat of victimization faced by international students have raised worldwide concerns and debate (Li, 2008; Marginson et al., 2010). Decline in numbers of international students from China to New Zealand triggered research on identifying the nature of risks and insecurity encountered by this group, and associated effective and practical ways to reimagining (rebranding) New Zealand as a safe education destination (Li, 2008). In a similar vein, violence perpetrated against subcontinental Indian students sparked topical debate on pockets of racisms within the Australian community. Nonetheless, regulation of international students safety and security has been largely ignored by host and home country governments, educational agents, policy makers, and to a large extent students themselves (Ho et al., 2007; Marginson et al., 2010).

Institutions make substantial efforts to attract international students, but seem to pay far less attention to their negative experiences once they arrive (Lee, 2006). Victims’ parents believe that inadequate attention has been given by authorities to international students safety and security related-issues (Tibbits & Robinson, 2008). According to a number of commentators (Lee & Rice, 2007; Marginson et al., 2010), governments, universities, and associated responsible parties prefer not to talk about, ignore, or distrust international students’ victimization stories in order to protect their brand and reputation. Consistent with this position, Marginson et al. (2010) stated that the educational industry tended to focus only on good news; while policy makers, regulators, and researchers rarely seek advice from international students themselves. Similarly, Das (2008) noted that the higher education sectors viewed international student safety and welfare as an issue at best, but less inclined to research this area.

Second, in line with the ex-ante literature (Basile et al., 2006; Dugan & Apel, 2003; Gabriel, 1999), Study 2 holds that individuals’ ethnic origin might be an important reason for their victimization and heightened levels of perceived ethnically-oriented conflicts, victimizations, or feelings of threat of victimization. According to the group position thesis (Blumer, 1958), international students’ sense of belonging to an ethnic minority group position can contribute to feelings of alienation and oppression (Bobo & Hutchings, 1996), leading to perceptions that dominant ethnic group members are
potentially threatening and dangerous (Lee & Ulmer, 2000). Understanding and adapting to a local culture, values, behavior, and norms, takes time. Furthermore, when living in a host country, international students bring their home culture and interpret other people’s behavior through the lens of their own culture (Merry, 1981; Noesjirwan & Freestone, 1979; Oberg, 1960), thus intensifying feelings of fear as espoused by the culture shock thesis and the subcultural diversity model.

Third, in accord with the culture shock thesis (Oberg, 1954, 1960), the present findings reflect Marginson et al. (2010), and Forbes-Mewett and Nyland (2008) that being in an unfamiliar environment affects international students’ sense of safety and security. Pressures of acculturation (Frey & Roysircar, 2006) and culture shock stemming from confusion about norms of a new culture (Poyrazli & Lopez, 2007) influence international students’ cognitive judgements regarding society. Furthermore, fear of racially-oriented attacks and/or harassment (Pain, 2000), feelings of social isolation (Adrian-Taylor et al., 2007), a relatively short duration of residency (Poyrazli & Lopez, 2007), and a lack of confidence communicating in English (Forbes-Mewett & Nyland, 2008) can also contribute to international students’ feelings of threat of victimization. Nonetheless, compounding this problem is the observation that international students tend to live in areas with high crime rates, engage in high risky activities, and visit places that locals perceive as dangerous (Ho et al., 2007; Marginson et al., 2010).

According to Marginson et al. (2010), three factors differentiate international and local students: cross-border mobility and temporary residential status, cultural differences, and consumers with associated rights. Outsider status influences all international students, regardless of cultural background, the effect of which reduces over time. Cultural differences bring a contrast between cultural practices in a country of origin and a host country, as well as values, beliefs, and behaviors. International students differ from their local counterparts in that they are subject to migration controls and face different needs for consumer protection. Differences between cohorts become especially distinct when outsider status, cultural identity, communication problems, and a lack of local knowledge are all at play.
In the fear of crime area, most studies (Farrall et al., 2000; Lee & Ulmer, 2000) support the position that length of residence in a neighborhood significantly influences residents’ levels of threat of victimization. Lee and Ulmer (2000) noted that Korean Americans living in Chicago reported lower levels of fear of crime than those newly arrived, but failed to detect a significant relationship between length of residence and perceived risk. Farrall et al. (2000) revealed that living in an area for an extended period helps residents to feel safe. In terms of international students, according to the culture shock thesis, after the initial honeymoon stage, sojourners begin experiencing and perceiving negative aspects of a new culture. In line with this view, Poyrazli and Lopez (2007) found that international students who have lived in the U.S. longer reported higher levels of perceived discrimination.

Language barriers appear to be one of the most challenging issues for international students (Li & Kaye, 1998; Mori, 2000; Sawir, 2005), who are required to acquire strong linguistic abilities and extensive knowledge of an adopted culture in order to make successful cultural shifts and adjustments (Forbes-Mewett & Nyland, 2008; Mori, 2000). Individuals from different racial and ethnic backgrounds have subtle variations in the ways they communicate (Hall, 1992). Almost all social, academic, and psychological problems that international students encounter can be attributed to their English communication skills (Constantine et al., 2005; Sawir, 2005). The higher an international student rates his or her own language proficiency level, the better the level of adjustment (Lee et al., 1981; Tsang, 2001).

Lack of confidence in communicating fluently limits international students’ ability to understand spoken English (Forbes-Mewett & Nyland, 2008), and to seek social and law support (Constantine et al., 2005), thus increasing their fear of crime and perceived risk (Lee & Ulmer, 2000). Having a foreign accent can also make it difficult for international students to make friends and to gain acceptance, trust, and respect from locals, as well as establishing social support networks (Constantine et al., 2005; Mori, 2000). Thus, international tertiary students are less likely to contact local people, go outside for entertainments, and to visit certain places, at certain times in order to decrease their risk of being victimized. It is noteworthy that Poyrazli and Lopez (2007)
concluded that international students’ communication skills facilitate their understanding and report of threats and discrimination.

Social integration also plays an important role in international students’ adjustment, providing cues concerning appropriate behaviors and rules in new situations (Black, 1988), helping students overcome feelings of loneliness (Chapdelaine & Alexitch, 2004). According to Sawir et al. (2007), international students experience three kinds of loneliness, including personal loneliness owing to a loss of contact with family and friends; social loneliness attributable to a deprivation of social support networks; and cultural loneliness triggered by an absence of a preferred cultural and/or linguistic environment. This sense of social or psychological alienation and loneliness can lead to feelings of insecurity (Anwar, 2007) and high levels of fear of crime (Acierno et al., 2004).

Except for maintaining networks with their home country, international students are encouraged to develop new interactions with host nationals and non-compatriot foreign students, from which they learn a series of relevant skills, values, and beliefs; deriving mutual social support and enjoying recreational activities (Zhou et al., 2008). Overseas students can benefit from integration with host nationals socially, psychologically, culturally, and academically. International students with appropriate local friends are more likely to learn social mores, rules, skills, and behaviors pertaining to that culture than those whose friends are all compatriots (Furnham & Bochner, 1986), thus experiencing less social difficulties in their cross cultural adjustment (Chapdelaine & Alexitch, 2004). Evidence (Torbiörn, 1982) shows that sojourners who spend most of their free time with host-country nationals are happier than those who turn mainly to their own countrymen. It appears that strong bonds between international and local students in an educational setting help international students remake their cultural maps on their own terms and thus, reduce feelings of loneliness (Sawir et al., 2007).

Social integration or social ties take a long time to develop (Gibson et al., 2002; Lee & Earnest, 2003). International students from all cultural backgrounds desire opportunities to mix with local students. Nonetheless, studies (Ho et al., 2007) show that the extent of
such integration is often limited. For example, owing to limited English proficiency and a lack of familiarity with American social norms and customs, a substantial proportion of Asian international students find it difficult to make friends and to establish social support networks (Mori, 2000). Also, local students do not appear to make much effort to accommodate these limitations (Forbes-Mewett & Nyland, 2008).

Although the majority of international students differ markedly in terms of physical appearance, nationality, ethnicity, religion, cultural norms and customs, and linguistic background, a number of characteristics are commonly ascribed to them as if they were a homogenous group (Spencer-Rodgers, 2001). International students are regarded as highly talented and motivated, young, well educated, adaptable, and better off than many of their domestic peers (Furnham, 2004). These so-called sojourners are expected to relocate to a new culture, to undertake new and appropriate roles, to possess excellent local language communication skills, and to achieve sound levels of understanding of their host countries (Pedersen, 1991; Spencer-Rodgers, 2001). Difficulties in achieving these expectations and lack of social support and connections in host countries foster a risk of being victimized and enhance levels of threat of victimization. It should be noted that, an examination of key factors specifically driving international students’ threat of victimization however, is not the main focus of this thesis. Future studies might consider investigating why a disproportionate number of students report having threat of victimization.

Fourth, Study 2 addresses concerns relating to construct comparability when undertaking cross-cultural or group comparisons. Comparisons on levels of fear of crime between men and women (Schafer et al., 2006), youngsters and the elderly (Ferraro & LaGrange, 1992), and between cities or cultural settings (Bennett & Flavin, 1994; Meško et al., 2008) predominate. However, studies in these areas fail to address issues relating to measurement equivalence, throwing into doubt conclusions. In order to address this significant issue, this investigation tests for measurement equivalence prior to comparing levels of threat of victimization between international and local cohorts, involving omnibus, configural, factor loadings, and intercepts invariance. As highlighted by Chen and West (2008), when measurement equivalence is not considered
researchers run the risk that different components are pooled the differences may cancel each other out, leading to a null cultural effect, or inconsistent findings when certain components are over or under represented (p. 286).

Finally, this study leads to important policy implications, suggesting a pressing need to diminish the culture of fear among international students. Investigating social problems of international students’ threat of victimization is particularly important owing to the current social, economic, cultural, and political debates focused on immigration and immigrants (Peguero, 2009). Economic impact of the internationalisation of tertiary education goes far beyond the short-term monetary costs and benefits that are reflected in current account balances of services (Das, 2008). Not only do international students obtain academic qualifications, but they also develop social and cultural values, beliefs, and behaviors about a host society. Many of these students go back to their country upon completion of their degree programs, thus the word-of-mouth effect need to take into account. However, policy makers, regulators, universities, and researchers often ignore threat of victimization encountered by this unique yet vulnerable population.

Limitations

The present findings and associated explanations should be interpreted in the light of a number of limitations. There is an ongoing debate concerning optimal measurements for tested latent constructs (i.e., fear of crime, social integration). Different items might contribute to different levels of reported perceptions regarding threat of victimization, social disorder, social integration, protective ability, and confidence in police. Furthermore, Study 2 tested only measurement equivalence across international and local students who are currently enrolled in tertiary education program in Melbourne. Generalizability of results might be a potential problem and will need to be tested in future studies in related areas.

Utilization of self-reported measures has its inherent methodological limitations that might violate the present findings, particularly when undertaking a cross-cultural comparative investigation. Although only 8.6% of international students rate their level of English proficiency as poor, it is possible that they might seek to present themselves
in a favourable manner (Thompson & Phua, 2005, p. 541). Owing to different cultural and language backgrounds, international students might have diverse understanding regarding crime, fear, risk, and other related items. It is also difficult to verify whether a reported crime or victimization has actually occurred, as well as the extent to which participants are really fearful. Thus, future studies are encouraged to test the present results in different contexts.

Although findings suggest that international students express significantly higher levels of threat of victimization than their local counterparts, questions remain unanswered about what factors cause these differences. Future research is encouraged to utilize longitudinal data sets to examine key antecedents contributing to international students’ threat of victimization. Finally, Study 2 viewed international and local students as two homogenous groups, and did not differentiate between nationalities. It is recommended that future studies explore the impact of ethnicity (e.g., comparisons across specific ethnic group) and/or nationality on threat of victimization.

Despite these limitations, Study 2 examined measurement invariance across international and local tertiary students and tests of which should be regarded as a prerequisite for undertaking cross-cultural and group analyses, a procedure which has been largely overlooked in the fear of crime area. The following chapter provides an overview of Studies 1 and 2, discussing key findings in relation to the present hypotheses and contributions of this thesis to theory, research, policy, and practice.
CHAPTER 5
CONCLUSION

Chapter 5 draws together Studies 1 and 2, reviewing research questions and key findings. Contributions to research and practice are outlined, followed by an overview of limitations. This chapter concludes with a summary.

Utilizing a quantitative research design, the current thesis investigates tertiary students’ threat of victimization. This thesis relabels the complex multidimensional phenomena associated with fear of crime as threat of victimization, viewing perceived risk (cognition), perceptions of unsafety (cognition), fear of crime (emotion), and behavioral adaptations as inter-related indicators of this higher order construct (Rader, 2004). These four components are distinct and influence each other in a positive reciprocal function. The adoption of the construct threat of victimization and differentiating between fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations helps to diminish terminological amorphousness, providing new insights and directions for research and practice (Rader, 2004; Rader et al., 2007).

This dissertation incorporates two inter-related studies. Drawing upon CBT (Beck, 1964, 1976), the victimization model (Skogan & Maxfield, 1981), the incivilities thesis (Taylor, 1998, 2001), and Garofalo’s (1981) fear of crime model, Study 1 develops and tests a nonrecursive model investigating reciprocal relationships between cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance behavior) facets of threat of victimization, and the impact of personal characteristics and community-related factors on these dimensions. The finding of support for cyclical interrelationships between these factors challenge predominant recursive models (Ferguson & Mindel, 2007; Melde, 2009) and propositions involving relationships between bivariate DVs (Liska et al., 1988; Rader et al., 2007) in the field of fear of crime.

Underpinned by the culture shock thesis (Oberg, 1954, 1960), the subcultural-diversity model (Merry, 1981), and the group position thesis (Blumer, 1958), Study 2 explores
differences between international and local tertiary students on their levels of threat of victimization and associated predictors. This investigation highlights the importance of testing for measurement equivalence on constructs across groups when undertaking multi-group comparisons. It is argued that comparative investigations are meaningless when constructs across cohorts are variant (Byrne, 2010; Vandenbreg & Lance, 2000). The following section discusses key findings in relation to the five research questions (RQ) proposed in Chapter 1.

**FINDINGS**

**RQ 1: How do cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance) components of threat of victimization reciprocally influence each other?**

To answer RQ1, two issues need to be clarified, including conceptually differentiating threat of victimization, fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations; and testing reciprocal relationships between these five concepts, as discussed below.

**Conceptually differentiating between threat of victimization, fear of crime, perceived risk, perceptions of unsafety, and behavioural adaptations**

Including perceptions of unsafety as an important cognitive dimension, this thesis extends Rader’s (2004) notion of threat of victimization (May et al., 2010; Rader et al., 2007), encompassing cognitive, emotional, and behavioral components (Clark, 2003; Gabriel & Greve, 2003). A strong argument for inclusion is based on the observation that the NCS question, a measure of perceptions of unsafety, has been used widely since the 1970s (Garofalo, 1979; Schafer et al., 2006). Conceptually, a general assessment of environmental safety differs from a judgement of the likelihood, probability, and severity of potential negative events.

Consistent with ex ante research (Gabriel & Greve, 2003; Lane, 2009; Rader et al., 2007), results indicate that fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior are distinct but empirically interrelated. Testing for discriminant validity supports this notion of distinctiveness. As reported in the Results section,
Chapter 3, intra-construct item correlations are higher than inter-construct item correlations. The average of variance extracted estimates exceeds the square of correlations between any pairs of these four constructs. As well, correlations between these four constructs are low to middling (ranging between .24 & .62). Multi-factor analyses reveal that factor loadings on these four dimensions to threat of victimization are acceptable (Byrne, 2010; Hair et al., 2010), suggesting that it is appropriate to frame these four concepts under a higher order construct (May et al., 2010; Rader, 2004; Rader et al., 2007). Importantly, findings disclose significant aetiological differences, with personal characteristics and community-related factors dynamically affecting these dimensions (Bennett & Flavin, 1994; Ferraro, 1995; Rader et al., 2007), as discussed later in the sections concerning RQ2 and RQ3.

Confounding or ignoring differences between these concepts fails to reflect the richness of the phenomena (Jackson, 2004, 2005), leading to potentially biased results (Farrall, 2004; Farrall et al., 1997; Gabriel & Greve, 2003). As noted in Chapter 2, it appears that the concept of fear of crime has to some extent been taken for granted, a so called powerful term that can refer to emotional facets, multidimensional phenomena associated with cognitions, emotions, and behaviors, contributing to definitional confusion, possible inconsistent results, and difficulties making comparisons across studies (Acierno et al., 2004; Rader, 2004). The present broad-based reconceptualization reduces the confusion resulting from amalgamating cognitive, emotional, and behavioral responses within a composite variable or construct of fear of crime (Delone, 2008; Pauwels & Pleysier, 2008) or using a hyphenated label such as fear-of-crime (Clark, 2003). This clarification contributes to a long-standing need to disentangle overlapping but distinct constructs, and consequently, advancing the ways in which fear of crime has been examined so far in the literature (Gabriel & Greve, 2003; Jackson, 2005; Rader et al., 2007). The following section discussed relationships between fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior.
Reciprocal relationships between cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance) dimensions of threat of victimization

The most important finding emanating from Study 1 is the elucidation of significant positive reciprocal relationships between cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance) dimensions of threat of victimization. This finding demonstrates that CBT is an appropriate theory for grounding investigations of threat of victimization, particularly causes and consequences of fear of crime. Specifically, perceived risk and perceptions of unsafety intensify levels of fear of crime, leading to avoidance strategies. Avoidance behavior heightens perceived risk and perceptions of unsafety, contributing in turn to elevated levels of fear of crime. This model theoretically and empirically supports Gabriel and Greve (2003), and Garofalo (1981).

The present findings demonstrate the importance of including cognitive factors in understanding fear of crime. In accord with the ex-ante research (Ferguson & Mindel, 2007; Ferraro, 1995; Melde, 2009), results indicate that perceived risk and perceptions of unsafety increase students’ levels of fear of crime. The application of CBT provides a sound theoretical explanation for Jackson (2004) who questioned Ferraro (1995) on the ground of providing insufficient theoretical support for linkages between fear of crime and perceived risk. In line with CBT, cognitions have a controlling influence on emotions and behaviors because individuals continually appraise the significance of events around and within them (Simmons & Griffiths, 2009; Wright et al., 2006). The current thesis reveals that perceived risk and perceptions of unsafety are important cognitive factors of threat of victimization, significantly facilitating levels of fear of crime, and consequently, leading to avoidance behavior.

The present model driven by CBT also affords theoretical support for linkages between fear of crime and behavioral adaptations. Behavioral responses to threatening situations are the direct consequences of fear of crime. However, behavioral changes are not the end of the matter. Avoidance behaviors can intensify students’ perceived risk of being victimized and perceptions of unsafety regarding their environment, leading to
heightened levels of fear of crime. CBT provides sound explanations for the on-going debates concerning whether behavioral responses to crime (i.e., avoidance, prevention) cause emotional fear (Ferguson & Mindel, 2007; Ferraro, 1995; Melde, 2009), and the extent to which fear of crime leads to constrained behaviors (Crank et al., 2003; Ross, 1993). Concurrent reciprocal relationships between cognitive, emotional, and behavioral components of threat of victimization need to take into account. In other words, cognitive assessment influences fear of crime, leading to constrained behavior; and the ways in which individuals respond to threat or crime affect thoughts and emotional fear in turn (Armelius & Andreassen, 2007; Kalodner, 2007; Wright et al., 2006).

Furthermore, findings extend studies (Liska et al., 1988; Rader et al., 2007) investigating reciprocal relationships between bivariate facets of threat of victimization and afford a new lens through which to examine causal linkages between fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations. The current positive feedback loops provide sound explanations for the aforementioned inconclusive or even opposing findings (Ferguson & Mindel, 2007; Ferraro, 1995; Randa & Wilcox, 2010) and nonsignificant reciprocal relationships between bivariate dimensions of threat of victimization (Ferraro, 1995; Rader et al., 2007). Findings suggest that cognitive and behavioral dimensions of threat of victimization should be taken into account when investigating fear of crime, in order to reflect the richness and complexity of phenomena (Ferraro & LaGrange, 1987; Jackson, 2004, 2005, 2006). In psychology, there is a relatively long history linking emotional fear to cognitive and behavioral factors (Rachman, 1990). According to Nestler and Egloff (2010), a threat-evoking situation comprises the presence of threat-related cues (e.g., incivilities) and a high degree of ambiguity and uncertainty, leading to aversive emotional arousal, consequently, leading to the adoption of avoidance strategies.

The present results support Garofalo (1981) that the development and changes in levels of fear are not simple recursive processes (p. 856). Predictions of a high probability of threatening situations or events and assessment of safety signals in an environment play an important role in triggering fear and avoidance behavior (Rachman, 1990). Behavioral adaptations out of fear can also intensify people’ cognitive judgement of
danger, risk, and/or safety, leading to heightened levels of fear of being victimized (Klodner, 2007). Accordingly, leading recursive models (Ferguson & Mindel, 2007; Melde, 2009) and reciprocal relationships proposed between bivariate facets of threat of victimization (Liska et al., 1988; Rader et al., 2007) are open to serious criticism.

**RQ2: Within this nonrecursive model, how do personal-related characteristics (i.e., age, gender, direct & indirect victimization, protective ability) affect tertiary students’ threat of victimization (i.e., fear of crime, perceived risk, perceptions of unsafety, avoidance behavior)?**

The present thesis accommodates students’ characteristics and their perceptions of community within a nonrecursive model. Consistent with the pertinent literature (Ferraro, 1995; Rader et al., 2007), results indicate that personal and community-related factors, as antecedents, influence fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior, dynamically. This section reviews findings relating to the impact of personal characteristics on threat of victimization.

Findings show that although age has a nonsignificant impact on perceived risk and avoidance behavior, younger tertiary students report significantly higher levels of fear of crime and perceptions of unsafety than their older peers, reflecting recent studies (Beck & Travis, 2004; Fisher & May, 2009). Furthermore, students with low levels of self-assessed protective ability tend to perceive their environment as unsafe and are likely to adopt avoidance strategies. Protective abilities are associated with personal vulnerability, feelings of helpless, and low self-efficacy, playing an important role in the development of threat of victimization (Gabriel & Greve, 2003; Jackson, 2009; Killias, 1990).

In accord with ex ante research (Kelly & Torres, 2006; Lane, 2009; Skogan, 1981), female students’ reported intensified levels of fear of crime support the fear of sexual assault shadow thesis (Ferraro, 1995; Fisher & Sloan, 2003; May & Dunaway, 2000). Although males report significantly higher levels of perceived risk than females, gender has a nonsignificant influence on students’ perceptions of unsafety. These findings
demonstrate that men and women differ on their cognitive, emotional, and behavioral responses to threat of victimization (Rader et al., 2007).

Results provide a possible explanation for a long-standing unresolved paradox that victimization has a nonsignificant or little impact on fear of crime (Bennett & Flavin, 1994; DeFronzo, 1979; Mesch, 2000a). Not every victim develops an intensified sense of fear and subsequently changes their behavior (LaGrange et al., 1992; Lee & Ulmer, 2000; May & Dunaway, 2000). Being a victim might make people more cautious, but not necessarily trigger fear (DuBow et al., 1979). This thesis reveals that victimization has an indirect impact on fear of crime and avoidance behavior through perceived risk and perceptions of unsafety. According to CBT, it is not the activating events or situations that cause specific emotional or behavioral reactions, but the ways in which people interpret, make sense of, and react to situations and events (Walters, 1990). Based on gathered information, people evaluate situations or events, judge the potential risks; predict their levels of fear; and adopt rationally constrained behaviors (Clark, 2003; Kalodner, 2007; Rachman, 1976). Social media, personal experience, friends, and neighbors can contribute to distorting objective risks and cognitive judgements.

People tend to filter information to accord with their existing beliefs (Stafford & Galle, 1984). Others tend to exaggerate the risk of dangerous events (i.e., murder, rape), possibly attributable to a tendency to a common error of judgment arising from availability heuristics or the ease with which events can be recalled or imagined (Warr, 2000). Delone (2008) supported this argument, finding that assault victimization has a positive and significant impact on fear; while other categories of victimization, such as theft, robbery, and burglary are unrelated. As well, people are inclined to focus on potential threats to other people rather than for themselves (Kury et al., 2004).

Belief of misfortune is a further contributor (Agnew, 1985). Certain beliefs and techniques have been shown to neutralize or reduce the impact of victimization on threat of victimization (Clark, 2003; Warr, 2000). These techniques involve denial of injury and vulnerability, acceptance of some responsibility, belief in a just world, and appeals to higher loyalties (Agnew, 1985). Victims are also challenged to rebuild
theories of reality (Janoff-Bulman, 1985). However, redefinition and inaccurate beliefs about victimization and holding a deterministic view of the world contribute to reinforcing individuals’ cognitive assessment about being victimized (Melde, 2009) and emotional insensitivity to fear of crime (Mukherjee & Carcach, 1998).

In summary, the victimization model (Skogan & Maxfield, 1981) and CBT account for the dynamic impacts of personal characteristics on threat of victimization. Basically, individuals differ in their response to threats. Physical vulnerabilities (i.e., age, gender, victimization, protective ability) can magnify feelings of being threatened. Despite nonsignificant direct relationships, a number of personal features (i.e., victimization) have an indirect association with fear of crime, suggesting ways to reduce levels of threat of victimization.

RQ3: Within this nonrecursive model, how do community-related factors (i.e., social disorder, social integration, confidence in police) drive tertiary students’ threat of victimization (i.e., fear of crime, perceived risk, perceptions of unsafety, avoidance behavior)?

With respect to community factors, findings suggest that a decrease in social disorder, an increase in social integration, and an enlightened confidence in police help to reduce threat of victimization. Results support the incivilities thesis, confirming positive relationships between social disorder and threat of victimization. Social disorder is shown to be the strongest predictor. Social disorder has played a central role within the fields of criminology and sociology for over three decades (Hunter, 1978; Taylor, 2001). Hunter (1978) utilized the incivilities thesis to explain significant levels of variance in fear of crime compared with direct victimization. Bennett and Flavin (1994) stated that public misbehaviors are as serious as crime itself; while Wayne and Rubel (1982) noted that student disorder is more powerful than adult calls for order. Youth are afraid of youth (Tulloch, 2000). Most types of social disorders (i.e., group fighting, vandalizing, disorderly behavior) are attributable to young people (Salmi et al., 2004). Not only do they demonstrate a proclivity to destroy objects, loitering youth can also annoy people in the street, particularly females passing by, communicating threatening signals.
According to Xu et al. (2005), police are often called upon to deal with victimization, disorder, and threat of victimization. However, consistent with but extending recent trends (Ferguson & Mindel, 2007; Hwang, 2006; Scarborough, 2009), findings show that confidence in police does not directly decrease fear of crime. This dissertation reveals that confidence in police effectively reduces tertiary students’ perceived risk of being victimized and unsafe perceptions regarding their environment, leading to an indirect reduction in levels of fear of crime. Ferguson and Mindel (2007) suggested that police is related indirectly to fear of crime via collective efficacy, indicating the importance of collaborative relationship between residents and law enforcers as a way of lowering neighborhood crime rates and accompanying levels of fear.

In order to achieve positive outcomes, social integration can encourage people to get to know each other and help to develop a real home sense. The present findings suggest that a real home sense, environmental satisfaction, and happiness with local people help to reduce levels of fear of crime and perceived risk, and in turn indirectly reduce avoidance behavior and perceptions of unsafety. According to Gibson et al. (2002), individuals who feel integrated in their neighborhoods tend to perceive their neighbors as trustworthy and intervene as agents of informal social control.

RQ4: Do international and local tertiary students differ on their levels of threat of victimization? Alternatively, are the latent constructs tested in Study 1 invariant across two cohorts? 

RQ5: If constructs are not invariant, where do these differences across cohorts lie?

Study 2 compared international and local students by testing for measurement equivalence on eight constructs investigated in Study 1, involving fear of crime, perceived risk, perceptions of unsafety, avoidance behavior, protective ability, social disorder, social integration, and confidence in police. Findings show that international students report significantly higher levels of threat of victimization than their local counterparts, despite nonsignificant differences on reported levels of six types of victimization. Specifically, omnibus tests of equality of covariance matrices for all constructs are significant. Models for configural invariance fit data adequately for each construct, indicating that unidimensional congeneric measurement models are plausible
across groups. Comparisons of models for configural and metric invariance indicate that factor loadings are fully invariant across cohorts on all constructs.

Comparisons between metric and scalar invariance models show that except for confidence in police, intercepts differ significantly across groups on all constructs. Specifically, intercepts are higher for international students than their local counterparts on all tested items of fear of crime, perceptions of unsafety, avoidance behavior, and five of the six items of perceived risk. By contrast, intercepts for social disorder, social integration, and protective ability are significantly higher for local than international students on all tested items. These differences demonstrate that international students tend to express higher levels of threat of victimization, but lower levels social integration, social disorder, and protective ability than their local counterparts. Nonetheless, cohorts do not differ on their self-reported levels of confidence in police.

In summary, results highlight the pivotal role of ethnicity when understanding threat of victimization, supporting the culture shock thesis (Oberg, 1954, 1960), the subcultural-diversity model (Merry, 1981), and the group position thesis (Blumer, 1958). Forbes-Mewett and Nyland (2008) revealed that being in an unfamiliar culture affects students’ sense and levels of security. There are a wide range of factors contributing to international students’ heightened levels of threat of victimization, involving a lack of knowledge of their rights (Lee & Rice, 2007), outsider status (Lee, 2006; Marginson et al., 2010), poor English communication skills (Bonaazzo & Wong, 2007; Poyrazli & Lopez, 2007), inexperience (Marginson et al., 2010), unfamiliarity with legal systems (Forbes-Mewett & Nyland, 2008; Teferra, 2007), concerns about loss of face (Marginson et al., 2010), and fear of losing financial support or even being deported back to their home country (Lee, 2006; Lee & Rice, 2007). Experiences of racism, ethnic tension, economic jealousy, cultural friction, and political instability (Lira & Andrade-Palos, 1993; Teferra, 2007) can also intensify their levels of threat of victimization. Consequently, international students’ physical and mental wellbeing are at threat (Forbes-Mewett & Nyland, 2008; Marginson et al., 2010). The next section discusses the contributions this thesis makes to research, policy, police practice, community, universities, international students’ home country, and students themselves.
CONTRIBUTIONS TO RESEARCH

This thesis extends the existing literature in nine salient ways: clarifying issues relating to fear of crime; embracing theories from multiple disciplines; applying CBT to understand threat of victimization; developing and testing a nonrecursive model; integrating research streams of fear of crime, higher education, and international education; investigating tertiary students’ threat of victimization; highlighting international students’ threat of victimization; testing for measurement equivalence when undertaking cross-ethnic comparisons; and finally, use of statistical modelling procedures to test on hypothesized conceptualizations. These contributions are discussed as below, along with suggestions for future research.

First, as noted earlier, conceptually, adoption of a higher order multidimensional construct termed threat of victimization encompassing fear of crime, perceived risk, perceptions of unsafety, and behavioral adaptations reduces terminological and operational ambiguity. This reconceptualization informs an enduring debate about clarification of meaning and measurement of fear of crime, contributing to a long-standing need to disentangle overlapping but distinct constructs (Randa & Wilcox, 2010), and providing new insights about how we understand and investigate causes and consequences of threat of victimization (Rader, 2004; Rader et al., 2007). The clarification highlights that perceived risk, perceptions of unsafety, and behavioral adaptations should not be excluded when investigating fear of crime. Only when these four constructs are investigated concurrently, can a sound understanding of threat of victimization be achieved. Future studies are encouraged to test threat of victimization as a higher order construct coupled with the exploration of key determinants.

Second, theoretically, embracing theories from multiple disciplines offers a broad-based lens and new directions for investigating complex phenomena associated with crime, fear of crime, and threat of victimization. Seven predominant theories derived from psychology, criminology, sociology, anthropology underpin this thesis, including CBT (Beck, 1964, 1976), the culture shock thesis (Oberg, 1954, 1960), the victimization model (Skogan & Maxfield, 1981), the incivilities thesis (Taylor, 1998, 2001), Garofalo (1981) model, the subcultural-diversity model (Merry, 1981), and the group position...
thesis (Blumer, 1958). The latter five frameworks have demonstrated validity in understanding threat of victimization. However, as noted in Chapter 2, these five models have inherent limitations and are incapable of fully explaining the multidimensional phenomena.

Increasing evidence (Clark, 2003; Gabriel & Greve, 2003) suggest that theoretically rigorous frameworks from psychology can help to guide fear of crime investigations. It appears that this is the first piece of research to apply CBT, a psychological-based epistemology, and the culture shock thesis, an anthropology-based approach, to this field. Application of CBT provides a new direction to this field; while adoption of the culture shock thesis can help researchers to understand sojourners’ threat of victimization, highlighting the importance of ethnicity and/or culture in this particular issue. A multidisciplinary approach is recommended for future on fear of crime, helping scholars to fully understand complex phenomena involving cognitive, emotional, and behavioral features (Clark, 2003; Gabriel & Greve, 2003), to develop valid measurements and extend theories (Wurff et al., 1986), and to enhance the explanatory power of frameworks (Ferraro, 1995).

Third, CBT provides a solid theoretical background for grounding investigations on threat of victimization. Fear of crime research has been underpinned predominately by epistemologies derived from ecology (Skogan, 1990; Wilson & Kelling, 1982) and sociology (Ferguson & Mindel, 2007; Houts & Kassab, 1997). However, fear of crime is also a psychological phenomenon. Fear has a long research history in psychology. The application of CBT offers four advantages. First, CBT goes some way to filling an apparent lacuna in this area, particularly relationships between fear, cognitions, and behaviors. Second, CBT helps to explain why certain fears (e.g., theft) are apparently resistant to information induction, and why some people (e.g., females, the elderly) express elevated levels of fear. Third, CBT provides a starting point for explaining why personal characteristics and people’s perceptions of community influence threat of victimization. Finally, CBT accommodates insights into the ways in which levels of threat of victimization can be reduced. Focus on only personal (i.e., protective ability) and environmental determinants (i.e., social disorder, social integration) is limited.
Changing people’s cognitive belief or judgement can reduce fear of crime and avoidance behavior, consequently, the levels of threat of victimization. Use of CBT to understand threat of victimization in different populations and locations are recommended, such as designing intervention (i.e., social integration, disorder) that can interrupt upward spiralling cycles of fear.

Fourth, a unique contribution relates to developing and testing a nonrecursive model that simultaneously tests reciprocal relationships between perceived risk, perceptions of unsafety, fear of crime, and avoidance behavior, while concurrently investigating correlates of personal characteristics and community-related factors. Over a period of four decades, in an attempt to explore key factors driving threat of victimization, studies (Ferguson & Mindel, 2007; Ferraro, 1995; Melde, 2009) have relied predominately on recursive frameworks, viewing fear of crime as a sole effect or cause. Remarkably, a limited number of research (Liska et al., 1988; Rader et al., 2007) examines feedback loops between bivariate DVs, with nonsignificant results being reported predominately (Ferraro, 1995; Rader et al., 2007). Apparently, these two types of applications pose obstacles for research and practice, because cognitive, affective, and behavioral components of threat of victimization do not necessarily match and certainly are not equal for every respondent (Rader, 2004). The present nonrecursive model significantly enhances the explanatory power, providing new insights into the ways in which fear of crime can be investigated.

It should be noted that the limited number of tested nonrecursive models (Ferguson & Mindel, 2007; Liska et al., 1988) in the field of fear of crime can be attributed in part to costs and difficulties associated with collecting longitudinal data, as well as statistical obstacles. It is widely accepted that longitudinal data are more appropriate than cross-sectional data when testing reciprocal relationships. However, studies (Finkel, 1995; Kemery et al., 1987; Wong & Law, 1999) support the position that when time intervals between causes and effects are sufficiently small, synchronous reciprocal effects tested by cross-sectional data are preferable to recursive models involving longitudinal data. As discussed in Chapter 3, Wong and Law (1999) concluded that specifying covariances between disturbance terms of endogenous variables can correctly represent
a true unidirectional relation between endogenous constructs. This statistical technique is utilized in the present thesis. Future research would benefit from utilizing longitudinal research designs to test nonrecursive relationships.

Fifth, the current dissertation synthesizes three separate research streams: fear of crime, higher education, and international education, the streams of which have been largely independent of each other. Fear of crime has been investigated predominately in adult populations (May et al., 2010; Roman & Chalfin, 2008), with a limited number of studies (Fisher & May, 2009; Lane, 2009; Truman, 2005) involving college students. Amongst, the main focus of research involves campus crime (Barton et al., 2010; Brinkley & Laster, 2003; Fisher & Wilkes, 2003) and female students’ threat of victimization (Kelly & Torres, 2006; Sudo & Yamauchi, 2010). Although there is an increasing media coverage on international students’ victimization (ABC, 2009; Millar, 2009), research (Marginson et al., 2010; Teferra, 2007) on their threat of victimization is highly underrepresented. Thus, this thesis bridges a gap between these research streams, raising a pressing need to pay attention to tertiary students, particularly, international students’ threat of victimization.

Sixth, this thesis is possibly the first to investigate tertiary students’ personal characteristics and their perceptions of environment within a nonrecursive frame of reference. Having said that, investigations (Barton et al., 2010; Wicox et al., 2007; Woolnough, 2009) on tertiary students’ threat of victimization are highly underrepresented, with Fisher (Fisher, 1995) and her colleagues (Fisher et al., 2010; Fisher & May, 2009; Fisher & Sloan, 2003; Fisher & Wilkes, 2003) possibly being lead researchers on this topic. Campus-related crime is an active policy issue in the US largely because of high profile court cases in which victims and/or their families have sued colleges and universities for failing to provide a safe and secure campus as well as adequate information on prevailing levels of crime on or near campuses (Fisher et al., 2002b; Marginson et al., 2010). Nonetheless, it should be noted that tertiary students are not living in ivory towers; off-campus threat of victimization should also be given increased academic attention and public awareness of this matters needs to be raised. This thesis investigated tertiary students’ levels of threat of victimization in a
metropolis. Future studies would benefit from examining threat of victimization in regional locations coupled with an examination of the importance of lifestyle.

Seventh, the current thesis takes a first step to raise awareness of international students’ threat of victimization, highlighting that international and local cohorts differ on their levels of threat of victimization, assessment of personal vulnerability, and perceptions of environmental features. Understanding international students’ threat of victimization is important owing to the current social, economic, cultural, and political debates focusing on immigration and immigrants (Neri & Ville, 2008; Peguero, 2009; Weenink, 2009). Not only do international students strive to attain academic qualifications, they also develop social and cultural values, beliefs, and behaviors about a host society (Coate, 2009; Li, 2008; Zhou et al., 2008). Nonetheless, international students’ threat of victimization is a topic that host countries and education institutions tend to avoid (Marginson et al., 2010).

Governments and universities are less likely to disclose crimes perpetrated against international students because of concerns of maintaining a positive image, or revealing a dark side of international education (Marginson et al., 2010). Moreover, university staff and police officers display a propensity to ignore or underestimate the severity of victimization. From the students’ side, victimization experiences are highly under-reported (Ho et al., 2007; Li, 2008). Research (Bonazzo & Wong, 2007; Li, 2008) shows that most international students do not bother to file complaints or negative events, coping with their victimization and threat of victimization through the use of avoidance strategies. That is, they are highly likely to act as if such victimizations are not a big deal, and try to leave them out of their stories. The present comparisons demonstrate that international students are vulnerable (Forbes-Mewett & Nyland, 2008; Marginson et al., 2010), deserving intense attention from all responsible parties.

Eighth, testing for measurement equivalence is another distinctive feature of this thesis. Comparisons on levels of fear of crime between men and women (Schafer et al., 2006), youngsters versus the elderly (Ferraro & LaGrange, 1992), and between cities or cultural settings (Bennett & Flavin, 1994; Meško et al., 2008) are noteworthy. However,
these studies appear to have failed to assess issues relating to measurement equivalence, the conclusions of which are open to question. According to Pauwels and Pleysier (2008), ignoring potential cross-cultural/ethnic bias invalidates comparisons between different groups, causing contextual interpretation to be unfounded (p. 156). The present thesis views testing for measurement invariance as an essential precondition. Further studies involving multiple group analyses should follow this lead.

Finally, this thesis utilizes multivariate statistical techniques, heeding long-standing calls to develop reliable and valid measures (Jackson, 2005; Meško et al., 2008), advancing data analytical techniques (Rader et al., 2007), reporting discriminant validity (Taylor, 2002; Worrall, 2006), and testing for measurement equivalence when undertaking multiple group analyses (Pauwels & Pleysier, 2008). Principally, SEM was utilized to develop and test a nonrecursive model. EFA and CFA were utilized to develop sound fit constructs representing the present data. Multiple-items were adopted from pertinent literature to increase construct validity and reliability (Hair et al., 2010). Four methods for convergent validity and three techniques for discriminant validity were employed to reduce potential bias resulting from construct development. Tests for social desirability and applications of Harman’s one-factor were used to ensure that common method effects are not a likely contaminant of results threatening the internal validity of this thesis. These multiple methods significantly advance the fear of crime research, reducing the potential bias that might result from construct development and data analytical procedures. The following section discusses contributions to practice emanating from the present thesis.

CONTRIBUTIONS TO POLICY AND PRACTICE

Findings culminates in a number of important implications for practice, the responsible parties of which involve policy makers, police, counselling providers, universities, communities, international students’ host and home countries, and students themselves. First, the present positive feedback loops to fear-producing processes provide important avenues for policy makers and police to design victimization prevention programs and to inform appropriate policy decisions about potential interventions that can reduce threat of victimization (Garofalo, 1981). This thesis suggests that a decrease in
perceived risk and an increase in environmental safety cues can facilitate reduction in levels of fear of crime, because cognitions demonstrate a dominant influence on emotions and behaviors (Wright, 2006; Wright et al., 2006). These findings support Rachman (1984) safety signal theory. As stated previously, people judge their threat of victimization from information communicated through interpersonal relationships, social media, interpretations of self-identity, and symbols of crime and threats in their surroundings (Garofalo, 1981; Melde et al., 2009; Pain, 2000). Information that contains a potential threat or is open to being (mis)interpreted as threatening can generate emotional fear, followed by behavioral adaptations (Rachman, 1990). Nonetheless, according to Beck (1976), making incorrect inferences on the basis of inadequate or incorrect information and not distinguishing sufficiently between imagination and reality contribute to psychological disorder.

Findings reveal a need for communicating accurate and adequate information regarding risk of victimization and environmental safety. In the psychological field, important progress has been made in developing effective methods for reducing fear by changing cognitive factors (Rachman, 1990; Wright, 2006; Wright et al., 2006). Policy makers, police, and consultancies would benefit from paying heed to the principles inherent in the present positive reciprocal model, especially when it comes to designing appropriate programs for reducing fear of crime via decreasing people’s perceived risk, and by increasing safety signals in an environment. People’s beliefs about the nature, probability, severity, and consequences of crime are influenced highly by others who share their experiences (Maxfield, 1984). Newspapers, radio, and especially television play a prominent role in people’s images and views about crime (Garofalo, 1981; Sheley & Ashkins, 1981). The media has contributed to distorting and/or exaggerating perceptions of crime by focusing predominately on violent crime, leading to biased impressions and assessment of risk of victimization and perceptions of unsafety (Wyant, 2008). Government could encourage and monitor social media sites to communicate information consistent with cultural norms and practices of target audiences. Tertiary students and/or citizens should be provided with balanced well-informed news about what is happening locally and globally, giving them an accurate view of a society, thus balancing their fear of constructed and natural phenomena (Fabiansson, 2007). Perhaps
a more concerted effort to inform adolescents about dangers associated with risky behaviors can help reduce victimization (Melde, 2009). It is here that universities, parents, and communities have an important role to play.

Second, results demonstrate that avoidance behaviors heighten perceived risk and perceptions of unsafety, leading to intensified levels of fear of crime, suggesting that the effectiveness of decreasing levels of fear of crime through changing behavioral adaptations (i.e., avoidance, prevention, protection) need to be reconsidered. According to Giblin (2008), avoidance behaviors are designed to regulate individuals’ exposure to risks of victimization. It seems logical that changes in behavior decrease convergence in disorderly environments and obstreperous people, leading to a reduction in the risk of being victimized and readjustment of prediction of fear for situations (Clark, 2003; Kanan & Pruitt, 2002). However, consistent with mounting evidence (Barberet & Fisher, 2009; Ferguson & Mindel, 2007; Rader et al., 2007), this thesis shows that behavioral adaptations heighten people’s levels of fear of crime, rather than reduce it. People’s levels of fear tend to remain, or even increase, after avoiding unsafe places and/or disorderly people or purchasing security systems, as these precautionary behaviors remind one about the potential threat of victimization (Rader, 2004). Accordingly, policy makers, police, and consultants should be aware of these positive associations between fear of crime and behavioral adaptations.

Third, reflecting recent studies (Roman & Chalfin, 2008; Wyant, 2008), findings provide policy makers and police with an effective direction for decreasing levels of threat of victimization. As Scarborough (2009) noted, one long-lasting frustration for policy makers is that personal characteristics (e.g., age, gender) have demonstrated consistently high correlations with threat of victimization. These factors are fixed and cannot be changed by government policy. The current thesis suggests that changes in people’s perceptions of community features (i.e., social disorder, social integration, confidence in police) can help to reduce threat of victimization. Government agencies need to develop effective strategies for detecting, monitoring, and preventing public misbehaviors, along with circulating safety cues to citizens. According to Warr (2000), and Barberet and Fisher (2009), manipulating environmental cues (i.e., social and
physical incivilities) to threats offers a concrete and potentially powerful means for reducing fear of crime. Changing social disorder is more feasible and involves less cost than altering established practices of news coverage or deemphasizing crime in an area. The present model explored correlates of perceived social disorder and threat of victimization. Relationships between social disorder, physical incivilities, crime, and threat of victimization remain unanswered. Future research would benefit from an examination of these factors.

Fourth, police should be made aware of a lack of a direct relationship between citizens' confidence in police and fear of crime. The present thesis reveals that confidence in police indirectly reduces levels of fear of crime via perceived risk and perceptions of unsafety. Thus, positive police-citizen partnership should be encouraged, as it can at least change people’s cognitive judgement and assessment of risks and safety in their surroundings. Owing to the strong influence of social disorder on threat of victimization, police need to make effort to decrease social disorder, monitor physical environments, and clear unsafe signals.

Fifth, results hold important implications for the ways in which communities might reduce threat of victimization. A reduction in social disorder and an increase in social integration requires collaboration between police, government agencies, community, and residents. In terms of on-campus threat of victimization, King (2009) suggested that fostering a community-orientation is an important consideration for enhanced campus safety and security. Universally adopted key elements of community-oriented policies include the creation of, or alliance with, effective partnerships with the community and other public and private sector resources; the application of problem-solving strategies or tactics; the transformation of the police organizational structure and subculture to support this philosophical shift; [and] police/security agencies soliciting opinions and other input from members of the public they are responsible for (King, 2009, p. 92).

Communities should also play an active role in reducing tertiary students’ off-campus threat of victimization. Young people’s victimization and threat of victimization are related to their lifestyle and engagement in delinquent behaviors (Melde, 2009; Schreck
et al., 2008; Sweeten et al., 2009; Weerman, 2011) that are closely associated with neighborhood structures (Maimon & Browning, 2010). Some neighborhoods exhibit significantly higher levels of crime rates, threat of victimization, and unstructured socialization by youth as demonstrated by the social disorganisation theory (Barnett & Mencken, 2002; Cobbina et al., 2008; Skogan, 1990).

According to Stewart and Simons (2010), neighborhood street culture has a direct and conditional influence on adolescent behavior. Disadvantaged, violent, and socially isolated neighborhoods impact threat of victimization by shaping street code values. Once established, a street culture serves as an institutional feature of disadvantaged neighborhood street life that structures individual-level public interactions around the code (Stewart & Simons, 2010, p. 571). When widespread and pronounced, a street culture places pressure on everyone to conform. Solely depending on police cannot diminish the root of street culture, thus, there is a pressing need to develop community-level norms of informal social control via social integration (Gibson et al., 2002; Jackson, 2004) to guide adolescents about how they should behave and to provide informal monitoring of, and intervention in, adolescent unstructured socializing that might seem criminogenic (Maimon & Browning, 2010, p. 468).

Although social integration and collective efficacy function effectively to reduce unstructured socializing on violent behavior (Maimon & Browning, 2010) and threat of victimization (Adams & Serpe, 2000; Ferguson & Mindel, 2007; Gibson et al., 2002), it takes time to develop. Terpstra (2009) highlighted that the willingness of citizens to participate in informal social control or neighborhood watch are based largely on police support when the need arises, both in reality and symbolically. It is difficult, however to create social integration and collective efficacy based only on police, community meetings, and community and neighborhood watch programs. Future research needs to examine the effectives of policies that increase social integration and collective efficacy, leading to a reduction of threat of victimization.

Sixth, this thesis provides clear insight into how tertiary students assess their environment, evaluate themselves, and judge their levels of threat of victimization.
Improving physical environments (e.g., emergency phones, night security patrols, improved street lighting) to reduce the threat of victimization and to prevent makes sense (Carmen & Stretesky, 1997; Edmondson et al., 2007; Fisher & Nasar, 1992, 1995). Situational crime prevention (i.e., improvement of street lighting, restricting walkways, cutting off potential escape routes for offenders, instalment of entry phones and CCTV) can decrease the threat of victimization by shifting attention from criminals to environments (Coon, 2004; Farina, 2009). Accordingly, universities should make concerted efforts to detect campus crime hot-times and hot-spots, increase security features in and around university buildings, and consequently, lessen criminal activities and the threat of victimization (Barberet & Fisher, 2009). Universities should communicate these efforts to students via education programs or websites (Barberet & Fisher, 2009; Dameron et al., 2009). It should be noted that off-campus safety is as important as on-campus safety, needing collaboration from all responsible parties. Universities, police, and communities need to make efforts to improve campus and general area safety and security, and consequently, get at the root of any culture of fear (Kelly & Torres, 2006).

Seventh, university staff should liaise with counselling services to design effective programs to empower students, treat victims, monitor delinquency, and to identify fear-impelling behaviors through a number of proxies, such as stress-producing behaviors, absentee rates, and drop outs. Studies (Balkin, 1979; Rosenbaum & Heath, 1990; Warr, 2000; Williams et al., 1994) show that the threat of victimization leads to considerable social, psychological, physiological, and economic costs for individuals, families, and society. Victims tend to develop negative attitudes towards universities, societies, and peers, leading to dropping out and suicidal ideation (Kerbs et al., 2005; McConnell, 1997). As suggested by the present thesis, decreases in social disorder and assisting students to increase their protective ability, and to enhance their integration and confidence in police can serve effectively to reduce threat of victimization. Thus, it is imperative to educate students about these issues and foster their social networking and self-protective abilities.

It should be noted that young people go through developmental stages; they learn emotions (i.e., fear) in the similar way they learn to commit crime or behave in
delinquent or risk-taking manner (Melde, 2009; Salmi et al., 2004). Studies (Lanier & Dietz, 2009; Lauristen, 2003) reveal that the peak levels of personal victimization in adolescence and early adulthood are related highly to their risk of victimization, time spent away from home, and involvement in delinquency and crime. Those most likely to be victimized are those who have been most involved in crime (Jensen & Brownfield, 1986). Partly owing to beliefs in individualism, young people assert themselves with dyed hair, weird dressing code, so-called cool appearance, sometimes making them suitable targets for hostile gangs and reducing their levels of protection (Tulloch, 2000). Although they might recognize the high risk associated with victimization, it is not uncommon for young people to refuse to or ignore take risk-reduction strategies.

For many young people, victimization is a real threat and not just a hypothetical scenario (Lane, 2009). Thus, victimization prevention programs need to link with attention on youth delinquency and risky behaviors (French & Conrad, 2001; Sweeten et al., 2009). Future studies might consider comparing tertiary students with non-tertiary youth on their involvement in delinquent behaviors and levels of threat of victimization. It might be possible that tertiary students are less likely to get involved in delinquent behaviors and mispublic behaviors, as the quality of education has been shown to be related highly to campus crime (Fox & Hellman, 1985).

Eighth, the present thesis suggests that students, particularly females and international students, need to be empowered ideologically, psychologically, and physically. Barberet and Fisher (2009) noted that students pay less attention to their personal and property safety, with a relatively small proportion of them engaging in prevention and protective behaviors. Students should be provided with safety and security information regularly via education programs, brochures, and seminars, affording adequate unbiased information about crime rates and safety concerning their living areas (i.e., neighborhood, town, metropolitan region), and heightening their faith in law enforcement procedures (Brinkley & Laster, 2003; Marginson et al., 2010). Universities also need to teach students to take control of their lives, enabling their awareness of potential risk associated with certain lifestyles, situations, partners, and strangers (Fisher & Sloan, 2003).
Psychologically, students need to be aware that victimization does not mean the end of world; however, victimization is a potential daily threat rather than scenario. Psychologically empowering students involves training them to understand the consequences of victimization, how and where to seek help, the benefits associated with recovery programs, and developing one-on-one support systems for victims. According to Fisher and Sloan (2003), participating in physical self-defence training enables students to empower themselves psychologically. Notably, endeavors to decrease threat of victimization must be made in conjunction with efforts to fight sexism (Kelly & Torres, 2006), as female tertiary students are found consistently to report significantly higher levels of threat of victimization than their male counterparts (Fisher & May, 2009; Fisher & Wilkes, 2003; Fox et al., 2009).

As well, students need to be empowered physically. Results show that those who report low levels of protective abilities (i.e., protecting themselves, chasing off a potential attacker, escaping an attack) tend to evaluate their environment as unsafe and adopt avoidance strategies. A lack of protective abilities might be attributed to low levels of self-efficacy, physical vulnerabilities, and low self-confidence (Gabriel & Greve, 2003; Jackson, 2009; Killias & Clerici, 2000). According to Schreck et al. (2006), students with low self-control facilitate their own victimization. Proactive measures taken to create safe environments could be developed through empowering communities with education and training programs. It is here that government, police, family, universities, counselling service, and students need to work together.

Last but not the least, this dissertation demonstrates a pressing need to monitor and reduce international students’ threat of victimization, as any threat to their safety and wellbeing has the potential to derail the sustainable development of the international education export industry (Das, 2008). According to Marginson et al. (2010), international students’ threat of victimization should not be viewed as only a mainstream political and economic issue. They should be treated as human beings, rather than cash-cows (Das, 2008). A reduction in international students’ threat of victimization needs collaboration between responsible parties: from host countries,
source countries, to students themselves. No single sector could cover all threats in all areas. All responsible parties need to play an active role in providing students updated and candid information on what they should expect and how they should behave in host countries and regions (Teferra, 2007), with survival strategies being coupled with recovery tactics.

For host countries, government agencies, institutions (i.e., universities, colleges, TAFE, language schools), police, communities, civil and private agents, and local residents need to work together to create safe environments for international students. Safety and security messages should reach all students, including the ways in which they can identify dangers and risks; protect personal and property safety; and approach the police, insurance companies, and hospitals when experiencing victimization. Culturally sensitive strategies and multiple language services need to be developed to ensure that those under threat make full use of legal, economic, health care, cultural, and religious resources (Marginson et al., 2010). Institutions, particularly universities, need to be fully committed to the safety and security of their international students, boosting campus safety, and providing advice on off-campus security. These types of education and training programs and/or information should be carried out throughout the duration of students’ study period, from initial orientation to graduation day. Host countries need to address issues relating to rising threats, rather than turning a blind eye.

Students’ home countries should take actions to protect their citizens at various levels, the responsibilities of which should not be underestimated. Home country governments need to provide adequate information about social, economic, cultural, and political realities about host countries; guidance on appropriate precautions and informed decisions to avoid being victimized; and ways one might adopt when seeking help following victimization. Embassies need to engage actively in the protection of their students, lodging formal complaints and pursuing investigations through diplomatic avenues when following up on students who have been victimized (Teferra, 2007). Interestingly, these were some of the procedures and processes adopted following a number of racially-oriented attacks against subcontinental Indian students in Melbourne, in 2009 (Das, 2010; Rao, 2010). Home countries’ citizens could also play an important
role by organizing peaceful protest marches (Das et al., 2009; Millar & Doherty, 2009).
Students’ families need to keep a close eye on their children’s safety, building an active connection with embassies and host institutions. There is a particular case in point in Australia exemplifying the importance of this issue, when an international student was found dead in her apartment approximately seven months after she was murdered (Illing, 2005).

The ultimate responsibility for taking care of safety, security, and associated wellbeing rests on international students themselves, who need to pay special attention to social, political, and cultural nuances of the countries where they study, and to be aware of potential or actual risks and safety avenues. They need to adapt to the culture, values, and behaviors of their host countries, acknowledge that there are places and times where and when crimes are common, and be familiar with legal systems and other support networks when in trouble. International students need both protection and empowerment (Marginson et al., 2010; Teferra, 2007).

In summary, providing a safe environment is vital, but appears to have been devalued around the world (Marginson et al., 2010). Host countries appear to have sacrificed student safety for other interests (i.e., economics). Government agencies, universities, and associated responsible parties need to provide safe environments for international students both on- and off-campus from a diverse range of perspectives (i.e., psychological, academic). It is central not only to ensure students’ satisfaction and wellbeing but also foster positive relationships between host and home countries (Lee, 2006). Safety issues, to a large extent, determine international students’ decisions concerning their pre-departure choice of host nations (Cohen, 2003; Forbes-Mewett & Nyland, 2008; Mazzarol & Soutar, 2002), and affect their willingness to continue their study post arrival (Lee & Rice, 2007; McMurtrie, 2001). The unspoken assumption is that world-of-mouth accounts for market penetration, both positive and negative. Students who feel that their study abroad has been worthwhile are more likely to provide favourable publicity for host nations and institutions where they obtain their education, than vice versa (Ward et al., 2001).
Future research is encouraged to investigate factors contributing to international students’ threat of victimization, involving cultural distance, English communication skills, living length, social nets, social integration, and victimization. Research on international students’ threat of victimization also needs to take into account their lifestyles. According to MacWilliams (2004), international students who fare ok are those who smoke, drink, and become involved in their host communities. While those who report being afraid are vulnerable, and tend not to stand-up for themselves. International students’ lifestyle and daily activities have been linked with perpetration of crime and victimization (Ho et al., 2007; Marginson et al., 2010). They tend to live in inner urban areas where criminal activities are concentrated and travel at times that increase their risks (Marginson et al., 2010). Furthermore, overseas students are reported to frequently engage in high-risk activities, involving prostitution, gambling, drug addiction, boy-racing, illegal immigration, and gang activities, leading to heightened levels of risk of victimization (Ho et al., 2007; Slovic et al., 1982). Places and behaviors feared or avoided by locals can be regarded as new and exciting attractions for international students, such as vandalism, prostitutions, drugs, and night clubs.

LIMITATIONS

The present findings and associated explanations should be interpreted in the light of a number of limitations associated with the present thesis. First, this thesis involved a large scale quantitative survey that enabled the testing and comparison of the magnitude of relationships between different constructs. Future studies might benefit from using longitudinal and mixed methods (Creswell, 2003) that might lead to serendipitous or even discrepant findings (Farrall et al., 1997).

A second limitation relates to the present nonrecursive model using cross-sectional data that were collected at a single point in time. The major problem of testing reciprocal relationships with cross-sectional data is the time factor. It is generally held that longitudinal data are more appropriate than cross-sectional designs, although there is some merit in nonrecursive model tested by cross-sectional data (Anderson, 1978; Martens & Haase, 2006; Mulaik, 2009). Future research might consider utilizing
longitudinal methods to test CBT and the effects of interventions (i.e., social disorder, social integration) for reducing threat of victimization, over a relatively long period of time. However, such an approach can involve difficulties and high cost. For example, it is difficult to identify reasonable time lags between causes and effects (Kemery et al., 1987; Riger & Gordon, 1979; Wong & Law, 1999).

Third, the present thesis only takes into account a limited number of predictors and dependent variables, with some variables (i.e., prevention or protective behavior, income) being excluded due to data or design limitations. A fully specified model involving all necessary variables is a key assumption to estimate coefficients without any potential bias (Marais & Wecker, 1998; Sackett et al., 2003; Swamy et al., 2003), although it is naturally impractical to collect all requisite data in the social and behavioral sciences (Kim & Frees, 2006, p. 659). Future studies would benefit from investigating variables that are important for understanding threat of victimization yet excluded in the present thesis.

Fourth, the present thesis uses self-administered questionnaires, the measurements of which are subject to common method bias. Although research design, Harman’s one-factor test (Podsakoff et al., 2003), and testing of social desirability (Marlow & Crowne, 1961) social desirability demonstrate a low likelihood of common method bias, the inherent methodological limitations associated with self-reported surveys should not be taken lightly.

Finally, this thesis explored differences between international and local students by assessing measurement equivalence on tested constructs. Key factors determining international students’ threat of victimization are under potentially underrepresented. Future investigations would benefit from investigating key determinants on threat of victimization across students from different countries. Also, owing to different cultural and language backgrounds, international students might have diverse understanding regarding crime, fear, risk, and other related items. Finally, the current thesis was conducted in one metropolitan area across 4 universities. Results might not be generalizable to students who live in other cities where demographic, socioeconomic,
and ecological structures and characteristics differ. It would be interesting to compare and to determine whether the proposed model holds across geographical borders.

**SUMMARY**

Aiming to address an ongoing debate on conceptualization and determinants of fear of crime, this thesis relabels complex multidimensional phenomena as threat of victimization, encompassing cognitive (i.e., perceived risk, perceptions of unsafety), emotional (i.e., fear of crime), and behavioral (i.e., avoidance) components. Within this context, the present thesis incorporates two inter-related studies. Study 1 develops and tests a nonrecursive model involving tertiary students, explicating reciprocal relationships between perceived risk, perceptions of unsafety, fear of crime, and avoidance behavior; and impacts of personal and community-related factors on these four dimensions. Study 2 explores differences between international and local cohorts through testing for measurement equivalence on constructs investigated in Study 1.

Seven theories, across psychology, criminology, sociology, anthropology, and education, underpin this dissertation, involving CBT (Beck, 1964, 1976), the culture shock thesis (Oberg, 1954, 1960), the victimization model (Skogan & Maxfield, 1981), the incivilities thesis (Taylor, 1998, 2001), Garofalo (1981) fear of crime model, the subcultural-diversity model (Merry, 1981), and the group position thesis (Blumer, 1958). The latter five have demonstrated their validity in understanding threat of victimization, but involve inherent limitations. It seems that this is possibly the first time that CBT and the culture shock thesis have been utilized to ground investigations on this issue. CBT provides a robust framework for understanding reciprocal relationships between cognitive, emotional, and behavioral dimensions of threat of victimization, affording theoretical support for Garofalo (1981). The culture shock thesis offers a conceptual background for undertaking investigations on sojourners’ threat of victimization from an anthropological perspective.

Findings emanating from Study 1 indicate that fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior are distinct in their own right, with significant aetiological differences. Positive feedback loops demonstrate that CBT is an appropriate
conceptualization for understanding issues associated with fear of crime. Personal characteristics and community features dynamically influence these four constructs, suggesting that it is important to incorporate perceived risk, perceptions of unsafety, and behavioral adaptations when assessing fear of crime. Generally, female and younger students express significantly higher levels of threat of victimization than their male and relatively older counterparts. Findings suggest that a decrease in social disorder, an increase in protective ability and social integration, and holding confidence in police serve effectively to reduce threat of victimization.

Extending Study 1, Study 2 highlights the importance of ethnicity in understanding threat of victimization, suggesting that it is important to pay attention to international students’ threat of victimization. Despite nonsignificant differences between reported levels of direct victimizations, international students report significantly higher levels of threat of victimization, with associated lower levels of social disorder, social integration, and protective ability than their local counterparts. This investigation emphasizes that testing for measurement equivalence should be viewed as precondition when undertaking multiple group analyses, as cohorts might differ on their interpretation of tested constructs.

Conceptually recognizing distinctions between cognitive, emotional, and behavioral facets of threat of victimization; development of valid operationalizations; and choice of either recursive or nonrecursive models in an investigation can influence the significance of predictors, direction of causative relationships between variables in explanatory models, and subsequent findings and conclusions (Farrall et al., 1997; Miethe, 1995; Schafer et al., 2006), thus influencing public policy development. Understanding fear of crime is challenging because it is possible that significant differences in causes of fear might exist (Meško et al., 2008). According to Gabriel and Greve (2003), fear of crime can be regarded as homogeneous on the basis of normative evaluations of criminal activities, but heterogeneous owing to its dynamic characteristics relating to individual relevance, interpretation, and consequences. Thus, implications for further research are emergent and open to debate.
This dissertation culminates in a number of important implications for research, public policy, police, and universities. As noted earlier, it appears to be the first to utilize CBT, a psychology-based epistemology, to understand causes and consequences of fear of crime and supports reciprocal relationships between cognitive, emotional, and behavioral facets of threat of victimization, filling a long-standing theoretical gap. As well, it seems that this is the first piece of research that simultaneously investigates the impact of personal characteristics and community-related factors on fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior within a cyclic frame of reference, challenging leading recursive models and nonrecursive frameworks involving the assessment of only bivariate DVs in the fear of crime literature. Third, this thesis utilizes a sample of tertiary students, extending the literature that has traditionally focussed predominately on adult resident participants. Understanding tertiary students’ feelings of threat of victimization is of special interest because they are integral for the future economic development of many countries. Fourth, this is the first thesis to compare international and local students on their levels of threat of victimization, highlighting the important role of ethnicity in understanding this phenomenon. Fifth, the present positive reciprocal framework provides new insights for policy makers, police, communities, counselling services, students, and international student home countries. Finally, the present thesis employs SEM procedures, developing sound constructs with associated multi-items that have high levels of validity and reliability. Testing for measurement equivalence, when undertaking a cross-cultural analysis, is another distinguishing feature of this thesis.

In closing, this thesis provides a first step towards understanding how fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior reciprocally and positively influence each other; how personal characteristics and community-related factors influence threat of victimization within a nonrecursive frame of reference; and how international and local tertiary students differ on their perceptions of threat of victimization. The present dissertation is possibly the first study to integrate CBT with frameworks adopted in the fear of crime area, demonstrating positive reciprocal relationships between fear of crime, perceived risk, perceptions of unsafety, and avoidance behavior. The present thesis helps to diminish terminological ambiguity and
operational inconsistency, laying the groundwork and advancing conceptual foundations upon which threat of victimization can be assessed than has so far been reached in this field. Given the importance of the disposition of international students, the current thesis invites key stakeholders to raise their awareness of the threat of victimization of people from culturally and linguistically diverse backgrounds. Thus, understanding tertiary students’ threat of victimization is important because of their personal, social, cultural, public policy, and economic contributions to communities and nations.


Fornell, Claes, & Larcker, David F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.


Appendix 3.1 Plain Language Statement for The Threat of Victimization Questionnaire

Date: 19-06-2007

Dear Participant,

Plain Language Statement

You are invited to participate in a research project being conducted by RMIT University, which will take about 15 minutes to complete. This information sheet describes the project in straightforward language, or ‘plain English’. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate.

I am a PhD student in the School of Management at RMIT University. This project is being conducted as part of my PhD degree and being supervised by Professor Kosmas Smyrnios. The project has been approved by the RMIT Human Research Ethics Committee. My research topic is *A Cognitive Behavioral Perspective of Drivers of Threat of Victimization Involving Local and International Tertiary Students*. This study aims to investigate tertiary students’ threat of victimization. Your participation will have a positive and significant effect on recommendations for preventing crimes against tertiary students.

Approximately 1500 participants will be recruited for this research. Questions are designed to examine your levels of threat of victimization, perceived personal vulnerabilities, and perceptions about the community in which you live. You can examine the questionnaire before deciding whether you want to participate.
Participation in this research is entirely voluntary; you may withdraw your participation and any unprocessed data concerning you at any time, without prejudice.

All information collected is strictly confidential and can only be accessed by my supervisor and I. Data collected will be analysed for my thesis and findings may appear in publications. Results will be reported in a manner which does not enable you to be identified. Thus, reporting will protect your anonymity. There is no perceived risk outside your normal day-to-day activities. Any information that you provide can be disclosed only if (1) it is to protect you or others from harm, (2) a court order is produced, or (3) you provide the researchers with written permission. The research data will be kept securely at RMIT for a period of 5 years before being destroyed. Because of the nature of data collection, we are not obtaining written informed consent from you. Instead, we assume that you have given consent by your completion and return of the questionnaires.

If you are unduly concerned about your responses to any of the questionnaire items, or if you find participation in the project distressing, or if you have any queries, please contact my supervisor Professor Kosmas Smyrnios, phone 03 9925 1633, email kosmas.smyrnios@rmit.edu.au; or the Chair of the RMIT Business Human Research Ethics Sub-committee Associate Professor Carlene Boucher, phone 03 9925 5914, email rdu@rmit.edu.au. They will discuss your concerns with you confidentially and suggest appropriate follow-up, if necessary.

Yours Sincerely,

Lin Xiong
Student Investigator
Appendix 3.2 The Threat of Victimization Questionnaire

This survey involves 11 sections, which should take about 15 minutes to complete. Please answer ALL questions by SELECTING the appropriate number that BEST describe your situation.

### Part 1: Demographic Characteristics

1. **Gender**
   - Male 1
   - Female 2

2. **Age**
   - Under 20 1
   - 21-25 2
   - 26 Plus 3

3. **I am currently studying for**
   - Undergraduate Degree 1
   - Postgraduate Degree (e.g., MBA and Doctorate) 2

4. **My current citizenship status is**
   - Australia Citizen (e.g., Australia-born, immigrant) and Permanent Resident 1
   - Citizen of another country 2
   - Other___________________________(Please specify) 3

5. **I have been in Melbourne**
   - Less than 6 months 1
   - Between 6 months and 12 months 2
   - 1-2 years 3
   - More than 3 years 4

6. **Is English your first language?**
   - Yes 1
   - No 2

   If no, how fluently do you speak English?
   - Not Fluently 1
   - Fluently 2
   - Very Fluently 3

7. **How would you rate your general physical health?**
   - Poor 1
   - Good 2
   - Excellent 3

### Part 2: Fear of Crime (FC)

During your everyday life in Melbourne, how AFRAID are you of becoming a victim of the following crimes?

<table>
<thead>
<tr>
<th>Crime</th>
<th>Not at all Afraid</th>
<th>Extremely Afraid</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC1: Being cheated out of money</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>FC2: Having your room broken into while you are away</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>FC3: Having your room broken into while you are there</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>FC4: Being raped, sexually assaulted or harassed</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>FC5: Being physically attacked (e.g., assaulted, kidnapped)</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>FC6: Having your car stolen or things stolen from your car</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>FC7: Being robbed or mugged</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>FC8: Being attacked/harassed, threatened or verbally abused due to your ethnic origin</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3.2 (Continued)

Part 3: Social Disorder (SD)

How SERIOUS do you think are the following incivilities in Melbourne?

<table>
<thead>
<tr>
<th>SD1: Groups of teenagers fighting, vandalizing, or harassing</th>
<th>Not at all Serious</th>
<th>Very Serious</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SD2: People drunk in public</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD3: Prostitution</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD4: Harassment, threatening behavior or verbal abuse in the street</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD5: Drug dealing and drug offers</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD6: Racial harassment or attack</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

To what extent do you AGREE with the following statements?

Part 4: Protective Ability (PA)

<table>
<thead>
<tr>
<th>PA1: If someone assaulted me, I could protect myself</th>
<th>Strongly Disagree</th>
<th>Strong Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>PA2: I think I am capable of chasing off a potential attacker</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>PA3: I am capable of escaping or resisting an attack by an attacker</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Part 5: Confidence in Police (CP)

| CP1: Overall, the police do a good job | 1 | 2 | 3 | 4 | 5 |
| CP2: Police are effective in clearing up crime and catching criminals | 1 | 2 | 3 | 4 | 5 |
| CP3: Police respond quickly to calls for assistance | 1 | 2 | 3 | 4 | 5 |

Part 6: Social Integration (SI)

| SI1: I feel that Melbourne is more of a real home than just a place to study | 1 | 2 | 3 | 4 | 5 |
| SI2: I often talk with my neighbors or local people | 1 | 2 | 3 | 4 | 5 |
| SI3: On the whole, I am satisfied with Melbourne | 1 | 2 | 3 | 4 | 5 |
| SI4: I am happy with the kind of people in Melbourne | 1 | 2 | 3 | 4 | 5 |
| SI5: I have a lot of things in common with people in Melbourne | 1 | 2 | 3 | 4 | 5 |
Appendix 3.2 (Continued)

Part 7: Perceived Risk (PR)

How LIKELY do you think it is that the following will happen to you over the next 12 months?

<table>
<thead>
<tr>
<th>PR</th>
<th>Extremely Unlikely</th>
<th>Extremely Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR1: Being cheated out of money</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PR2: Having your room broken into while you are away</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PR3: Having your room broken into while you are there</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PR4: Being raped, sexual assaulted or harassed</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PR5: Being physically attacked (e.g., assaulted, kidnapped)</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PR6: Having your car stolen or things stolen from your car</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PR7: Being robbed or mugged</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PR8: Being attacked/harassed, threatened or verbally abused due to ethnic origin</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

Part 8: Avoidance Behavior (AB)

How OFTEN does fear of crime prevent you from doing the following activities?

<table>
<thead>
<tr>
<th>AB</th>
<th>Never</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB1: Walking in your neighborhood after dark</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>AB2: Walking in the city after dark</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>AB3: Leaving home when it is dark</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>AB4: Opening the door to strangers in the evening or at night</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>AB5: Attending outside activities or events (e.g., sports, religious events or movie)</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>AB6: Visiting night spots/clubs/bars</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>AB7: Visiting certain areas</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

Part 9: Perceptions of Unsafety (PU)

During your everyday life in Melbourne, how SAFE do you feel?

<table>
<thead>
<tr>
<th>PU</th>
<th>Very Unsafe</th>
<th>Very Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td>PU1: Walking in the city alone after dark</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PU2: In your neighborhood after dark</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PU3: Using public transport after dark</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>PU4: Visiting night spots/clubs/bars</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3.2 (Continued)

**Part 10: Victimization**

Over the previous 12 months (or since arriving in Melbourne), have you been exposed to following crimes?

<table>
<thead>
<tr>
<th>Crime Description</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DV1: Being cheated out of money</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>DV2: Having your room broken into while you are away</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>DV3: Having your room broken into while you are there</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>DV4: Being raped, sexual assaulted or harassed</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>DV5: Being physically attacked (e.g., assaulted or kidnapped)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>DV6: Having your car stolen or things stolen from your car</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>DV7: Being robbed or mugged</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>DV8: Being attacked/harassed, threatened or verbally abused due to ethnic origin</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Over the previous 12 months (or since arriving in Melbourne), has someone close to you (friend, relative, or acquaintance) been exposed to the following crimes?

<table>
<thead>
<tr>
<th>Crime Description</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDV1: Being cheated out of money</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IDV2: Having your room broken into while you are away</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IDV3: Having your room broken into while you are there</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IDV4: Being raped, sexual assaulted or harassed</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IDV5: Being physically attacked (e.g., assaulted or kidnapped)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IDV6: Having your car stolen or things stolen from your car</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IDV7: Being robbed or mugged</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IDV8: Being attacked/harassed, threatened or verbally abused due to ethnic origin</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Part 11: Social Desirability (SD)**

Do you AGREE or DISAGREE with the following statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD1: It is sometimes hard for me to go on with my work if I am not</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>encouraged.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD2: I sometimes feel angry (hurt) when I don’t get my way.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD3: No matter who I’m talking to, I’m always a good listener.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD4: There have been occasions when I took advantage of someone.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD5: I’m always willing to admit it when I make a mistake.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD6: I sometimes try to take revenge rather than forgive and forget.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD7: I am always courteous, even to people who are disagreeable.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD8: I have never been annoyed when people express ideas very different</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>from my own.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD9: There have been times when I was quite jealous of the good fortune</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>of others.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD10: I am sometimes annoyed by people who ask favours of me</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SD11: I have never deliberately said something that hurt someone’s feelings.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
### Appendix 3.3 Skewness and Kurtosis Values for Direct Victimization and Indirect Victimization

<table>
<thead>
<tr>
<th>Offense types</th>
<th>Mean</th>
<th>Std. D</th>
<th>Skewness Statistic</th>
<th>Std. Error</th>
<th>Kurtosis Statistic</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Victimization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV1: Being cheated out of money</td>
<td>.204</td>
<td>.403</td>
<td>1.470</td>
<td>.074</td>
<td>.161</td>
<td>.147</td>
</tr>
<tr>
<td>DV2: Having your room broken into while you are away</td>
<td>.072</td>
<td>.259</td>
<td>3.308</td>
<td>.074</td>
<td>8.961</td>
<td>.147</td>
</tr>
<tr>
<td>DV3: Having your room broken into while you are there</td>
<td>.046</td>
<td>.210</td>
<td>4.336</td>
<td>.074</td>
<td>16.836</td>
<td>.147</td>
</tr>
<tr>
<td>DV4: Being raped, sexual assaulted or harassed</td>
<td>.070</td>
<td>.255</td>
<td>3.389</td>
<td>.074</td>
<td>9.500</td>
<td>.147</td>
</tr>
<tr>
<td>DV5: Being physically attacked (e.g., assaulted or kidnapped)</td>
<td>.071</td>
<td>.256</td>
<td>3.361</td>
<td>.074</td>
<td>9.316</td>
<td>.147</td>
</tr>
<tr>
<td>DV6: Having your car stolen or things stolen from your car</td>
<td>.080</td>
<td>.271</td>
<td>3.113</td>
<td>.074</td>
<td>7.706</td>
<td>.147</td>
</tr>
<tr>
<td>DV7: Being robbed or mugged</td>
<td>.075</td>
<td>.263</td>
<td>3.232</td>
<td>.074</td>
<td>8.462</td>
<td>.147</td>
</tr>
<tr>
<td>DV8: Being attacked/harassed, threatened or verbally abused due to ethnic origin</td>
<td>.228</td>
<td>.420</td>
<td>1.301</td>
<td>.074</td>
<td>-1.308</td>
<td>.147</td>
</tr>
<tr>
<td><strong>Indirect Victimization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDV1: Being cheated out of money</td>
<td>.348</td>
<td>.476</td>
<td>.640</td>
<td>.074</td>
<td>-1.593</td>
<td>.147</td>
</tr>
<tr>
<td>IDV2: Having your room broken into while you are away</td>
<td>.264</td>
<td>.441</td>
<td>1.074</td>
<td>.074</td>
<td>-.849</td>
<td>.147</td>
</tr>
<tr>
<td>IDV3: Having your room broken into while you are there</td>
<td>.123</td>
<td>.328</td>
<td>2.301</td>
<td>.074</td>
<td>3.300</td>
<td>.147</td>
</tr>
<tr>
<td>IDV4: Being raped, sexual assaulted or harassed</td>
<td>.135</td>
<td>.341</td>
<td>2.144</td>
<td>.074</td>
<td>2.602</td>
<td>.147</td>
</tr>
<tr>
<td>IDV5: Being physically attacked (e.g., assaulted or kidnapped)</td>
<td>.224</td>
<td>.417</td>
<td>1.326</td>
<td>.074</td>
<td>-.243</td>
<td>.147</td>
</tr>
<tr>
<td>IDV6: Having your car stolen or things stolen from your car</td>
<td>.307</td>
<td>.462</td>
<td>.837</td>
<td>.074</td>
<td>-1.301</td>
<td>.147</td>
</tr>
<tr>
<td>IDV7: Being robbed or mugged</td>
<td>.245</td>
<td>.430</td>
<td>1.189</td>
<td>.074</td>
<td>-1.588</td>
<td>.147</td>
</tr>
<tr>
<td>IDV8: Being attacked/harassed, threatened or verbally abused due to ethnic origin</td>
<td>.328</td>
<td>.470</td>
<td>.734</td>
<td>.074</td>
<td>-1.464</td>
<td>.147</td>
</tr>
</tbody>
</table>
Appendix 3.4 Descriptive Statistics, Factor Loadings, Communalities, and Correlation Matrix for Eight Latent Constructs

**Fear of Crime (FC)**

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Factor loadings (Extraction)</th>
<th>Communality</th>
<th>FC1</th>
<th>FC2</th>
<th>FC3</th>
<th>FC4</th>
<th>FC5</th>
<th>FC6</th>
<th>FC7</th>
<th>FC8</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC1: Being cheated out of money</td>
<td>2.71</td>
<td>1.18</td>
<td>.65</td>
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<tr>
<td>FC2: Having your room broken into while you are away</td>
<td>2.81</td>
<td>1.32</td>
<td>.78</td>
<td>.61</td>
<td>.59**</td>
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<tr>
<td>FC3: Having your room broken into while you are there</td>
<td>2.71</td>
<td>1.45</td>
<td>.84</td>
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<td>.53**</td>
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<tr>
<td>FC4: Being raped, sexually assaulted or harassed</td>
<td>2.89</td>
<td>1.46</td>
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<td>.51**</td>
<td>.62**</td>
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<tr>
<td>FC5: Being physically attacked (e.g., assaulted, kidnapped, or murdered)</td>
<td>3.05</td>
<td>1.36</td>
<td>.87</td>
<td>.76</td>
<td>.52**</td>
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<td>.72**</td>
<td>.80**</td>
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<tr>
<td>FC6: Having your car stolen or things stolen from your car</td>
<td>2.84</td>
<td>1.31</td>
<td>.64</td>
<td>.41</td>
<td>.44**</td>
<td>.53**</td>
<td>.47**</td>
<td>.50**</td>
<td>.53**</td>
<td>1.00</td>
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<tr>
<td>FC7: Being robbed or mugged</td>
<td>3.06</td>
<td>1.28</td>
<td>.85</td>
<td>.72</td>
<td>.55**</td>
<td>.62**</td>
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<td>.70**</td>
<td>.76**</td>
<td>.62**</td>
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<tr>
<td>FC8: Being attacked, harassed, threatened or verbally abused due to ethnic origin</td>
<td>2.81</td>
<td>1.40</td>
<td>.76</td>
<td>.58</td>
<td>.54**</td>
<td>.57**</td>
<td>.62**</td>
<td>.61**</td>
<td>.68**</td>
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<td>.69**</td>
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**Note.** **Correlation is significant at the 0.01 level (2-tailed)**
## Appendix 3.4 (Continued)

### Perceived Risk (PR)

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<th>Items</th>
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<th>Factor loadings</th>
<th>Communality (Extraction)</th>
<th>PR1</th>
<th>PR2</th>
<th>PR3</th>
<th>PR4</th>
<th>PR5</th>
<th>PR6</th>
<th>PR7</th>
<th>PR8</th>
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<tbody>
<tr>
<td>PR1: Being cheated out of money</td>
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<td>1.05</td>
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<tr>
<td>PR2: Having your room broken into while you are away</td>
<td>1.96</td>
<td>.97</td>
<td>.80</td>
<td>.64</td>
<td>.49*</td>
<td>.79*</td>
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</tr>
<tr>
<td>PR3: Having your room broken into while you are there</td>
<td>1.78</td>
<td>.92</td>
<td>.80</td>
<td>.64</td>
<td>.49*</td>
<td>.58*</td>
<td>.64*</td>
<td>1.00</td>
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<tr>
<td>PR4: Being raped, sexually assaulted or harassed</td>
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<td>.93</td>
<td>.77</td>
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<td>.44*</td>
<td>.58*</td>
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<td></td>
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<tr>
<td>PR5: Being physically attacked (e.g., assaulted, kidnapped, or murdered)</td>
<td>1.92</td>
<td>.94</td>
<td>.83</td>
<td>.69</td>
<td>.49*</td>
<td>.61*</td>
<td>.61*</td>
<td>.70*</td>
<td>.70*</td>
<td>1.00</td>
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<tr>
<td>PR6: Having your car stolen or things stolen from your car</td>
<td>2.03</td>
<td>1.03</td>
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<td>.39*</td>
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<td>.47*</td>
<td>.54*</td>
<td>.54*</td>
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<tr>
<td>PR7: Being robbed or mugged</td>
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<td>1.01</td>
<td>.82</td>
<td>.67</td>
<td>.48*</td>
<td>.62*</td>
<td>.60*</td>
<td>.59*</td>
<td>.71*</td>
<td>.61*</td>
<td>.61*</td>
<td>1.00</td>
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<tr>
<td>PR8: Being attacked, harassed, threatened or verbally abused due to your ethnic origin</td>
<td>2.16</td>
<td>1.14</td>
<td>.69</td>
<td>.48</td>
<td>.43*</td>
<td>.50*</td>
<td>.48*</td>
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<td>.42*</td>
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**Note.** Correlation is significant at the 0.01 level (2-tailed)

### Perceptions of Unsafety (PU)

<table>
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<th>Factor loadings</th>
<th>Communality (Extraction)</th>
<th>PU1</th>
<th>PU2</th>
<th>PU3</th>
<th>PU4</th>
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</thead>
<tbody>
<tr>
<td>PU1: Walking in the city alone after dark</td>
<td>2.57</td>
<td>1.11</td>
<td>.82</td>
<td>.67</td>
<td>1.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PU2: In your neighborhood after dark</td>
<td>3.09</td>
<td>1.16</td>
<td>.67</td>
<td>.45</td>
<td>.55*</td>
<td>1.00</td>
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<tr>
<td>PU3: Using public transport after dark</td>
<td>2.74</td>
<td>1.17</td>
<td>.78</td>
<td>.61</td>
<td>.65*</td>
<td></td>
<td>.52*</td>
<td>1.0</td>
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<tr>
<td>PU4: Visiting night spots/clubs/bars</td>
<td>2.88</td>
<td>1.21</td>
<td>.64</td>
<td>.41</td>
<td>.51*</td>
<td>.45*</td>
<td>.49*</td>
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**Note.** Correlation is significant at the 0.01 level (2-tailed)
### Appendix 3.4 (Continued)

#### Avoidance Behavior (AB)

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<th>Items</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Factor loadings</th>
<th>Communality (Extraction)</th>
<th>AB1</th>
<th>AB2</th>
<th>AB3</th>
<th>AB4</th>
<th>AB5</th>
<th>AB6</th>
<th>AB7</th>
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</thead>
<tbody>
<tr>
<td>AB1: Walking in your neighborhood after dark</td>
<td>2.79</td>
<td>1.33</td>
<td>.83</td>
<td>.68</td>
<td>1.00</td>
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</tr>
<tr>
<td>AB2: Walking in the city after dark</td>
<td>3.06</td>
<td>1.30</td>
<td>.82</td>
<td>.66</td>
<td>.73**</td>
<td>1.00</td>
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</tr>
<tr>
<td>AB3: Leaving home when it is dark</td>
<td>2.78</td>
<td>1.32</td>
<td>.88</td>
<td>.78</td>
<td>.75**</td>
<td>.72**</td>
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<tr>
<td>AB4: Opening the door to strangers in the evening or at night</td>
<td>3.09</td>
<td>1.35</td>
<td>.67</td>
<td>.45</td>
<td>.53**</td>
<td>.53**</td>
<td>.57**</td>
<td>1.00</td>
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</tr>
<tr>
<td>AB5: Attending outside activities or events (e.g., sports, religious events or movie)</td>
<td>2.20</td>
<td>1.12</td>
<td>.62</td>
<td>.38</td>
<td>.43**</td>
<td>.43**</td>
<td>.58**</td>
<td>.44**</td>
<td>1.00</td>
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<td></td>
</tr>
<tr>
<td>AB6: Visiting night spots/clubs/bars</td>
<td>2.66</td>
<td>1.30</td>
<td>.68</td>
<td>.47</td>
<td>.50**</td>
<td>.51**</td>
<td>.59**</td>
<td>.49**</td>
<td>.59**</td>
<td>1.00</td>
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<tr>
<td>AB7: Visiting certain areas</td>
<td>2.99</td>
<td>1.18</td>
<td>.60</td>
<td>.36</td>
<td>.45**</td>
<td>.49**</td>
<td>.47**</td>
<td>.49**</td>
<td>.40**</td>
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<td>1.00</td>
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**Note.** **Correlation is significant at the 0.01 level (2-tailed)**

#### Protective Ability (PA)

<table>
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<th>Items</th>
<th>Mean Score</th>
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<th>Factor loadings</th>
<th>Communality (Extraction)</th>
<th>Correlation Matrix PA1</th>
<th>Correlation Matrix PA2</th>
<th>Correlation Matrix PA3</th>
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</thead>
<tbody>
<tr>
<td>PA1: If someone assaulted me, I could protect myself</td>
<td>3.25</td>
<td>1.13</td>
<td>.51</td>
<td>.72</td>
<td>1.00</td>
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<tr>
<td>PA2: I think I am capable of chasing off a potential attacker</td>
<td>2.81</td>
<td>1.10</td>
<td>.81</td>
<td>.90</td>
<td>.65**</td>
<td>1.00</td>
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<tr>
<td>PA3: I am capable of escaping or resisting an attack by an attacker</td>
<td>2.99</td>
<td>1.09</td>
<td>.67</td>
<td>.82</td>
<td>.59**</td>
<td>.74**</td>
<td>1.00</td>
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**Note.** **Correlation is significant at the 0.01 level (2-tailed)**
### Appendix 3.4 (Continued)

#### Social Disorder

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<th>Factor loadings</th>
<th>Communality (Extraction)</th>
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<th>SD2</th>
<th>SD3</th>
<th>SD4</th>
<th>SD5</th>
<th>SD6</th>
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<tbody>
<tr>
<td>SD1: Groups of teenagers fighting, vandalizing, or harassing</td>
<td>3.38</td>
<td>1.28</td>
<td>.81</td>
<td>.66</td>
<td>.48**</td>
<td>1.00</td>
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<tr>
<td>SD2: People drunk in public</td>
<td>3.61</td>
<td>1.16</td>
<td>.53</td>
<td>.28</td>
<td>.48**</td>
<td>1.00</td>
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<tr>
<td>SD3: Prostitution</td>
<td>2.58</td>
<td>1.30</td>
<td>.68</td>
<td>.48</td>
<td>.59**</td>
<td>.41**</td>
<td>1.00</td>
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<tr>
<td>SD4: Harassment, threatening behavior or verbal abuse in the street</td>
<td>3.34</td>
<td>1.30</td>
<td>.81</td>
<td>.66</td>
<td>.68**</td>
<td>.47**</td>
<td>.52**</td>
<td>1.00</td>
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<tr>
<td>SD5: Drug dealing and drug offers</td>
<td>3.30</td>
<td>1.43</td>
<td>.80</td>
<td>.62</td>
<td>.63**</td>
<td>.37**</td>
<td>.57**</td>
<td>.61**</td>
<td>1.00</td>
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<tr>
<td>SD6: Racial harassment or attack</td>
<td>3.41</td>
<td>1.36</td>
<td>.82</td>
<td>.67</td>
<td>.65**</td>
<td>.34**</td>
<td>.54**</td>
<td>.68**</td>
<td>.70**</td>
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**Note.** **Correlation is significant at the 0.01 level (2-tailed)**

#### Social Integration (SI)

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<th>Items</th>
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<th>SI3</th>
<th>SI4</th>
<th>SI5</th>
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</thead>
<tbody>
<tr>
<td>SI1: I feel that Melbourne is more of a real home than just a place</td>
<td>3.55</td>
<td>1.21</td>
<td>.67</td>
<td>.45</td>
<td>.45</td>
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<tr>
<td>to study</td>
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<tr>
<td>SI2: I often talk with my neighbors or local people</td>
<td>2.90</td>
<td>1.25</td>
<td>.43</td>
<td>.18</td>
<td>.40**</td>
<td>1.00</td>
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<tr>
<td>SI3: On the whole, I am satisfied with</td>
<td>3.92</td>
<td>.92</td>
<td>.88</td>
<td>.77</td>
<td>.58**</td>
<td>.33**</td>
<td>1.00</td>
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<tr>
<td>Melbourne</td>
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<tr>
<td>SI4: I am happy with the kind of people in Melbourne</td>
<td>3.81</td>
<td>.92</td>
<td>.77</td>
<td>.59</td>
<td>.46**</td>
<td>.29**</td>
<td>.70**</td>
<td>1.00</td>
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<tr>
<td>SI5: I have a lot of things in common with</td>
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<td>1.07</td>
<td>.50</td>
<td>.25</td>
<td>.42**</td>
<td>.37**</td>
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<tr>
<td>people in Melbourne</td>
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**Note.** **Correlation is significant at the 0.01 level (2-tailed)**
Appendix 3.4 (Continued)

Confidence in Police (CP)

<table>
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<th>Items</th>
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<th>Std. Dev</th>
<th>Factor loadings</th>
<th>Communality (Extraction)</th>
<th>Correlation Matrix</th>
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<tbody>
<tr>
<td>CP1: Overall, the police do a good job</td>
<td>3.37</td>
<td>.98</td>
<td>.76</td>
<td>.57</td>
<td>1.00</td>
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<tr>
<td>CP2: Police are effective in clearing up crime and catching criminals</td>
<td>3.18</td>
<td>.91</td>
<td>.80</td>
<td>.65</td>
<td>.61**</td>
</tr>
<tr>
<td>CP3: Police respond quickly to calls for assistance</td>
<td>3.21</td>
<td>.92</td>
<td>.71</td>
<td>.51</td>
<td>.54**</td>
</tr>
</tbody>
</table>

**Note.** **Correlation is significant at the 0.01 level (2-tailed)**
Appendix 3.5 Testing for Common Method Bias, Model A: Multi-factor Measurement Model with Items Loading on Purported Latent Constructs
Appendix 3.6 Testing for Common Method Bias, Model B: Measurement Model with Items Loading on Purported Latent Constructs and Social Desirability Variable
Appendix 3.7 Testing for Common Method Bias, Model C: Measurement Model with Items Loading on Purported Latent Constructs and Common Method Bias Variable