

The Moderating Role of Service Design Attributes in Females' Fear of Crime in the Underground

A thesis submitted for the degree of Doctor of Philosophy

by

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Abstract

A great number of female passengers appear to feel fear of crime in underground railways and appear to be affected by the problem in terms of their frequency of use of the underground service, compared to males. However, although it has been dealt with as a problem to be ameliorated in the underground by Transport for London (TFL), how the service is designed to affect their fear and what factors should be taken into account in underground service design to alleviate fear of crime have not been fully answered to date. This research, therefore, aims to identify the influential factors of service design of the underground on female users' fear of crime by investigating the features and their configurations of the London Underground service, which mediate the user groups' fear.

In order to identify the influential design attributes of the London Underground, which mediate female users' fear of crime in situations, first, literature on emotion and fear, gender and sex, and service design and the elements of service are reviewed to find the intersection among the research domains. Based on the theoretical foundation, two user studies are designed to identify the role of female users' gender in the underground and the influential factors of the underground service on the groups' fear. Thirty one female user interviews are accordingly conducted and analysed in an 'abductive' manner. As a result, the mechanisms of female users' fear of crime in the underground are revealed and the service design attributes in the mechanism are identified. Consequently, a conceptual model of the influential factors of service design on female users' fear of crime is developed.

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CHAPTER 1

Introduction to the Thesis

CHAPTER 1 INTRODUCTION TO THE THESIS

Fear of crime has been dealt with as a common and widespread social problem which leads to a fractured sense of community, neighbourhood, and public spaces and therefore, should be mitigated. Statistics and research concerning fear of crime have constantly highlighted the negative influence on individuals and certain vulnerable groups' everyday lives all over the worlds' cities (e.g. Jackson and Stafford, 2009; Whitley and Prince, 2005). Among groups of people, females are shown to express a greater level of fear of crime than males and exhibit behavioural changes in public spaces (e.g. Ferraro, 1993, 1996; Madriz, 1997; Pain, 1997; Warr, 1984, 1985) such as the underground (Crime Concern, 2006; TFL, 2012) In this chapter, with respect to the phenomenon, the groundwork of the research is built by diagnosing previous relevant research and suggesting the rationale of the research. The aim and objectives of the research are formulated and the structure of the thesis is designed accordingly.

1.1 Background of the Research

According to Transport for London (2012), fear of crime on the bus or train is shown to be a barrier to using public transport more often for 33 per cent of females and 24 per cent of males in London with other related problems such as concern about anti-social behaviour (42 per cent of women/ 30 per cent of men) and concern about knife crime (34 per cent of women/ 22 per cent of men). Concerns and fear of crime appears to affect 65 per cent of female Londoners' use of the underground, bus and train after dark and 30 per cent of the same group during the day whereas it is shown to affect 45 per cent of males after dark. Regarding the underground, females are also shown to be more sensitive to crime and anti-social behaviour as 58 per cent and 30 per cent of female Londoners appear to be affected by the problem in terms of the frequency of their use of the underground service after dark and during the day compared to male Londoners (33 per cent after dark and 17 per cent during the day).

In the light of the behavioural consequence of fear of crime, research on fear of crime suggests manifold negative effects on individuals such as a sense of powerlessness and mistrust (Ross and Mirowsky, 2001) and avoidance and constrained behaviour, involving avoidance of certain places at certain times or events and restricted activities (May, Rader, and Goodrum, 2010; Jackson and Stafford, 2009; Whitley and Prince, 2005). Moreover, constrained behaviour as a consequence of fear of crime appears to

Women	Men
1. Walking in multi-story car parks (62%)	1. Waiting on underground platforms (32%)
2. Waiting on underground platforms (61%)	2. Travel on the underground (32%)
3. Waiting on train platforms (60%)	3. Walking in multi-story car parks (31%)
4. Travel on the underground (60%)	4. Waiting on train platforms (25%)
5. Walking from stop/station (59%)	5. Walking from stop/ station (25%)
6. Travel on trains (51%)	6. Walking in open car parks (21%)
7. Walking in open car parks (51%)	7. Walking to stop or station (20%)
8. Waiting at a bus stop (49%)	8. Waiting at a bus stop (20%)
9. Walking to stop or station (48%)	9. Travel on trains (20%)
10. Travel on buses (40%)	10. Travel on buses (18%)

Table 1. 1 Locations/ Journeys where women and men feel most insecure after dark, 2002 (Crime Concern, 2004)

cause reduced possibility of accessing social support and work opportunities or participation in social activities (Whitley and Prince, 2005). From this point of view, fear of crime in people who have weak physical and mental health and women, has been shown to affect and promote inequalities between individuals and societies and has a significant impact on individuals' well-being (e.g., Jackson and Stafford, 2009). In this respect, the President's Commission on Law Enforcement and Administration of Justice in USA (1967:3) stated, decades ago, that *'the most damaging of the effects of violent crime is fear, and that fear must not be belittled'* (Warr, 2000).

As the statistics above exemplify, gender has been shown to be the biggest single demographic factor in fear of crime and one of the markers of vulnerability to crime (e.g. Killias, 1990) despite female groups' low victimization rates, compared to males which is referred to as 'fear paradox' (e.g., Ferraro, 1996; Franklin and Franklin, 2009; Schafer, Huebner and Bynum, 2006). In addition, according to another study on the London transport network (Crime Concern, 2004), female users are shown to express higher levels of anxiety and fear in using the underground compared to other modes of transport and feel insecure in different ways when waiting on underground platforms, travelling on the underground and walking from or to a station (presented in table 1.1). Then, how does the underground service affect female users' fear of crime; and which factors should be taken into account in service design to ameliorate the group's fear in the underground?

1.2 Rationale of the Research

Research on design emphasises the significant role of design in relation to crime (Design against Crime, 2000, 2008) and literature on service also indicates that the design of social and physical conditions of the service has a significant role in users' emotional responses (e.g. Bitner, 1992; Fitzsimmons and Fitzsimmons, 2008). However, how service design affects fear of crime which appears to affect certain users to avoid using the service at certain times and in certain spaces, has not been fully answered to date. In this section, therefore, the research gap in design and service literature is defined and, accordingly, the research approach towards females' fear of crime in the underground is proposed.

1.2.1 Motivation of the Research and Research Gap

Design research in relation to crime has been focused on crime prevention as exemplified in 'Defensible Space' by Newman (1972), 'Crime Prevention through Environmental Design', CPTED (1971) by the criminologist and sociologist Jeffery and 'Situational Crime Prevention' by Clarke and Mayhew (1980). These design theories are typically used as a critical point of reference in current approaches to the crime-design relationship in academic and empirical research (e.g., Colquhoun, 2007; Reynald and Elffers, 2009). In respect of fear of crime, in these design principles, diminishing fear of crime has been expected as a chain reaction to crime prevention (e.g., Crowe, 1991, 2013) and fear of crime has hardly been researched as an independent domain, unlike criminology.

These design theories and the relative research suggest considerable overlapping factors in designing and managing certain spaces such as 'territoriality', 'natural surveillance' and 'image/milieu' of 'Defensive Space' (e.g., Hunter and Jeffrey, 1997) and 'access control' and 'surveillance' of CPTED design concept (Crowe, 1991, 2013) and crime prevention strategies of 'Situational Crime Prevention' (Clarke and Mayhew, 1980; Colquhoun, 2007). These design factors focus on creating and manipulating the space to be perceptually and physically difficult for potential wrongdoers to commit criminal activities. These factors are interrelated and operate as a symbolic and physical deterrence towards potential offenders; therefore, they aim to reduce criminal opportunities by proper use of environmental design and the management of people such as employees and police (e.g., Colquhoun, 2007; Cozens, 2007, 2013).

The approaches of the design theories are based on ‘rational choice theory’ in criminology (Clarke, 1997). According to Becker’s economic approach to crime (1968, 1974), criminal activities are associated with a rational decision based on a cost-benefit analysis in relation to the amount of fines or the intensity of the punishment. In this manner, rational choice theory relies on the rationality in human behaviour, focusing on the characteristics of criminal opportunities: an intersection of a suitable and potential target, a potential offender and no figure in authority to prevent the crime (Cohen and Felson, 1979). In this light, design theories and studies premised on both crime and fear of crime can be reduced through enhancing the design of the space and the management of the space in such a way to be difficult to commit crime, premised on human rationality (Brantingham and Brantingham, 1993; Crowe, 2000; Cozens, Saville and Hiller, 2005; Jeffery, 1971; Newman, 1972). However, the effects of design approach towards crime prevention on fear have not been proved as research regarding crime prevention states that it ‘might be’ effective in reducing fear of crime (e.g., Cozens, 2004).

Furthermore, ‘fear paradox’ in the distribution of fear between two genders, which also appears in the underground and makes fear of crime controversial in terms of rationality and irrationality, signifies that it is a problem in its own right. It, in addition, underpins a need for an independent approach towards fear from the perspective of the subjects of the emotion, females. In this light, in criminology, fear of crime has been dealt with as a separate problem from crime as Scott Mire at the University of Louisiana’s Lafayette Department of Criminal Justice states: *‘the fear of crime is completely separate from the actual crime rate. You can have the fear of crime going up while the actual rate is going down and vice versa’* (Persac, 2012). In light of the distinct characteristic which is exemplified by discordance between females’ perceived risk and their actual risk, reducing fear of crime and increasing public confidence in the safety of travelling is stated as an independent key objective of the Mayor’s Strategy for Improving Transport Safety, Security and Reliability in London 2014-2017, separated from reducing crime and antisocial behaviour (TFL, 2014).

From the perspective of the subject of emotion in the service context, on the other hand, research in service management claims that ‘do not violate them’ and not deviating from a stable state is the wisest way to deliver a service since violating basic needs, including safety needs, yields customer outrage (Liljander and Strandvik, 1997;

Schneider and Bowen, 1999). However, the way in which service affects or mediates negative emotion such as fear has not been sufficiently researched. Although there are certain studies on the influence of certain service touch-points such as CCTV, staff and physical environments on passengers' feelings of safety (e.g. Crime Concern, 2004; Wallace et al., 1999; Yavuz and Welch, 2010), the influence of the arrangement of such elements or how such elements of the service affect passengers' fear of crime together with other elements of service during the service process has not been answered.

Design implies concepts which have a specific purpose such as enabling the creation to meet human needs and problem solving (e.g., Bruce and Bessant, 2002; Borja de Mozota, 2003; The Collins Dictionary, 2001; The Oxford Dictionary, 2013), which involves choosing and arranging elements in such a way to satisfy an artistic or functional intention (e.g., Zelanski and Fisher, 1996). In a service context, a touch-point alone, for instance CCTV, cannot enable service suppliers and designers to see or understand how each touch-point interacts with users in a certain context (Parker and Heapy, 2006). In this respect, service is approached as a process or an experience as it is exemplified in the design methods, 'service blueprint' and 'customer journey map', which are forms of flow charts sequenced by service touch-points, or tangible service elements (Shostack, 1982, 1984) and visualised users' experiences when interacting with a service (Martin and Hanington, 2012). In particular, customer journey approach is to access a user's behaviour, emotions, motivation and attitude in service interaction and to optimise operational processes by creating a rich picture of service experience through identifying potential problems which can be solved (Parker and Heapy, 2006; Zomerdijk and Voss, 2010).

Service design emphasises the significance of understanding the service from a user's point of view. However, it focuses on first anticipating and designing out the possible errors that users could make (Parker and Heapy, 2006), relying on the techniques of personas and scenarios (Martin and Hanington, 2012). On the other hand, theoretical models, which account for a user's specific emotional distress such as fear in relation to design, and, hence, can be adopted in designing and managing the service, has not been developed and proposed. In this context, in this research, the attributes of the service design of the London Underground which influence female users' fear of crime is investigated to identify the considerable factors in designing and managing the

underground service and, consequently, to suggest a theoretical framework for the underground service design in the context of fear.

In summary, females' fear of crime has not been sufficiently researched in connection with service design and its management. In the design discipline, fear of crime has hardly been researched as a separate problem from crime prevention in contrast to criminology; and previous research on fear of crime and public transportation service focuses on the individual effectiveness of safety measures on users' feelings of safety. These partial approaches towards fear of crime contribute to the absence of knowledge regarding the influence of service design on the groups' fear of crime, as a conceptualised mechanism of the elements of the service in fear of crime although females' fear of crime has been dealt with as a problem to be ameliorated in the underground as indicated in the Mayor's Strategy for improving Transport Safety. In this respect, the attributes of the service design of the London Underground that influence fear of crime are investigated from the subject user's point of view.

1.2.2 Approach of the Research

In order to investigate the underground service design in relation to female users' fear of crime, this research approaches the phenomenon based on appraisal theories of emotions in psychology which has accounted for certain events eliciting a particular emotion in a particular individual or group (e.g., Frijda, 1993) in contradistinction to previous research on fear of crime in criminology which, in general, stands on theories on vulnerability. In previous research, fear of crime has been defined generally as being mixed with concepts of anxiety, concern or worry about crime as exemplified in Ferraro's definition of fear of crime (1995:30) which is '*an emotional reaction of dread or anxiety to crime or symbols that a person associates with crime*'. In this manner, preceding research on fear of crime in females, whose likelihood of being involved in crime is relatively low, has highlighted their perceived vulnerability to crime as a dominant predictor in explaining their greater levels of fear (e.g., Franklin, Franklin and Fean, 2008). However, since this research investigates a certain group's fear of crime which occurs during service encounters, regardless of the research tradition, it is approached in a more definite manner as an immediate response towards stimuli.

Although in fear of crime literature, anxiety, worries about crime or feelings of safety denotes fear of crime, fear is distinct from anxiety as an emotion and the mood of the emotion (e.g., Gray and McNaughton, 2003; Thomson, 1979; Lang, Davis and Ohman, 2000). Fear is defined as a specific type of feeling or sensation triggered by threat (e.g., the Oxford Dictionary, 2005; the Collins Dictionary, 2001) accompanying physiological and behavioural change such as galvanic skin reaction, decrease in salivation and secretion of digestive juices, tension in certain muscles of the head, defensive immobility and defensive action (e.g., Black's Medical Dictionary, 2009; Frijda, 1986; Misslin, 2003; Lang et al., 2000; the Oxford Medical Dictionary, 2010; Thomson, 1979). The physiological and behavioural fear response is defined as an innate, acquired and reactive system against environmental dangers, social aggression or adverse stimuli (e.g., Gray and McNaughton, 2003; Lang, 1995; Lang and Brandley 2010, Lang et al., 1998, 2000).

A substantial number of studies in psychology, affective neuroscience and cognitive science indicate the pivotal role of conscious reasoning that is affected by learning in producing the fear response with innate and reactive mechanisms (e.g., Olsson, Nearing and Phelps, 2007; Panksepp and Jaak, 1998). Current affective neuroscience research on memory and fear process through the amygdala and hippocampus in the brain underpins the significance of the cognitive aspect of fear (e.g. Das et al., 2005; Fanselow and Gale, 2003; Öhman, 2005; Phelps, 2004). For instance, according to LeDoux's rats experiment on fear conditioning (1998), there appear to be two separate pathways in the brain in generating fear response: one includes conscious reasoning passing through the sub-cortical part of the brain and the other is correlated with unconscious reflex bodily responses. The conscious reasoning process in the brain signifies the cognitive aspect of fear.

Cognition such as a thought about being in danger is one of the distinct components of the fear experience as well as the physiological arousal and behavioural change (Rachman, 1990; Power and Dalgleish, 2008). The cognitive aspect of emotion has been accounted for by appraisal theories (e.g., Oatley and Jenkins, 1996). Fear involves evaluation, or appraisal of a situation and depending on the evaluation, an attempt to avoid or escape from the situation or event is made (e.g., Ellsworth and Smith, 1988; Fridja, 1986). According to Rachman (1990), fear-related avoidance behaviour is determined by the subjects' conjecture of the probability of danger. From this point of

view, appraisal theory and the framework of vulnerability (Killias, 1990) have some connection; however, in the light of explicit sources of potential threat in an ongoing condition, emotion appraisal is different from perceived vulnerability.

To sum up, since it researches into the underground service in which females' fear of crime is engendered, fear is approached as reactions towards stimuli during service encounters. In this respect, the working definition of fear is taken to be a defensive response comprised of psycho-physiological and behavioural changes towards particular objects, events or circumstances which are sensed or evaluated as threats to subjects. In this light, although preceding research on female groups' fear of crime (e.g. Killias, 1990; Killias and Clerici, 2000; Jackson and Stafford, 2009) has been founded on theories of perceived vulnerability, in this research, the groups' fear of crime in the underground is approached on the basis of appraisal theories. While the framework on perceived vulnerability, in general, accounts for anxiety or worries about a certain space or situation on perceptual levels, emotion appraisal can account for the fear reasoning towards impending danger, which is influenced by the perception of a certain situation and space as well as ongoing interaction with the stimulus and situational features (e.g. Frijda, 1987). Based on appraisal theories, therefore, the attributes of the underground service design, which mediate females' fear of crime, are identified together with the influence of their perceived vulnerability on fear in the underground.

1.3 Research Aim and Objectives

Although fear of crime in the underground has been shown to affect more female users than male users and, consequently, to affect the frequency of their use of the service, how the service is designed to affect their fear and to ameliorate their fear of crime in the underground, and what factors should be taken into account in its the service design has not been fully answered to date. This research, therefore, aims to identify the influential factors of the service design of the underground on female users' fear of crime by investigating the features and their configurations in the London Underground service, which mediate the user groups' fear.

According to the aim of the research, theoretical and practical implications of this research are expected as follows.

- The major contribution of this research is to develop a conceptual model which identifies the mechanism of service design in terms of female users' fear of crime in the underground which accounts for the role of service design in the phenomenon from the subjects' point of view. Preceding studies focus on the influence of each safety measure on users' feelings of safety and the influential features and configurations of such elements in the service context has been relatively neglected. By identifying the influential service attributes on the phenomenon, this research establishes a frame of reference in designing and managing the underground service.
- Another distinct contribution of this research is to build a theoretical framework that comprehensively elucidates the female users' relatively high levels of fear of crime in connection with their gender and the underground service. Whereas previous research concentrates on perceived vulnerability and anxiety, this research approaches fear of crime in a more definite manner based on the working definition of fear and appraisal theories. Consequently, the framework presents a more specified account in terms of the role of gender and the underground service in female users' fear reasoning. Moreover, by integrating theories on vulnerability into appraisal theories and empirically verifying it, the framework suggests a new standpoint to research into fear of crime and public transportation services in relation to the users' emotional distress.

In order to achieve the aim of this research, five sequential objectives are set. Due to the absence of research on the effects of service design on female groups' fear of crime, first the three objectives listed below are set to investigate the research domains of emotion, gender and service and hence, to build a theoretical foundation and a definite direction for this research.

Objective 1: To investigate what emotion is in the cognitive dimension and what fear appraisal is.

Objective 2: To investigate gender effects on females in terms of physical and social aspects in evaluating situations and of the self in relation to fear.

Objective 3: To investigate elements of service design and how they affect users' emotional experience.

Based on the literature review in order to achieve Objectives 1, 2 and 3, research questions and a conceptual framework are formulated and, accordingly, user studies are designed in order to achieve Objectives 4 and 5 which are presented below.

Objective 4: To analyse how gender or sex affect female groups’ fear of crime in the underground during service encounters.

Objective 5: To identify how service design affects female users’ fear of crime when using the underground in conjunction with their gender.

1.4 Structure of the Thesis

This thesis consists of eight chapters, listed and described below, according to the sequence of the objectives of this research which are illustrated in figure 1.1.

Chapter 1 Introduction to the Thesis: This chapter introduces female users’ fear of crime in the underground and in relation to the phenomenon and the underground service, previous relevant research on design and service management is diagnosed. Consequently, the groundwork of the research is built and the aim and objectives of the research are formulated.

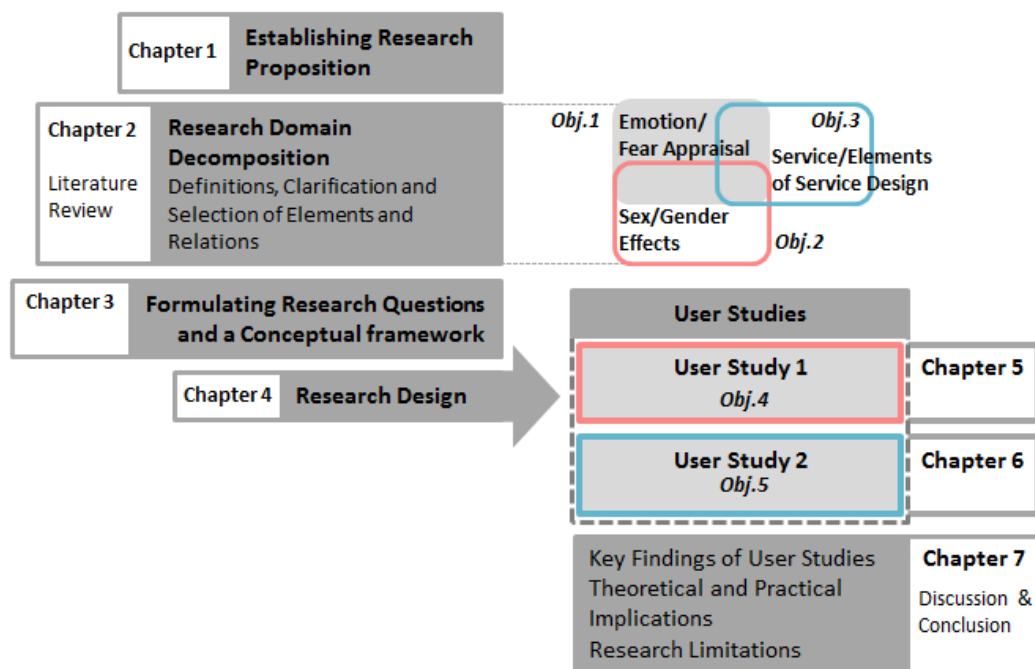


Figure 1. 1 the structure of the thesis

Chapter 2 Literature Review: In this chapter, literature on emotion, gender differences and the elements of service from the users' perspective is reviewed to fulfill objectives 1,2 and 3. Through reviewing the research domains, the elements comprising females' fear of crime in the underground are defined and their relationships are elicited.

Chapter 3 Research Questions & the Conceptual Framework: Based on the findings of the Literature Review, research questions and a conceptual framework are formulated as a theoretical foundation in order to delineate the object and the scope of the research.

Chapter 4 Research Methodology: In this chapter, the object of enquiry, as defined in Chapter 3, is investigated and discussed. In order to do that, the research paradigm is overviewed and the appropriate research methods for data collection and analysis are discussed and formulated. Based on the discussion, studies concerned with female users' fear of crime in the underground service are designed.

Chapter 5 User Study 1: Collected data are analysed and discussed in connection with objective 4. In this chapter, therefore, how females feel fear of crime in the underground and gender affects the process is analysed and discussed.

Chapter 6 User Study 2: In order to achieve objective 5, the underground service is analysed and discussed in relation to fear of crime by extension of the results of User Study1. Consequently, the influence of the underground service on female users' fear of crime is identified and the service design attributes which affect female users' fear are specifically defined.

Chapter 7 Discussion & Conclusions: In this chapter, the overall process and results of the research are described. Furthermore, a conceptual model of the influence of underground service design on females' fear of crime is suggested and discussed in terms of theoretical and practical implications. In conclusion, limitations of the research are presented and in connection with the limitations of this research, recommendations for future research are suggested.

CHAPTER 2
Literature Review

2.1 Fear Cognition: how individuals feel fear and fear of crime

Fear is one of primary or basic emotions (Ekman and Friesen, 2003; Power and Dalgleish, 2008) which are expressed and recognised universally in the same way (Gross, 2010; Nummenmaa, et al., 2014). Even though fear has a distinct nature as mentioned in chapter 1, it shares characteristics in common with the other emotions (Ekman, 1992; Moor, Ellsworth, Scherer and Frijda, 2013). In order to appreciate fear, therefore, it is essential to review what emotion is and by what processes and through what mechanisms, emotion is generated. In this chapter, emotion and the correlation between emotion and cognition are examined and in turn, more specifically, how appraisal mechanisms and its components engender fear in general and fear of crime is investigated.

2.1.1 Emotion

Lexical definitions of emotion suggest that emotion is a feeling as the Collins Dictionary (2001) defines emotion as *'any strong feeling, as of joy, sorrow, or fear'*. More specifically, the Oxford Dictionary (2005) denotes that emotion is *'a strong feeling deriving from one's circumstances, mood, or relationships with others'* and as a mass noun it is *'instinctive or intuitive feeling as distinguished from reasoning or knowledge'*. Emotion is a response toward particular objects, which is frequently described as a certain feeling as in the dictionary definitions above. Gray (2010) defines emotion in a similar way as *'a subjective feeling that is experienced as directed toward some particular object or event'*.

In psychology, emotion has long been defined, focusing on both its psychological and physiological aspects. In an early study on emotion, James (1890:449) states, focusing on its effects on bodily change, that *'bodily changes follow directly the perception of the exciting fact... and feeling of the same changes as they occur, is the emotion'*. According to James, when individuals perceive certain stimuli or objects, it leads to bodily changes such as trembling or increased heart rate and the feeling of the bodily symptoms is emotion. Arnold and Gasson (1954) suggest that emotion is *'the felt tendency towards an object judged suitable or away from an object judged unsuitable, reinforced by specific bodily changes'*. They claim that bodily symptoms augment the felt tendency and subjective judgement is involved in emotional state (Arnold, 1968). Lazarus (1991) deemed emotion in a similar manner, defining emotion as *'organized*

psychophysiological reactions to news about ongoing relationships with the environment' (Keltner and Lerner, 2010). These definitions of emotion indicate that emotion is comprised of psychological and physiological reactions towards particular objects and before or during the responses, the objects or events which emotion is towards are evaluated.

In the light of evaluation of the object or events, emotion has been defined in terms of its functional aspect in relation to its subjects' goals. Tooby and Cosmides (1990) define emotion, emphasizing its functionality as '*... each emotional state manifests design features 'designed' to solve particular families of adaptive problems, whereby psychological mechanism assume unique configuration*'. Ekman (1999) also characterized emotion in this context as '*having evolved through their adaptive value in dealing with fundamental life-tasks*'. The functional feature of emotions signifies that emotional reaction involves also cognitive and behavioural consequences which emotions lead to, according to its subjects' goals.

In this goal related context, emotion and emotional response are accounted for in terms of their action potential which are postulated to prepare the subject to cope with potential harm or benefit in an adaptive manner to avoid or minimize damage or to seek, maintain or maximise the benefit (Frijda, 1987; Ellsworth and Scherer, 2009; Power and Dalglish, 2008). In this manner, emotion is distinguished from other reflex-like responses, since emotional processes provide the opportunity for adaptive reaction although reflex responses are also important elements of emotional responses (Leventhal and Scherer, 1987; Ellsworth and Scherer, 2009).

Emotions, therefore, contain constituent elements and phases including subjective feeling, bodily changes, cognitive process, and behavioural reactions towards particular objects. In this synthetic manner, Parrott (2004) claims that emotional reactions take forms of feelings of pleasure or displeasure, biological, cognitive, and behavioural changes. Oatley and Jenkins (1996) define emotion as 'a state' in this comprehensive manner, which typically involves '*(1) a conscious mental state with recognizable quality of feeling and directed towards some object, (2) a bodily perturbation of some kind, (3) recognizable expressions of the face, tone of voice, and gesture (4) a readiness for certain kinds of action*'. They also state that the emotional state is caused by the significance of events to subjects. Power and Dalglish (2008) and Frijda (1987)

identify the elements of the concept of emotion in the way in which it emphasises its cognitive aspect, as (1) an event, (2) an interpretation, (3) an appraisal, (4) physiological change, (5) an action potential and (6) conscious awareness. Accordingly, emotion is constituted by various elements and phases from events, process for emotion, to the outcome of emotion such as psychological changes, physical symptoms, verbal, facial or bodily expressions and action readiness changes.

Cognition is a link between stimuli and these emotional responses and main components of emotion or emotional experience (Frijda, 1987). According to the Oxford Reference Dictionary (1995), in philosophy, cognition is *'knowing, perceiving or conceiving as an act or faculty distinct from emotion and volition'*. Even though in philosophy, cognition is distinguished from emotion, recently, researches on emotion have verified the role of cognition in generating emotions.

According to the Collins Dictionary (2001), cognition refers to *'the mental act or process by which knowledge is acquired, including perception, intuition, and reasoning'* or *'the knowledge that results from such an act or a process'*. The Oxford Dictionary (2005) defines cognition as *'the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses'* and as a countable noun as *'a perception, sensation, idea, or intuition resulting from this'*. In literature on emotion, Oatley and Jenkins (1996) define cognitive as *'having to do with the representation and use of knowledge'* and emotions are results of the cognitive process. According to Lazarus (1984, 1999), cognitive process is a crucial prerequisite for an affective reaction and an integral attribute of all emotional states. It is dependent upon previous experience, the state and activity of the subject and stimulus context (Frijda, 1987). In relation to emotion, therefore, cognition has a determining role in linking emotional responses and stimuli.

Emotion usually arises from the interpretation or perception of objects, which is immediate, imagined, or remembered (Ellsworth and Scherer, 2009; Parrott, 2004). Even though there are other approaches to emotion in terms of biological and social contexts and the issue of consciousness or unconsciousness in cognitive process of emotion in certain situations is still controversial (e.g. Parrott, 2004), it is irrefutable the inextricable interrelationship between thinking and feeling (Ellsworth and Scherer, 2009; Moors, 2013). Therefore, for the purpose of this PhD research, the working definition

of emotion is taken to be subjective responses comprising of psychological, physical and behavioural tendencies toward interpreted and evaluated particular objects, events or circumstances.

2.1.2 Appraisal of Emotion

Power and Dalgleish (2008) claim that appraisal in relation to emotion is always a matter of interpretation; therefore, the object of appraisal is always something cognitive. Cognition connects stimulus input and emotional responses, through processes named ‘appraisal’ (Arnold, 1968; Lazarus, 1991, 1994, 1999; Moors, 2013; Smith and Lazarus, 1993), ‘interpretation’ (Schachter, 1964), stimulus coding (Leventhal, 1980) or ‘meaning analysis’ (Mandler, 1984; Frijda, 1987). Appraisal is the most commonly used term for the cognitive process; furthermore, it is central to the current theory on emotion since processes or a set of appraisals account for certain events eliciting a particular emotion in a particular individual or group (Frijda, 1993).

The Collins Dictionary (2001) defines appraisal or appraisement as *‘an assessment of the worth or quality of a person or thing’* and according to the Oxford Dictionary (2005), it is *‘an act of assessing something or someone’*. Appraisal in relation to emotion was first introduced by Arnold and Gasson in 1954 in terms of the recognition of an event as important and ever since, appraisal has strongly established itself in theories on emotion.

Appraisal has been researched through two different approaches: the goal relevant approach and the componential approach (Moor, Ellsworth, Scherer and Frijda, 2013; Oatley and Jenkins, 1996). In the context of the goal relevant approach, Smith and Lazarus (1993) proposed that appraisal is *‘an evaluation of what one’s relationship to the environment implies for personal well-being’*. On the other hand, Oatley and Jenkins’ (1996) define appraisal, emphasizing appraisal components in discriminating emotions as *‘evaluation of an event on a number of criteria’* and as a cognitive process, a set of appraisals determining what emotion is going to be produced by the event.

According to the literature on the goal relevant approach, the cognitive mechanism is operated with subjects’ personal conception and expectation of well-being, linking emotional responses to environmental circumstances on the one hand and personal goals

and beliefs on the other (Frijda, 1987; Moor, Ellsworth, Scherer and Frijda, 2013; Smith and Lazarus, 1993). Lazarus (1984) claims that, depending on how a certain circumstance is appraised as threatening or beneficial or irrelevant or relevant to personal goals or beliefs, a particular emotion is generated and the emotion prepares or mobilises the subject to avoid or minimise the appraised harm or to seek, maintain or maximise the appraised benefit.

This goal related aspect of cognitive process accounts for the functional aspect of emotion and discriminates each basic emotion. Each goal state reflects a desired or unpleasant end-states, objects or activities (Stein and Trabasso, 1992). Stein and Trabasso (1992) suggest that there are a small number of core goals which are connected to survival and self-regulation and in turn, these universal goals guide behaviour and regulate or associate with the appraisal, planning, and action process. Each core human goal reflects a desired or undesired state or object, which is shared across cultures and basic human emotions such as fear are explained by incorporate appraisal processes associated with these shared goals across cultures (Power and Dalgleish, 2008).

2.1.3 Cognitive Appraisal Processes & Components of Emotion

From the goal related point of view, appraisal is an evaluation of environmental circumstances which personalise the stimulus input according to subjects' goals and beliefs and their perceived coping capability (Frijda, 1993; Moor, Ellsworth, Scherer and Frijda, 2013). In this context, substantial research has attempted to account for the appraisal mechanism as a process which connects stimulus and action in accordance with the subjects' goals or beliefs.

Lazarus first proposed the appraisal mechanism process as relevant to wellbeing and subjects' coping capability under stress in this context in 1966. In his early theory, emotion arises from how individuals have interpreted or appraised situations or events through two stages of cognitive appraisal named primary and secondary. Primary appraisal refers to an antecedent evaluation of whether and how an encounter is relevant or irrelevant to the subject's well-being. On the other hand, secondary appraisal which is the subsequent evaluation concerns the individual's coping abilities with or resources

for the encounter. When a subject's coping resources are evaluated to be adequate for dealing with threatening encounters, the threat is less significant to the subject, compared to when a subject considers that he or she is not adequately able to deal with the threat (Power and Dalgleish, 2008).

Lazarus later divided coping potential into two categories: problem-focused and emotion-focused which subjects adopt to reduce discrepancies between their circumstances and their own motivations and desires (Smith and Lazarus, 1993). Problem-focused coping potential tends to be used when the situation is evaluated as changeable or manageable by the subject themselves in accordance with the

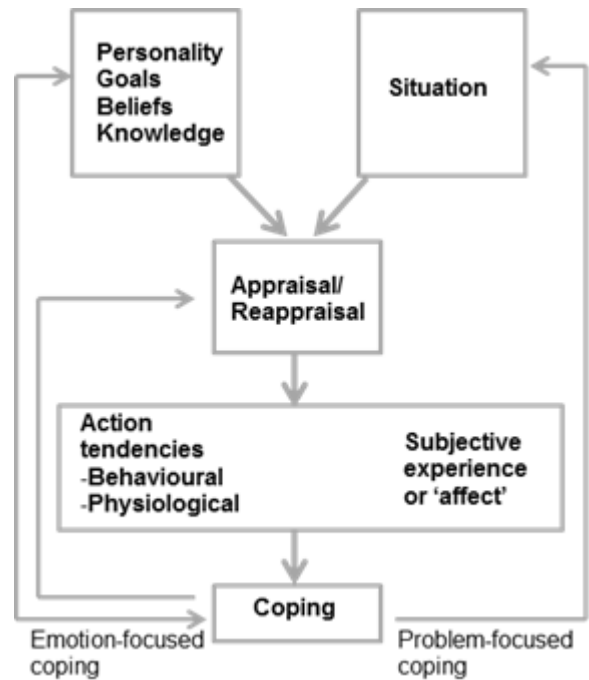


Figure 2.1 a summary of Lazarus' early appraisal theory (source from Power and Dalgleish, 2008:89)

subject's goal or desires, while emotion-focused coping potential indicates the perceived prospects of altering the encounter by adjusting the subject's interpretation, desire, and/or beliefs (Smith and Lazarus, 1993). Even though Lazarus' early theory is considered to be a general theory of stress rather than of emotion, it was significantly influential, emphasising the importance of cognitive appraisal processes (Power and Dalgleish, 2008).

Stein, Trabasso, and Liwag (1994) also proposed stages in the emotion process which emphasized beliefs, inferences and plans. First, an event is perceived and subsequently, bodily changes and verbal or facial expressions occur when subjects' beliefs are challenged. Lastly, plans about the event are formed in order to reinstate or modify the subjects' goals and the results of the plans are anticipated and considered.

Frijda (1987) proposed a more comprehensive emotion process as cognitive information processing. In the emotion process presented in figure 2.2, there are three distinguishing lines: the core process or emotion process proper, leading from stimulus event to response; the regulation line, including processes that intercede for the core

process; and the line of inputs other than the stimulus event proper. In addition, there are the outputs: the responses, overt, physiological and experiential.

In the core of the emotion process,

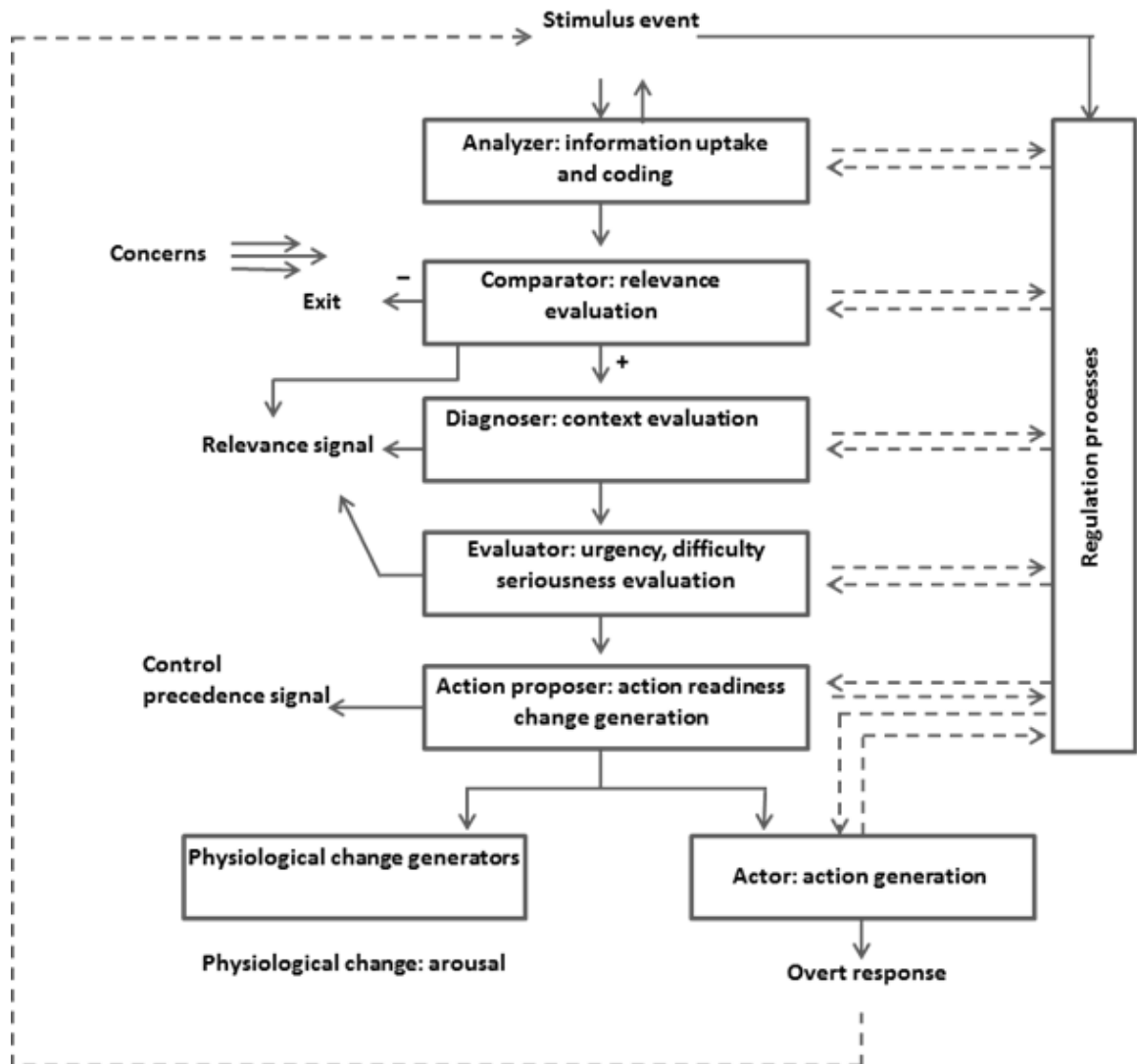


Figure 2.2 the emotion process of Frijda (1984)

1. Analyser: When one encounters a stimulus event, the subject scans and analyses the event. In the Analyser stage, the event is categorised into the type and the possible cause or consequence.
2. Comparator: The stimulus situation is appraised with its correlation with the subject or his concerns. It contains relevance evaluation or principle appraisal. Relevance evaluation is produced by comparing the event as understood by the contented state or sensitivities of the varied concerns of the subject.

3. **Diagnoser:** In the Diagnoser stage, the stimulus event as a whole is evaluated in respect of coping. The secondary evaluation in the context diagnoses whether coping with the situation is possible. During the process as a series of diagnostic tests, it works with a set of coding categories relative to action possibilities. Output, a patterned identification is structured according to the meaning of the situation.
4. **Evaluator:** The information which is formed through the former phases, the seriousness, urgency, and difficulty of the event is assessed. It amalgamates creating a signal of priorities for dealing with the present event. It thus causes action interruption or distraction depending on the situational evaluation.
5. **Action Proposer:** Action readiness change is generated based on the previously generated information, including a plan for action, action tendency and/or for the mode of activation.
6. **Physiological change generator:** Physiological change occurs, in conformity with the action readiness.
7. **Actor:** Action is selected, as determined by action readiness mode and by features of the previous situation.

During the stimulus processing from the Analyser to Action proposer phases, the stimulus event is processed through contextual evaluation, and then, through Physiological change generator and Actor phases, responses are generated. Every phase in the core process is regulated by mechanisms, outcome-controlled processes, or voluntary self-control. According to Frijda's emotion process theory, a major input, a stimulus event is continually appraised before outcome is generated. Subjects' concerns enter at the Comparator phase which is the primary appraisal in Lazarus' theory (1984) and subsequently, the subject's coping capability is evaluated which corresponds to Lazarus's secondary appraisal.

Frijda(1987) pointed out that emotion processes are not 'discrete events'; therefore, they need individual's 'contextual property' since information uptake and accompanying relevance appraisals act continually when the process occurs. Contextual property is used to decide what actions are proper and possible and what are not possible. The result of the previous attempts to cope and other prior experiences is integrated with actual stimuli. Contextual property plays a vital role in context evaluation in offering

the context coding categories; in addition, both the contextual evaluation and the context coding categories need knowledge and the system's inductive capabilities in order to come to the conclusion of event implications. Emotion system, therefore, involves its subjects' previous experience as a main component.

Leventhal and Scherer (1987) identified three main components of the emotion system, which are organised hierarchically: the sensory-motor level, the schematic level, and the conceptual level. First, the sensory-motor level involves the basic innate mechanisms. These basic mechanisms are apparent from birth and automatically respond to both internal and external stimuli. Secondly, on the schematic level, the learned associations which relate to emotional experience are included. They are integrated sensory-motor processes with 'image-like prototypes of emotional situations'. Lastly, the conceptual level is a phase of processing activated by individuals' volitions and involves memories related to emotion, expectations, goals and plans.

Appraisal, therefore, is processed affected by 1) previous experience 2) ongoing interaction with stimulus, 3) aspects of stimulus selected by the subjects, 4) effects of implications by the subjects rather than the stimulus itself and 5) influence of situational features (Frijda, 1987, Moor, Ellsworth, Scherer and Frijda, 2013), which are actuated from innate to conscious or volitional levels (Leventhal and Scherer, 1987).

2.1.4 Appraisal Components of Fear

The componential approach to appraisal of emotion postulates that each emotion has its own unique components and features which discriminate each basic emotion (e.g., Moor, Ellsworth, Scherer and Frijda, 2013). Stein and Trabasso (1992) claimed that these features are linked to the status of goals and their outcomes temporarily and causally. It can be accounted for by the function of the appraisals or the function of emotions. From this point of view, the distinctions between emotions appear as a function of the appraisals that are associated the emotions (Power and Dalgleish, 2008) and each emotion has a unique set of appraisals.

In the light of appraisals being components of emotions, fear has been analysed as appraisal components, such as high attention or uncertainty (e.g. Ellsworth and Smith, 1988). An appraisal of threat accompanies fear (Oatley and Jenkins, 1996) as Smith

and Lazarus (1993) claimed that the perception of the subjects' inability to psychologically adjust to a harm or threat triggers fear and hence, the core relational theme for fear is threat or danger.

Emotion	Core Relational Theme	Important Appraisal Components
Anger	Other-blame	Motivationally relevant Motivationally incongruent other-accountability
Guilt	Self-blame	Motivationally relevant Motivationally incongruent Self-accountability
Fear/Anxiety	Danger/Threat	Motivationally relevant Motivationally incongruent Low/Uncertain (emotion-focused) coping potential
Sadness	Irrevocable loss Helplessness about harm or loss	Motivationally relevant Motivationally incongruent Low(problem-focused)coping potential Low future-expectancy

Table 2.1 appraisal components and core relational themes associated with 4 harm-related emotions (Smith and Lazarus, 1993:238)

Smith and Lazarus (1993) developed Lazarus' early goal relevant appraisal comprising of two primary appraisals, and four secondary appraisals in order to specifically discriminate harm related emotions including fear (table.2.1). According to them, primary appraisal is comprised by motivational relevance, which is the degree of the subjects' personal relevance to the encounter, and motivational congruence or incongruence which refers to consistency or inconsistency with the subjects' desires or goals. In addition to primary appraisal, they suggested extending the four components of secondary appraisal which are accountability, problem-focused coping potential, emotion-focused coping potential, and future expectancy. Accountability determines whether the object gets the credit or the blame for the consequences of the encounter and in turn, decides to whom or which consecutive coping efforts target. Future expectancy refers to the potential to change motivationally congruence between subjects and encounters. They analysed the fear as the theme of danger and threat and in this theme, subjects evaluate the potential danger and threat as motivationally relevant,

motivationally incongruent. Subsequently, the primary appraisals integrate with secondary appraisals of low emotion-focused coping potential.

In addition to Lazarus, other theorists proposed appraisal of fear with more specific

Components of Appraisal	Frijda (1986)	Roseman (1984)	Scherer (1984)	Smith/Ellsworth (1985)
Novelty	Change Familiarity		Novelty -suddenness -familiarity	Attentional activity
Valence	Valence Focality		Intrinsic pleasantness	Pleasantness
Goals/Needs	Focality Certainty	Appetitive/ Aversive motives Certainty	Goal significance Concern relevance outcome probability	Importance Certainty
Agency	Intent/self- other	Agency	Cause: agent Cause: motive	Human agency
Norms/Values	Value relevance		Compatibility with standards -External -Internal	Legitimacy

Table 2.2 comparative overview of major appraisal dimensions as postulated by different theorists (Ellsworth and Scherer, 2003:573)

Appraisal Criteria	Joy/Happiness	Anger/Rage	Fear/ Panic	Sadness
Novelty	High	High	High	Low
Intrinsic Pleasantness	High	Open	Low	Open
Goal significance -Outcome probability/certainty -Conduciveness/consistency -Urgency	High Conducive low	Very high Obstructive High	High Obstructive Very high	Very high Obstructive Low
Coping Potential -Agency/Responsibility -Control -Power -Adjustment	Self/other High High High	Other High High High	Other/nature Open Very low Low	Open Very low Very low Medium
Compatibility with standards/ value relevance/legitimacy	High	Low	Open	Open

Table 2.3 examples of theoretically postulated appraisal profiles for different emotions (Ellsworth and Scherer, 2003:583)

appraisal features or components, hypothesising that a specific set of appraisals is pivotal in differentiating one emotion from other emotions (Frijda, 1986; Roseman et al., 1996; Smith and Ellsworth, 1988; Ellsworth and Scherer, 2009). Scherer (1999) proposed ‘stimulus evaluation checks’ which are composed of 1) novelty, 2) pleasantness, 3) relevance to goals and plans, 4) coping potential, and 5) compatibility with self-concept and social norms. It incorporates primary appraisal and secondary appraisal processes of Lazarus. Other theorists go with these basic dimensions in differentiating each emotion (see table 2.2) and fear from another emotion such as joy or anger (see table 2.3). The dimensions of appraisal of fear are listed below.

Dimensions of Appraisal & Fear

1) Novelty

Novelty is one of the most basic dimensions in perceiving stimuli, triggering attention to it in order to determine its possible consequences (Ellsworth and Scherer, 2009; Krishnan, 2014) and a significant appraisal component of fear (e.g. Frijda, 1987; Ellsworth and Scherer, 2009; Russell, 1979). Since detecting novelty alerts the potential significance of the stimuli to the subject and gives motivation for searching for apt information from the environment by paying greater attention to it and from memory, it is appraised through a very primitive level of sensory-motor processing to much more complex conceptual level (Ellsworth and Scherer, 2009; Leventhal and Scherer, 1987).

In terms of fear appraisal, novelty detection is highly significant due to fear of novelty, strangeness, uncertainty or unfamiliarity which exists in organisms including human beings (Frijda, 1987). According to Frijda (1987), novelty correlates with the evaluation of evasiveness and uncertainty concerned with the potential consequence of the event. Moreover, uncertainty about the present situation is also closely related to fear (Smith and Ellsworth, 1988). Such as darkness, intense light, loud noise, unusual movement and unstable environmental conditions, all cause fear.

2) Pleasantness (valence)

In addition to novelty, the sense of intrinsic pleasantness or valence is a fundamental dimension of appraisal of stimuli; furthermore, subjects’ sense of negative valence such as aversion or unpleasantness is one of determining characteristics of fear (e.g. Bouffard,

2014; Ellsworth and Scherer, 2009). Dictionary definitions of fear clearly denote fear as ‘an unpleasant emotion’ (the Oxford Dictionary, 2005; the Collins Dictionary, 2001) as well as other definitions of fear in psychology which emphasize its unpleasant aspect of stimuli. According to Frijda (1987), valence is one of the core components of situational meaning as all objects involving emotional responses, possess positive or negative valence and hence, are intrinsically attractive or aversive.

3) Motivational based dimension: Needs, Goals & Values

The significance of motivational factors is in line with the functional aspect of the emotion of facilitation of appropriate responses to the stimuli in relation to its subjects’ well-being and survival. In the light of the goal relevant dimension which is aforementioned, fear is in line with survival and bodily integrity, which is directly related to human safety needs (e.g. Ellsworth and Scherer, 2009). These needs or goals are placed near the top of the hierarchy of human needs (Maslow, 1970) and danger or threat to survival, bodily integrity or safety needs is a core relational theme of fear (Lazarus, 1993). However, even though the primary appraisal of Lazarus offers the underpinning in generating emotion under stress, it is not sufficient to account for the manifold integral parts underlying the motivational constructs of each emotion (Power and Dalgleish, 2008; Ellsworth and Scherer, 2009). In this context, researches on appraisal of emotion have proposed a set of further constituent elements in relation to the motivational domain based on probability or certainty and conduciveness or consistency of the goal related outcomes, and urgency (e.g. Ellsworth and Scherer, 2009; Frijda, 1986; Smith and Ellsworth, 1988; Scherer, 1987, 1999).

Probability/Certainty of the Outcome: what matters to individuals is not frequently the event or the situation itself but the outcome of the event; therefore, the probability or certainty of potential effects are continuously evaluated. In this light, it is also called ‘*anticipation of effects to come*’ (Frijda, 1987) and fear is generated by potential threat or danger (e.g. Rachman, 1990). In the case of fear, both the likelihood of the event happening and its consequences are uncertain (Ellsworth and Scherer, 2009).

Urgency: when highly important or priority goals or needs are threatened or delaying the response may make the situation worse, behavioural responses or action is particularly urgent; therefore, it is one of significant constituent elements of emotion appraisal relevant to needs or goals (Frijda, 1986; Scherer, 1999, 2009). The more

important the goals or needs, the more urgently immediate action is required and accordingly, fear is conceptualized with very high urgency (Ellsworth and Scherer, 2009).

4) Coping Potential: power

Appraisal also takes into account the subjects' assessment of their ability to deal with the ongoing situation and its consequences (e.g. Lazarus, 1991; Smith and Lazarus, 1993). The coping potential does not indicate that the subjects necessarily need to achieve their original goals but it indicates modifying, postponing or abandoning the goals or needs. The coping appraisal plays a pivotal role in determining the appropriate response to the stimulus and in the case of threatening situation, the power or coping appraisal evokes fear and flight if the subject has appraised his or her capability of defence being insufficient.

Power: In the literature on appraisal of emotion, power refers to the perception of one's own ability, possibly with others' help to influence the course of events (Ellsworth and Scherer, 2009). The sources are related to the subjects' physical strength, knowledge, financial resources or social attractiveness, among others (French and Raven, 1959). In the case of an obstructive event brought about by a nonspecific aggressor or a predator, the comparison between the organism's estimate of its own power and the agent's perceived power is likely to decide between anger and fear and thus between fight and flight (Frijda, 1987).

5) Compatibility with Self-concept and Social Norms

Emotion is also affected and generated by the social context of appraisal, specifically in terms of compatibility with the self and its social identity and with social norms, values, and justice (e.g. Ellsworth and Scherer, 2003; Markus and Kitayama, 2001). Social species value the reactions of others and others' reactions to their own since they share social norms regarding social status, privileges, and agreeable or disagreeable behaviour (e.g. Shapiro, 2011; Shapiro and Neuberg, 2007; Parkinson, Fischer and Manstead, 2005). In this manner, therefore, the social consequences of a particular behaviour influence finalizing the appraisal process and adjudging appropriate behavioural responses (e.g. Matsumoto and Hwang, 2012).

2.1.5 Vulnerability in Fear of Crime

Appraisal of fear can be seen as being somewhat related to perceived vulnerability in academic and empirical researches on fear of crime. In the literature on fear of crime, vulnerability has been researched as a main facilitator of fear of crime (e.g. Gregory, 2013; Franklin, Franklin and Fearn, 2008; Hale; 1996, Jackson, 2009; Killias, 1990; Killias and Clerici, 2000) as Hale (1996:95) claimed that *'any model trying to explain fear will include some notion of vulnerability'*. However, despite of the significance of vulnerability in fear of crime, it to date has not been clearly defined.

Oxford Dictionary (2005) defined vulnerable as being *'exposed to the possibility of being attacked or harmed, either physically or emotionally'*. Furthermore, according to the Collins Dictionary (2001), vulnerable is *'capable of being physically or emotionally wounded or hurt'* and as a military term, it indicates being *'exposed to attack'*. These dictionary definitions indicate that vulnerability is the likelihood of being in physical or emotional danger. In relation to crime, vulnerability is also conceptualized as

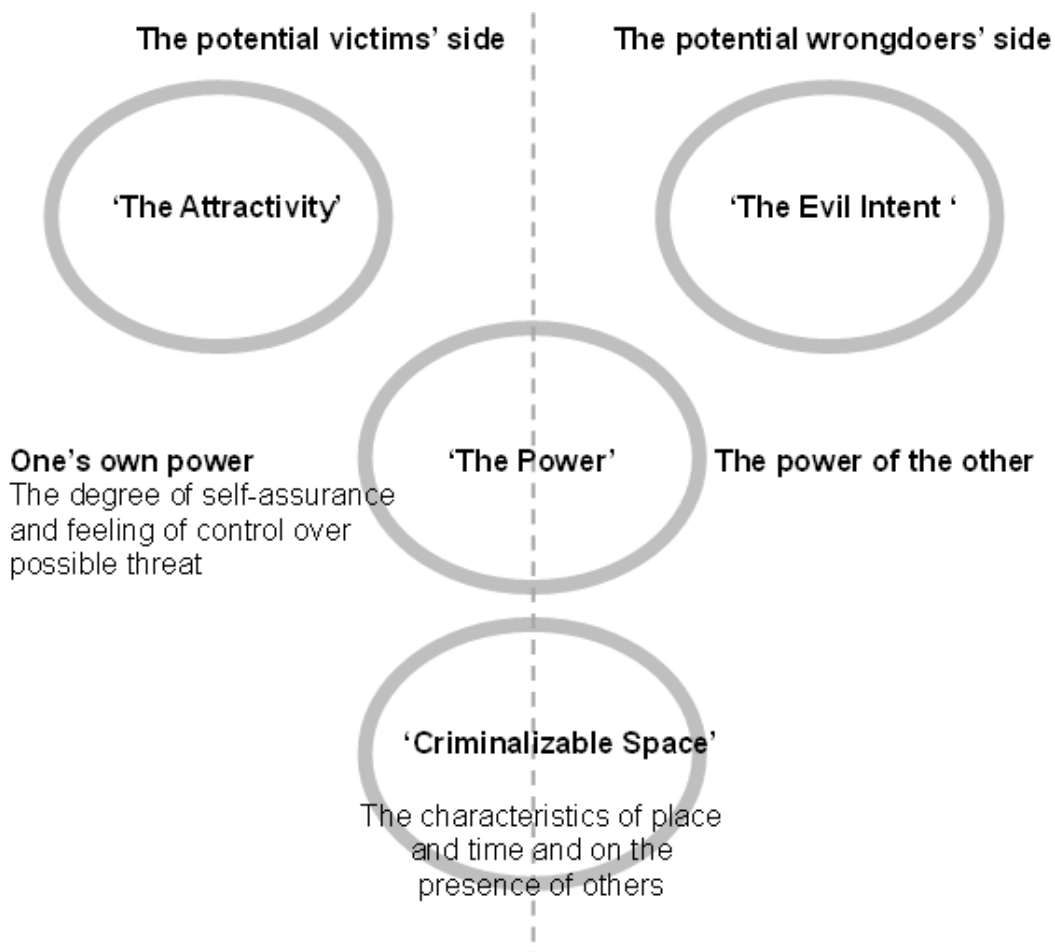


Figure 2.3 the social psychology model by Van der Wurff et al. (1989)

possibility but not certainty of being involved in crime as Das (2007:63) states that *'to be vulnerable is not the same as to be a victim...'*

In criminology, vulnerability has been researched in relation to self-risk assessment from the potential victims' point of view and researches on self-risk evaluation in certain situations were advanced before conceptualization of vulnerability (e.g. Garofalo, 1981; Van der Wurff et al.,1989). Van der Wurff et al. (1989) proposed a social psychological model (figure 2.3), comprising of four social psychological components which are *'attractively'*, *'the evil intent'*, *'the power'* and *'criminalizable space'*.

According to their theory, first, the *'attractively'* refers to the self-risk assessment in which subjects see themselves or their possession as an attractive target for criminal activities. Secondly, *'the evil intent'* is a correlative of the potential offenders' role in the circumstance. It is represented by the extent to which a person attributes criminal intentions to another individual or particular group. In addition to these two elements, the *'power'* associates with the self-assessed vulnerability of being victimized and sensitivity to feeling of threat. It is the degree of self-assurance and feeling of control that a person has with respect to possible threat or assault by another. The *'power'* is considered also from the side of the wrongdoer. An individual considers the offenders' features including their physical strength and resources for criminal activities. Through a comparison of one's own power with the power of the other, one is able to have confidence in confronting threat relative to the power of the other. In this early theory, vulnerability pertains to power factor which can be correlative with coping potential in fear appraisal which is mentioned in an earlier chapter.

In another early study on fear of crime, Garofalo (1981:845) defined vulnerability as a consideration of risk assessment which is directly connected to fear of crime, regarding *'Given my physical characteristics and protective resources, how attractive a target will I be for offenders? How well will I be able to resist an attempted victimization?'* In his general model of fear of crime (see figure 2.4), people accept information about crime according to their social position such as sex, race or their life style and the information is mediated and personalized by their other attitudes or beliefs and by shaping their image of crime. After developing an image of crime, they substitute themselves in the image of crime and assess the risk of being involved and their vulnerability as well as other factors including prevalence, likelihood and consequences

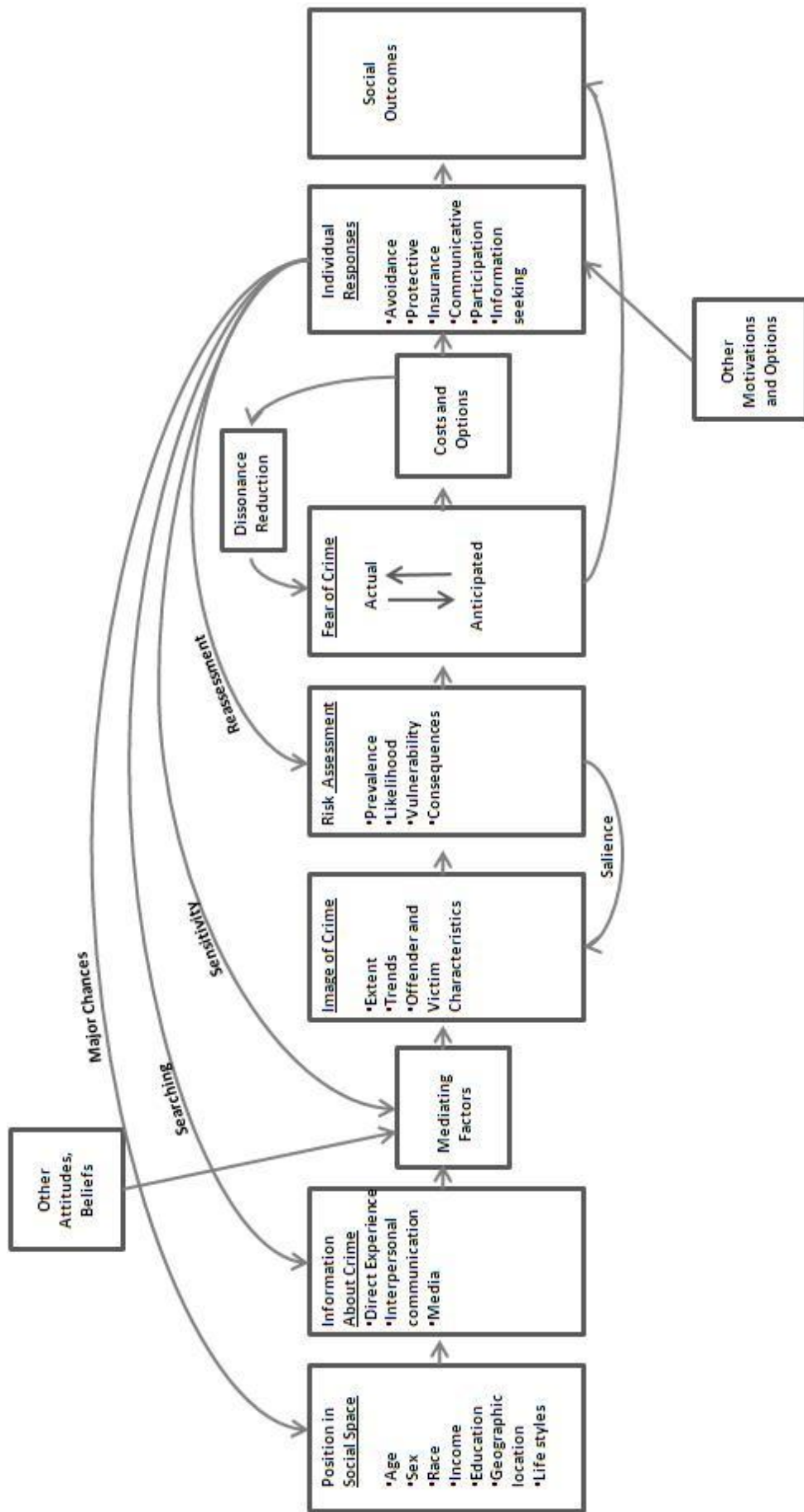


Figure 2.4 a general model of the fear of crime and its consequences (Garofalo, 1981:843)

of the crime. Perlof (1983:43) defined perceived vulnerability in a broader manner than Garofalo, as *'a belief that one is susceptible to future negative outcomes and unprotected from danger or misfortune. Accompanying this cognition is an affective component, consisting of feelings of anxiety, fear and apprehension.'*

Killias (1990) proposed a predominately accepted and influential theory of vulnerability, conceptualizing three dimensions of threat: perceived exposure to risk, the anticipation of serious consequences and the feeling of a loss of control. Killias specified the concept of vulnerability as likelihood, consequences and controllability linking to subjects' personal, social and economic resistance for self-protection. Based on Killias's theory, vulnerability has been researched in order to account for the disproportion of fear within different groups (e.g. Jackson, 2009), conceptualizing that certain groups who feel unable to cope with the situation or protect themselves through their physical or social resistance and resources may report higher levels of fear than other groups who feel able to protect themselves (e.g. Franklin, Franklin and Fearn, 2008; Garofalo, 1981; Hale, 1996; Killias, 1990;; Perlof, 1983; Yirmibesoglu and Ergun, 2015). The concept of perceived vulnerability is affected by the physical, social and situational factors which the subject has and has perceived in the situation (Killias, 1990; Killias and Clerici, 2000).

Physical factor is correlated with perceived physical capability to fend off attack (Franklin, Franklin and Fearn, 2008; Killias, 1990). Deficient in physical ability such as limited mobility, relatively weak or weakened physical strength and physical disabilities cause a high level of perceived vulnerability and accordingly females, the elderly or people with bad health are more likely to feel less able to defend themselves from criminal activities (Hale, 1996; Killias, 1990; Killias and Clerici, 2000; Jackson, 2009; Jackson and Stafford, 2009).

Social factor pertains to increased exposure to victimization due to the subjects' social position since when an individual evaluates their risk of being involved in crime and their coping resources, she or he takes account of their social position (Garofalo, 1981; Killias, 1990). It accounts for highly reported vulnerability and fear of crime of racial and ethnic minorities, people living in poverty or in high-crime neighbourhoods as a result of the deficient of material resources and social supports (Franklin, Franklin and Fearn, 2008; Garofalo, 1981; Killias, 1990).

In addition to physical and social factors, situational factors also affect perceived vulnerability (Killias, 1990). Individuals in deserted areas where it is hard to expect help are more likely feel vulnerable and hence, fear. The concept of '*criminalizable space*' (Van der Wurff et al., 1989) mentioned above is accorded to these situational factors. Moreover, these factors also explicate general fear evoking such as being alone or in darkness. Humans somehow instinctively feel safe in a group since the absence of another person indicates the absence of a capable companion who could help in the event of attack as an individual being alone is a more attractive and suitable target than one who is accompanied (Warr, 1984, 1985, 1988). Moreover, regarding darkness as fear evoking stimuli, according to Russell (1979), people more commonly feel fear in a situation involved with darkness because it may increase the sense of being alone due to visual restrictions. In the context of the fear of crime, darkness encourages a sense of insecurity.

Therefore, for the purpose of this PhD research, the working definition of perceived vulnerability is taken to be the perception of exposure to danger, a sense of lack of control over the situation for subjects' self-protection and the consequences in response to the situational uncertainty. It is evaluated through self-risk assessment in respect of physical and social aspects in situational contexts.

2.1.6 Summary

Fear is one of primary or basic emotions. Researches on emotion suggest that emotion is a subjective feeling towards particular objects or events accompanying psychological and physiological reactions (e.g. Arnold and Gasson, 1954; Gray, 2011; James, 1890). In the light of evaluation of the object or events, emotion has accounted for its functional aspect in relation to its subjects' goals and behavioural changes (e.g. Frijda, 1987; Lazarus, 1991; Power and Dalgleish, 2008). The cognitive process links stimuli and emotional responses such as psychological and physiological change, recognizable expressions and a readiness for certain kinds of action (e.g. Frijda, 1987; Oatley and Jenkins, 1996; Lazarus, 1991). In this context, therefore, emotion here is defined as subjective responses comprising psychological, physical and behavioural tendencies toward interpreted and evaluated particular objects, events or circumstances.

Cognition connects stimulus input and emotional response, through processes named 'appraisal' (Arnold, 1960; Lazarus, 1996; Smith and Lazarus, 1993). It has been researched through the goal relevant approach and the componential approach. The goal relevant theories on appraisal suggest that particular emotion is generated through the evaluation of the situation or event in relation to its subject's personal goal or well-being (e.g. Lazarus, 1996). On the other hand, in the componential approach, appraisal is defined as evaluation of an event by a set of criteria and accordingly, certain emotion is generated (e.g. Ellsworth and Scherer, 2003; Oatley and Jenkins; 1996).

From the goal related point of view, appraisal has been accounted for through an evaluation which personalizes certain stimulus according to subjects' goals and beliefs and their perceived coping capability (Frijda, 1987, 1993; Stein, Trabasso, and Liwag, 1994; Lazarus, 1966). According to researches on emotion processes (Frijda, 1987, 1993; Stein, Trabasso, and Liwag, 1994; Lazarus, 1966), a certain event is analysed and evaluated according to the subjects' goals, beliefs (Stein, Trabasso, and Liwag, 1994; Lazarus, 1966) or concerns (Frijda, 1987), considering their coping potential. These process lead to physiological and action change through contextual evaluation related to the subjects' knowledge or former similar experience, or 'contextual property' (Frijda, 1987). In addition, appraisal of emotion is processed on several levels extended from basic innate mechanisms and the learned associations to the level involving the subjects' volitions and memories. To summarize, appraisal processes are influenced by 1) previous experience, 2) ongoing interaction with stimulus, 3) aspects of stimulus selected by the subjects, 4) affects of implications by the subjects and 5) influence of situational features (Frijda, 1987; Stein, Trabasso, and Liwag, 1994; Lazarus, 1966). These mechanisms are actuated from innate to conscious or volitional levels (Leventhal and Scherer, 1987). Appraisal, therefore, is not a 'discrete event' rather, (Frijda, 1987) it is an inductive process connected to subjects' experience, knowledge, and volition, which is operated in a wide range of levels covering primitive reaction, learned association and conscious evaluation.

The componential approach to the appraisal of emotion accounts for what distinguishes each emotion. It postulates that each emotion has its own unique set of appraisals, as an appraisal for threat accompanies fear (e.g. Ellsworth and Smith, 1988; Oatley and Jenkins, 1996; Smith and Lazarus, 1993). In this context, fear has been researched as appraisal of threat and its related components in relation to its motivational relevance

and its subjects' coping potential (Smith and Lazarus, 1993). Recent researches propose specific appraisal features or components of fear which extend from the goal relevant approach of Lazarus (e.g. Frijda, 1986; Oatley and Johnson-Laird, 1987; Roseman, 1984; Ellsworth and Scherer, 2003).

Fear is characterized by high levels of novelty and unpleasantness (e.g. Ellsworth and Scherer, 2003; Russell, 1979). Novelty plays a basic but important role in perceiving danger and triggering attention to determine its possible consequences (Ellsworth and Scherer, 2003); moreover, it accounts for general fear of strangeness, uncertainty or unfamiliarity. Unpleasantness is another fundamental dimension of appraisal of fear as a standard dictionary denotes fear as unpleasant emotion (the Oxford Dictionary, 2005).

In the motivational based dimension and its coping potential, fear is in line with survival and bodily integrity (e.g. Ellsworth and Scherer, 2003). Since fear is generated by potential threat or danger (e.g. Rachman, 1990), the likelihood of the event happening and its consequences are uncertain (Ellsworth and Scherer, 2003) and it is characterised with very high urgency (e.g. Frijda, 1986; Scherer, 2001). In relation to coping potential, power takes a pivotal role in generating fear since the comparison between the subjects' perceived own power and the aggressors or predators decides whether to generate fear or anger (e.g. Frijda, 1987).

In literature on fear of crime, vulnerability has been researched as a main facilitator of fear of crime (e.g. Franklin, Franklin and Fearn, 2008; Hale, 1996; Killias, 1990). The concept of vulnerability has been researched and conceptualized, pertaining to the concept of self-risk assessment from the potential victims' point of view (e.g. Garofalo, 1981; Van der Wurff et al., 1989) and dimensions of threat (Killias, 1990). Based on Killias' definition of vulnerability (1990), vulnerability has been researched, covering perceived likelihood, consequences and controllability linked to subjects' personal, social and economic resistance for self-protection.

The concept of vulnerability has been researched in order to account for the disproportion of fear within different groups (e.g. Killias and Clerici, 2000; Jackson, 2009), postulated that certain groups who feel unable to cope with the situation or protect themselves report a high level of fear. In this context, perceived vulnerability accounts for the distribution of fear between groups in terms of demographic (e.g. Killias and Clerici, 2000; Jackson, 2009) and geographic aspects (e.g. Franklin,

Franklin and Fearn, 2008). Therefore, perceived vulnerability is affected by the physical, social and situational factors which the subject has and has perceived in the situation (Killias, 1990; Killias and Clerici, 2000). For the purpose of this research which takes distribution of fear in certain groups into account, the perceived vulnerability is defined as the perception of exposure to danger, a sense of lack of control over the situation for subjects' self-protection and the consequences in response to the situational uncertainty. It is evaluated through self-risk assessment in respect of physical and social aspects in situational contexts.

2.2 Gender Effect on Vulnerability: Nature & Nurture

Females express a higher level of fear despite of their relatively low level of victimization rates, compared to males (e.g. Box, Hale and Andrews, 1988; Hale, 1996; Sutton and Farrall, 2005). Gender is one of the markers of vulnerability and fear of crime (Hale, 1996; Killias, 1990; Killias and Clerici, 2000; Jackson, 2009; Yirmibesoglu and Ergun, 2015). This high level of perceived vulnerability of a certain group has been accounted for by physical and social vulnerability (Franklin, Franklin and Fearn, 2008; Snedker, 2015). Even though in early researches on vulnerability such as Killias's (1990), mainly physical factors were taken into account for the disproportion of two gender groups, recently, social factors which differentiate each gender also manifest themselves as significant constituent elements in the group's vulnerability and fear of crime (e.g. Madriz, 1997; Jackson, 2009; Warr, 1988). In section 2.2, therefore, the influences of sex or gender on evaluating subjects' vulnerability and expressing fear are investigated by examining females' physical and social characteristics.

2.2.1 Sex & Physical Vulnerability

Women and men are two different groups based on their sex, or biological distinctions. The Oxford Dictionary (2005) defines sex as *'either of the two main categories (male and female) into which humans and most other living things are divided on the basis of their reproductive functions'*. Sex indicates the categorization of male or female and also the distinguishable characteristics of each sex. According to the Collins Dictionary (2001), sex is *'either of the two categories, male or female, into which organisms are placed on this basis'* as well as *'the sum of the characteristics that distinguished organisms on the basis of their reproductive function'*.

In psychology and sociology, sex refers to the same meaning as the lexical definitions above. According to Gray (2010), in psychological usage, sex refers to *'the clear-cut biological basis for categorizing people as male or female'*. Banyard et al (2010) also denote that sex is the term implying biological characteristics and it is used for distinguishing individuals and for identifying themselves as either men or women. The biological characteristics are innate, which are sexually dimorphic portions of the human body and can be distinguished by chromosomes, gonads, and external

reproductive organs (e.g. Banyard et al., 2010; Gross, 2010; Mealey, 2000; Wharton, 2012).

In addition to the biological characteristics above, each sex can be differentiated by physical size and strength. Approximately, women are 10-15 per cent smaller than men by 15 centimetres (6 inches). According to Ogden et al. (2004), the average height of females over 20 year-old in the USA is 162 centimetres and their average weight is 74 kilogram (163 lbs), while males have an average height of 175.8 centimetres and an average weight of 86.1 kilogram (190 lbs). Moreover, women are physically weaker than men since they have less total muscle mass than men (Maughan and Watson, 1983). According to Frontera et al. (1991), in the upper body, women are approximately 52-66 per cent as strong as men and their lower body as strong as 70-80 per cent of men. Therefore, in this research, sex refers to the innate biological and physical characteristics distinguishing female and male and each group is categorized on the basis of these distinctions.

Women's physical vulnerability is a blending of the sense of powerless against criminal attacks and the consequences of victimization physically and emotionally (Skogan and Maxfield, 1981; Snedker, 2015) and typically has been deemed as a main influential factor of females' vulnerability (Killias, 1990). It can be accounted for by their relatively smaller and weaker body and fear of sex-related crimes.

Females' relatively weak physical strength is deemed a cause of females' fear of crime (Madriz, 1997; Stafford and Galle, 1984) since they are, on average, physically more vulnerable than men since they are smaller and less capable of protecting themselves against physical assaults (Hindelang et al., 1978, 1981). Moreover, women are more likely to be the target of violence due to their weaker and smaller bodies (Felson, 1996). According to Felson (1996), women are more likely to be attacked and injured than men, for the most part, due to the differences regarding physical power whereas men are more likely to physically assault their antagonists. Men indeed commit 90% of all crimes and even greater in violent crime cross culturally (Mealey, 2000).

In addition to their actual lack of physical strength, the perception of their physical strength in comparison to males also affects their vulnerability. Females typically feel less able to resist attack on the grounds of general beliefs such as they are less able to

control risk and the consequences of the attack therefore could be more serious (Jackson, 2009; Warr, 1988).

Physical vulnerability in terms of the biological differences and its related perception of women also can be explained by females' own, potentially traumatic, experiences related to sex related crime; females are more likely to experience events such as rape or attempted rape than men (Koss, Gidycz, & Wisniewski, 1987). Statistics indicate that men are roughly eleven times less likely than women to experience being forced to do something sexual over their lifetime (Tjaden and Thoennes, 1998).

In this context, 'Shadow of sexual assault' (Ferraro, 1995, 1996) also has accounted for females' greater level of fear of crime. 'Shadow of sexual assault' refers to the negative effects of females' exposure to sexual assault on their fear of crime, which makes females feel more vulnerable and associate certain crimes with rape. The risk of rape amplifies females' fear of crime unlike men (Ferraro, 1995; Madriz, 1997; Stafford and Galle, 1984; Gordon and Riger, 1989; Scott, 2003; Loskela and Pain, 2000). Gordon and Riger (1989) claimed that rape is the most fearful crime for women except murder and although *'it is not often uppermost in the minds of most women, it is ever present'*. Warr (1984, 1985) also claimed since women have fear of sexual assault imbedded in general fear, they express more fear of being victimized generally. According to Ferraro's research (1995, 1996), on nonviolent crime, the levels of fear reported by

Incident	A Percentage of respondents who record this happening at least once	B Percentage of respondents in (A) who report that incident made them worry about sexual attack
Being followed	49.8	85.1
Being flashed at	33.5	49.8
Obscene phone call	55.2	49.6
Being roughed up	38.3	42.5
Being leered at	64.8	22.0
Unwanted sexual comments	76.4	20.8
Being whistled at	89.5	3.1

Table 2.4 effect of sexual harassment on women's fear of sexual attack (Pain, 1995)

women and men has no significant difference; however, when the crime of rape is added females' fear considerably increases. In this context, the fear of violent crime has a far greater impact on women (Gordon and Riger, 1989; Pain, 1991, 1997; Stanko, 1987; Warr, 1984).

Moreover, the fear of rape affects females' fear of encountering relatively minor crimes like sexual harassment or being followed (Pain, 1995, see table 2.4). Research constantly indicates that minor forms of threatening behaviour including sexual harassment has significantly influenced female's fear of violent crime as well as the possibility of violence (e.g. Jones et al., 1986; Valentine, 1987). Sexual harassment which is sometimes deemed innocuous, causes women to feel powerless and dehumanized through being treated as an object (Madriz, 1997).

In this manner, fear of crime applies differently to females and males in terms of physical vulnerability; moreover, sex dissimilarities and perception of the differences play a critical role in associating the threat of victimization and related vulnerability in relation to females' perceived likelihood, capacity to control, and the consequence of victimization.

2.2.2 Gender

The terms 'sex' and 'gender' are frequently used as synonyms; however, they have different meanings as The Collins Dictionary(2001) defines gender in a different manner from sex, as *'any of the categories, such as masculine, feminine, or in common, within such a set'* or *'the state of being male, female, or neuter'*. In addition, the Oxford Dictionary (2005) also defines gender as a mass noun as *'the state of being male or female (typically used with reference to social and cultural differences rather than a biological one)'* and as a count noun as *'the member of one or other sex'*.

In addition to the dictionary definitions above, in psychology, the concept of gender is distinguished from sex and they are not interchangeable (e.g. Baron et al., 2014; Banyard et al, 2010; Gray, 2010). Banyard et al. (2010) define gender as *'the sociocultural characteristics that are associated with a biological sex'* and according to Gray (2010), gender is *'the entire set of differences attributed to males and females, which can vary across cultures'*. Gross (2010) defines gender more specifically, as *'what culture makes out of the 'raw material' of biological sex: it is the social equivalent or social interpretation of sex'*. These definitions suggest that while sex pertains to natural or biological factors, gender is the differences between two sexes' social and cultural nurture.

In sociology, gender has been defined in this manner as gender is a socially created norm which is associated with being masculine or feminine (Alsop et al., 2002; Wharton, 2012; West and Zimmerman, 1987). Zimmerman (1987) claimed that gender is *'a routine, methodical, and recurring accomplishment'* and hence, it is not to *'be'* but do *'do'* at an individual basis. Moreover, Ridgeway and Correll (2004) claim that according to pervasive and hegemonic beliefs on each gender in societies, gender works as an institutionalized *'system of social practices'* categorizing people into two different groups as men and women. From this point of view, there is increasing consensus among sociologies that gender is a system of social practices which actualize and cultivates gender difference (Ridgeway and Smith-Lovin, 1999; Wharton, 2012).

The concept of gender is subdivided mainly into (1) gender identity (2) gender role (e.g. Banyard et al., 2010). These two concepts somewhat overlap and interrelate with each other. Gender identity is the way of referring to individuals classification of themselves and others corresponding to their own gender and others' gender (Gross, 2010) and the

way of performing their biological sex (Banyard et al., 2010). It pertains to social and individuals' perception of being male and female; therefore, it is very time and culture dependent rather than innate nature of these two groups (e.g. Gross, 2010; Ridgeway and Correll, 2004; Wharton, 2012).

Gender role refers to the attitudes, behaviour, values and beliefs which are expected or deemed appropriate to each gender on the basis of their respective biological sex (Gross, 2010). The perception and categorization of an individual's temperament and behaviour based on their sex assigns roles of being male and female and behaviour of each dimorphism which is deemed as proper or acceptable to be exhibited by males or females (Banward et al., 2010). The social assumptions and expectations about each sex shape gender roles, or sex roles about masculinity and femininity: the behaviour patterns that are expressed differently by the sexes (Hargreaves, 1986; Singleton, 1986).

In this research, therefore, the working definition of gender is taken to be non-fixed socially created distinctions of sexual dimorphism in humans as a biological fact, which affect evaluations and behaviour of each gender, playing as background identity.

2.2.3 Gender Stereotype & Social Vulnerability

The concept of sex assignment or sex category which offers the necessary basis of gender identity and gender role signifies how social meanings are attached to biological sex. These socially created sex categorisations encourages gender stereotype which affects people to expect certain kinds of behaviour and responses from others (Bauer, 2014; Neuburger, et al., 2014; Ridgeway, 1993; Ridgeway and Correll, 2004).

The term stereotype was first used in the same way as its current usages, by Journalist Lippmann in 1922, defining it as 'the picture in the head' that an individual may have regarding certain groups or people (Gray, 2010). The Oxford Dictionary (2005) defines stereotype as '*a widely held but fixed and oversimplified image or idea of a particular type of person or thing*' and '*a person or thing that conforms to such an image*'. The Collins Dictionary (2001) denotes that stereotype as '*an idea, convention etc. that has grown stale through fixed usage*' and '*a standardized image or conception of a type of person, etc.*'.

In psychology, it accords to the lexical definitions of stereotype above. Stereotyping is used as a mental shortcut to allow people's understanding of the external worlds without much effort (Banward et al., 2010; Hamilton and Crump, 2004). Banyard et al. (2010) define stereotype as 'an oversimplified, generalised impression of someone or something' and Gray (2010) denotes stereotype as 'mental concept by which people characterize specific groups or categories of people'. Stereotyping is useful to some extent as it provides individuals with a mental shortcut; however, it is also a source of prejudice for individuals and social levels. In this research, therefore, the working definition of stereotype is taken to be standardized and oversimplified beliefs of objects or even of subjects based on preconceptions through grouping or categorization, which can cause prejudice when evaluating objects.

Stereotyping occurs pertaining to gender or sex role: Gender stereotyping. Gross (2010) defines gender stereotypes as '*widely held beliefs about psychological differences between males and females, which often reflex gender roles*'. They occur through an individual's whole life and are shaped by socially acceptable gender roles based on common assumptions and expectations about masculinity and femininity and their related behaviour patterns (Hargreaves, 1986; Singleton, 1986). Therefore, based on the working definition of stereotype and gender, in this PhD research, gender stereotype refers to beliefs about masculinity and femininity, which offers an evaluation basis for people and their behaviour patterns in the two types.

Stereotype threat is the negative effects of stereotyping (e.g. Franceschini et al., 2014). Steele and Aronson (1995) first proposed the theory concerning the performance of black students in racial stereotypes. When emphasised certain negative stereotype, stereotype-based expectation affects the subjects' performance or behaviour (Banyard et.al, 2010; Gray, 2012; Steele and Aronson, 1995). Gray (2010) defines it in this context, as '*the threatening feeling that occurs, during taking a test, when a person is reminded of the fact that he or she belongs to a group that, according to a culturally prominent stereotype, is expected to perform poorly in the test*'. In a more extended manner, Banyard et al. (2010) define stereotype threat as '*the concern of an individual that they will be judged on the stereotypes of the social group to which they belong, and the concern that they will confirm this belief through their own actions*'. In this manner, stereotype threat refers to the concern about being judged by the stereotypes of the group in which the subjects socially belong and the concern about proving this belief

through their own actions (e.g. Franceschini et al., 2014; Banyard et al., 2010; Steele and Aronson, 1995; Shapiro and Neuberg, 2007).

In the light of gender stereotype and stereotype threat, the disproportion of fear between male and female groups has been accounted for to some extent. Males' self-restrained expression of fear according to socially expected male behaviour patterns in part, accounts for relatively a low level of fear of crime compared to females (Bem, 1981; Goodey, 1997; Sutton and Farrall, 2005). Researches on fear disproportion between two genders have suggested that because of expected masculinity, men are not likely to admit their vulnerability or emotions unlike females who are not discouraged from unconcealed expressions of emotions like fear (Goodey, 1997; Sutton and Farrall, 2005). In this context, Sutton and Farrall(2005) suggest that if men reported their fear of crime honestly, it could be much higher than women's fear.

Stereotypes affect women's perception and behaviour in relation to their fear, in a different way from males'. *'Rape myth'* encourages females' fear, which is *'prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists'* (Burt, 1980). Media feeds the false image of sex related crime with myths and both of them shape people's attitudes to rape (Field, 1978; Burt, 1980; Varelas and Foley, 1998). Bufkin and

The Innocent Victim	The Culpable Victim
She is a respectable woman.	She is a woman of dubious reputation.
She was attacked while she was engaged in a respectable activity.	She was attacked while engaged in an activity considered improper for women.
The place and time of her attack are considered appropriate for a woman.	She was at a place and/or a time considered unsafe for women.
She is weaker than her attacker.	She is strong and she could have protected herself.
She wears conservative or modest clothes and jewellery.	She dresses in a provocative or revealing manner, improper for a decent woman.
She associates with other respectable women and men.	She associates with the wrong crowd.
She was attacked by an "ideal criminal," a stranger	She was attacked by one of her disreputable friends or by a disreputable stranger.
The attack was vicious, resulting in serious injury or death.	Even if she was hurt, she exaggerated or fabricated the nature of the attack.

Table 2. 5 a typology of female Victims (Madriz, 1997)

Eschholz (2000) claimed that rape victims are less likely to report the rape to the authorities because they do not see themselves as the media image of the ideal victim or because their attackers appear rather normal comparing to rapists in the media. Regarding the false beliefs about victims, Madriz (1997) presented eight characteristics that shape some of the major themes of the innocent and culpable victim (see table.2.5). The stereotype of victim affects females reporting the incidents, being fearful of being judged by their attitude towards the false image of victims (Madriz, 1997). In addition to the stereotype of female victims, the stereotypes of offenders and space where crimes have taken place affect females' fear of crime: strangers and public spaces.

2.2.4 Summary

Gender is one of the markers of vulnerability and fear of crime (Hale, 1996; Killias, 1990; Killias and Clerici, 2000; Jackson, 2009). In early research, physical factors were accounted for the disproportion between two gender groups (e.g. Killias and Clerici, 2000); however, recent studies advocate that the social factors which differentiate each gender also significantly affect the differently exhibited levels of fear within the two groups (e.g. Madriz, 1997; Jackson, 2009; Warr, 1988).

Each sex is differentiated by physical size and strength and the female group has a relatively smaller and weaker body in comparison to males and their fear of sex-related crime (Maugham and Watson, 1983; Frontera et al, 1991). It can account for women's physical vulnerability which is comprised of the sense of powerless against physical assaults and the consequences of victimization physically and emotionally (Slogan and Maxfield, 1981) and causes females' fear of crime (Madriz, 1997; Stafford and Galle, 1984). Furthermore, due to their weaker and smaller bodies, females are more likely to be the target of violent crime (Felson, 1996). In addition to their physical weakness, the perception of their physical strength also affects their vulnerability since they in general feel less able to protect themselves against attack (Jackson, 2009; War, 1988).

Sex-related crime and fear of rape also has accounted for females' high levels of fear of crime (e.g. Ferraro, 1995, 1996). Females' exposure to sexual assault has negatively affect females vulnerability and amplifies their fear (e.g. Madriz, 1997; Stafford and Galle, 1984; Koskela and Pain, 2000). In addition, the fear of rape influences the

group's fear of encountering relatively minor crimes such as sexual harassment or being followed (e.g. Jones et al., 1986; Madriz, 1997; Pain, 1995).

In terms of females' social vulnerability, the concept of gender and gender roles has accounted for their greater fear of crime. Gender is distinguished from the term sex (e.g. Ganyard et al, 2010; Gray, 2010) since it is a culturally or socially created norm which is associated with being masculine or feminine (e.g. Alsop et al., 2002; Wharton, 2012; West and Zimmerman, 1987). It offers a basis to judge the attitudes, behaviour, values about themselves or other sex (e.g. Gross, 2010) and formulates gender stereotypes (e.g. Steele and Aronson, 1995) which are defined here, as beliefs about masculinity and femininity, which offers an evaluation basis for people and their behaviour patterns in the two types. The stereotypes affect females' perception and behaviour in relation to their fear especially of rape (e.g. Burt, 1980) such as reporting their victimization, feeling fear of being judged by their attitude towards the false image of victim (e.g. Bufkin and Eschholz, 2000; Madriz, 1997).

2.3 Design for Service Experience and its Role in Fear of Crime

Both fear and service are often described as a subjective experience. “I feel fear” is the expression which represents certain experiences. In addition to the connotation, emotional experience itself involves stimuli, appraisal of fear and response (Frijda, 1997) and service experience is a composite of an organisations’ performance and stimulated emotions (Shaw and Ivens, 2002). In order to understand females’ relatively high levels of fear, therefore, how users’ experiences are generated during service encounters and how the service is designed in terms of the users’ experiences should be taken into account. In section 2.3, therefore, what service and service design is, is investigated from the perspective of users’ experience.

2.3.1 Service

The term ‘service’ has broad usage in everyday life as the Collins Dictionary (2001) defines it as *‘1) an act of help or assistance 2) an organized system of labour and material aids used to supply the needs of the public 3) the supply, installation, or maintenance of goods carried out by the dealer 4) the state of availability for use by the public 5) a periodic overhaul made on a car, etc. 6) the act or manner of service guests, customers’*. In the Oxford Dictionary (2005), service is denoted as a mass noun as *‘1) the action of helping or doing work for someone, 2) act of assistance- assistance or advice given to customers during and after the sale of goods, 3) the action of serving food and drinks to customers’* and as a count noun *‘a system supplying a public need such as transport, communications, or utilities such as electricity and water’*. Despite its wide variety of meanings, all these lexical definitions of service indicate its intangible aspects as an act or a system.

In the light of its intangible aspects, service has been defined and distinguished from tangible manufacturing products as Jobber (2007) states that service is not a tangible object, device, or thing but rather it is a deed, performance or effort. From this point of view, the American Marketing Association (2015) has defined service as products which are *‘intangible or at least substantially so’*. Kotler and Armstrong (2014) also define a service as *‘a form of product that consists of activities, benefits, or satisfactions offered for sale that are essentially intangible and do not result in the ownership of anything.’* The intangible aspect of service signifies that purchasing or using service is not connected to ownership like purchasing physical goods since a service is a process

or an act conducted in mutually consented times and spaces (e.g. Jobber, 2007; Kotler and Armstrong, 2008, 2014; Looy, Gemmel, and Dierdonck, 2003; Lovelock and Wirtz, 2007; Lovelock, Patterson and Wirtz, 2014).

Services are realized only when two parties exist: service provider and customers, as Looy et al. (2003) define it as *'all those economic activities that are intangible and imply an interaction to be realised between service provider and customer'*. In relation to the interaction between service provider and customer, service also has been defined, describing its intangible outcomes and conditions more specifically. Lovelock and Wirtz (2007) define services, in this manner, as *'economic activities offered by one party to another, most commonly employing time-based performances to bring about desired results in recipients themselves or in objects or other assets for which purchasers have responsibility'*. They claim that what service customers expect from service exchanging their time, money and exertion, is value from access to professional skills, goods, facilities, labour, networks, and systems.

The intangible interaction between service providers and customers gives rise to distinctive attributes of service, involving inseparability, perishability and variability (described in figure 2.5). Inseparability is that the quality of service received is directly related to the provider and the place where the service is rendered (e.g. Bateson, 1995, 2010; Looy et al., 2003; Zeithaml, 1981), as Kotler and Armstrong (2008, 2014) assert that *'service cannot be separated from their provider'*. Another attribute of service, perishability, indicates that service is not to be collected or stored for later sale or use (e.g. Fitzsimmons and Fitzsimmons, 2008; Kotler and Armstrong, 2008, 2014; Looy et

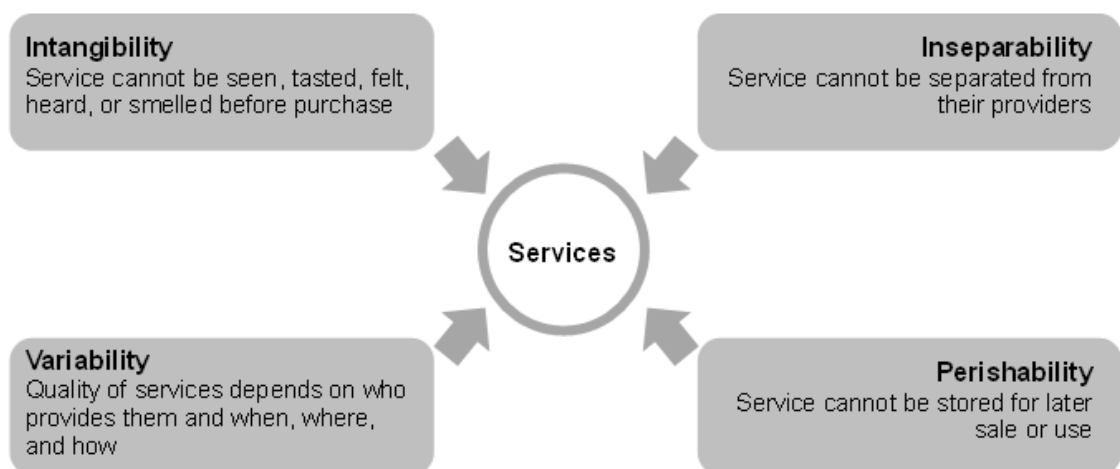


Figure 2. 5 four service characteristics (Kotler and Amstrong, 2008)

al., 2003); therefore, when the demand for service fluctuates, service provider firms or organizations have problems due to the characteristics of service such as the public transport service in rush hours and off-peak periods and hotel or accommodation services in off peak seasons and peak seasons. In this context, service providers often work out strategies based on supply and demand being better matched (Kotler and Armstrong, 2008, 2014).

In addition to intangibility, inseparability, and perishability, variability is also a significant attribute of service in relation to the quality of the service since the service quality largely relies upon when, by whom, where and how the services are provided (e.g. Kotler and Armstrong, 2008, 2014; Looy et al., 2003). In order to realize a service, both provider and customer must play their role at certain times and the customer, service provider, the time and place where the service is being produced are all possible sources of variation (Looy et al., 2003). It is connected to service quality since variability makes standardization difficult and emphasises the need for accurate selection, training and rewarding of staff in service organizations (Jobber, 2007).

Based on the natures of service, service has been defined and distinguished from a manufacturing product (table.2.6). While a manufactured product has a physical substance for possession, service has been defined as a ‘process’, ‘act’, ‘manner’ or ‘system’ for only a limited time and space as in the definitions above. However, service naturally, in part, contains tangible aspects according to the type of service (Looy et al., 2003) as in research on ‘*service evidence*’ (Shostack, 1977) or ‘*Servicescapes*’ on the physical environment in which service takes place (Bitner, 1992). In this context, Gronroos (1990) defines service to be ‘*an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between customer and service employees and/ or physical resources or goods and / or systems of*

Services	Goods
An activity or process	A physical object
Intangible	Tangible
Simultaneous production and consumption: Customers participate in production	Separation of production and consumption
Heterogeneous	Homogeneous
Perishable: Cannot be kept in stock	Can be kept in stock

Table 2. 6 differences between services and goods (Van Looy et. al, 2003)

the service provider, which are provided as solution of customer problems' (Heidrich and Rethi, 2012). According to American Marketing Association (2015), moreover, recently, hybrid forms of products tend to be general and consequently, the dominant form among intangible or tangible aspect is a discerning factor of whether it is a service or a manufactured product. Accordingly, service in part, contains physical elements but dominantly has an intangible nature.

From customer point of view, service has defined as an experience as Fitzsimmons (2008) defines service as *'a time-perishable, intangible experience performed for a customer acting in the role of co-producer'*. In service production, the role of users is basically enormous since without customer participation in the service process, it does not exist. In this manner, Shostack (1993) claimed that *'services cannot be possessed; they can only be experienced, created or participated'*. Customers and service providers such as contact personnel interact with each other over the service process in an environment provided by a service organization in the flow of the service experience (Cook et al., 2002; Chase and Dasu, 2001; Lovelock, Patterson and Wirtz, 2014).

The Oxford Dictionary (2005) defines experience as a mass noun as *'practical contact with and observation of facts or events'* and *'the knowledge or skill acquired by a period of practical experience of something, especially that gained in a particular profession'* and as a count noun, denotes as *'an event or occurrence which leaves an impression on someone'*. The dictionary definitions indicate that experience is a subjective outcome of contact with or observation of something, resulting knowledge, skill or impression. In literature on management, Gupta and Vajic (2000) define experience in this manner, as any knowledge acquisition and sensation through a person's participation in daily activities.

Service experience has been defined, pertaining to the interactions between service providers and customers as Beitner et al. (1997) define it as *'the outcomes of the interactions between organizations, related systems or processes, service employees and customers'*. Customer experience is the internal and subjective response from direct or indirect contact with a company (Meyer and Schwager, 2007) and has been defined as the main offering of service. Over one decade ago, Pine and Gilmore (1999) claimed that service had been transformed into an experience in the 'experience economy' and service companies need to see service as a 'stage' in a memorable

experience for customers as ‘guests’. Ever since, myriads of service organizations have increasingly adopted the customer experience as the core of the service offering, which is identified as ‘*experience-centric services*’ (Zomerdijk and Voss, 2010).

There are various kinds of services which involve different degrees of interaction and customization or labour intensity (e.g. Fitzsimmons and Fitzsimmons, 2008) or contain different degrees of physical or tangible elements (e.g. Looy et al., 2003). Regardless of the service type, however, they share the characteristics which are described above. Therefore, for the purpose of this research which addresses customers’ fear during service encounters, the working definition of service is taken to be subjective experience which is formed of the interaction between service providers and users and simultaneously co-produced and consumed in mutually consented time and space.

2.3.2 Service Design and Experience

Substantial research on service has advocated the significance of service design. However, the term ‘service design’ or ‘designing service’ remains dispersed across the service marketing, management and design literature, sometimes equivocally (Karmarkar and Karmarkar, 2014; Secomandi and Snelders, 2011). The lexical definition of design accounts for the obscured usage by different discipline discourses. Standard dictionaries suggest that design is all intentional facts or thoughts for creating something, whether or not it is visualized or embodied, or a finished artificial good and its features, which has a distinct purpose (the Collins Dictionary, 2001; the Oxford Dictionary, 2005). Due to its broad and comprehensive meanings, the term design in service management, marketing and design literature has been used in various ways such as a concept, arrangement, plan or features of service in different contexts such as service process, service concept, service system, for new service development (NSD) or service recovery from users’ or providers’ perspectives or both.

The various usage of the term ‘design’ in service suggests that service design is multi-layered and angled processes as the ISO standard (1991:9) defines ‘designing a service’ as ‘*the process of designing a service involves converting the service brief into specifications for both the service and its delivery and control, while reflecting the organisation’s options (i.e. aims, policies and costs)*’ (Edvardsson and Olsson, 1996).

Since services consist of an integrated blending of processes, people's competence and materials, Edvardsson and Olsson (1996) identify the objects to be designed for service in this comprehensive manner as service concepts, the service process and the service system which they name 'service prerequisites'.

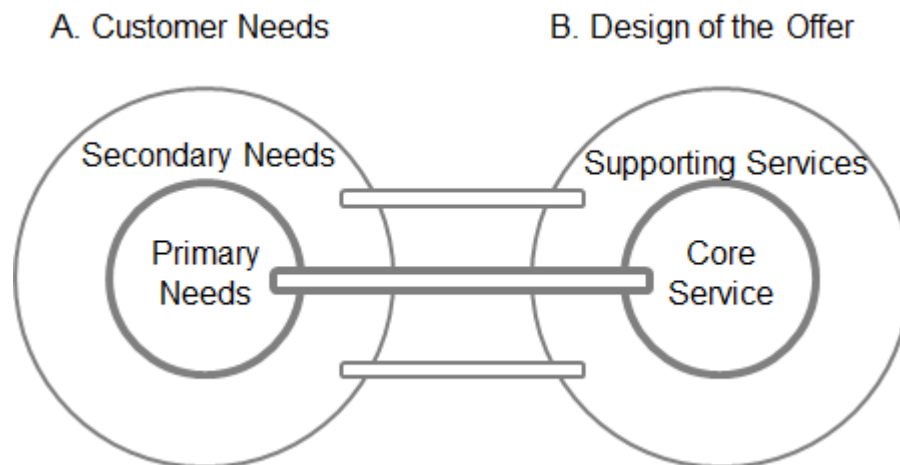


Figure 2. 6 a conceptual model of the service concept (Edvardsson and Olsson, 1996:150)

In literature on new service development (NSD), service concept is the starting point of service design and in designing a service, a service concept is the core of the process (e.g. Goldstein et al., 2002; Scheuing and Johnson, 1989; Tax and Stuart, 1997). Because of the aforementioned characteristics of service such as intangibility, variability, inseparability and perishability and the difficulty of controlling the parameters, a service needs explicit specifications, or service concept. Service concept should encompass customer needs and coherence which reduce opportunities of variability in order to meet customer needs and maintain the quality of the service evenly (Edvardsson and Olsson, 1996; Looy et al., 2003), involving value (what consumers are willing to pay for), form and function (the overall shape of the service, how it is created, and how it operates), experience (the experience as perceived by customers) and outcome (the benefits, stated or assumed, that it provides for the customer and the organisation) (Clark et al., 2000). In this context, Edvardsson and Olsson (1996) describe a service concept as the prototype for service and define it as *'detailed description of what is to be done for the customer (what needs and wishes are to be satisfied) and how this is to be achieved'* which is a critical stage in service design and development (described in figure 2.6).

According to Goldstein et al. (2002), service design is critical in defining clearly the service concept, which enables customer and service organization to achieve a shared vision of the designed service, linking customer needs and the organization's strategic intent. From this holistic perspective of service concept, they also described service design as a planning or decision making process for the integration of physical and non-physical components which are a combination of processes, people skills, and materials. Akesson, Skalen and Edvardsson (2008) also describe 'service design' in this context, as the element which *'encompasses decision-making with respect to the service'*.

Service design can be defined differently depending on whose perspective is taken into account. Goldstein et al. (2002) states that *'from the service organization's perspective, designing a service means defining an appropriate mix of physical and non-physical components'*. However, service design encompasses and addresses its consumers' perspectives as well as the service providers' perspectives due to the customers' pivotal role in co-producing service (Karmarkar and Karmarkar, 2014) as Edvardsson and Olsson (1996) claim that *'it is the customer's total perception of the outcome which is the service... what the customer does not perceive does not exist.'* In this context, Mager (2007) defined service design as to *'aim to ensure that service interfaces are useful, usable, and desirable from the client's point of view and effective, efficient and distinctive from the supplier's point of view.'*

When considering the consumers' perspective, the tangible elements play a critical role in designing service, as Shostack (1977, 1993) argued that since service is abstract, service is not able to be experienced directly but through tangible elements, or service evidence; therefore, the tangible elements must be carefully designed and managed. Touch point is a commonly used term when defining *'the tangible elements of service – everything that a person accessing the service sees, hears touches, smells and interacts with'* (Parker and Heapy, 2006) or *'the points of contact between a service provider and customers'* (Clatworthy, 2011). Secomandi and Snelders (2011) also claim in accordance with Shostack (1977, 1993), that service touch points between service providers and consumers are key service design elements. Clatworthy (2011) also advocates the significance of design for touch-points of service, claiming that *'touch-points are one of the central aspects of service design'* and service design can be

defined as *'design for experiences that happen over time and across different touch-points'* (ServiceDesign.org).

Designing touch-points is involved in 'the service system' (described the structure in figure 2.7) since the service system is all the available resources, including the service company's staff, customers, organisation and control, and physical / technical environment for the service process in order to realise the service concept (Edvardsson and Olsson, 1996). In the light of the importance of the tangible aspects of service which customers experience, the resource structure plays a pivotal role in designing service delivery processes or service encounter.

In the service system, the design of the facility directly affects service operation as Fitzsimmons and Fitzsimmons (2008) claim that *'design and layout represent the supporting facility component of the service package'*. Van Dierdonck, Gemmel and Desmet (2003) also advocate the critical roles of service facilities or physical

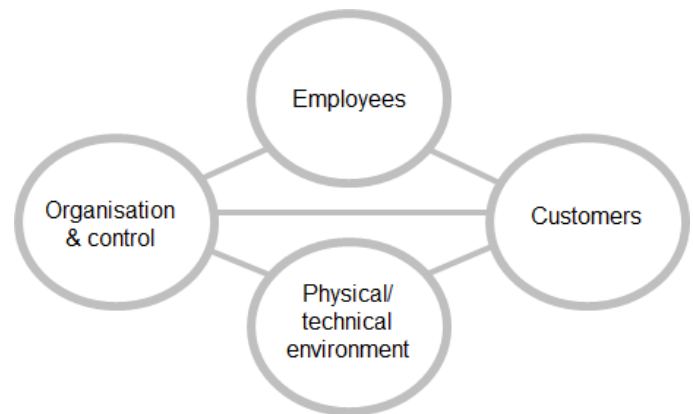


Figure 2. 7 the service system (Edvardsson and Olsson, 1996)

environments in service operations, based on that service environments have great impact on the customers' perception of the service experience. In this context, Bitner (1992) introduced 'servicescapes' (Figure.2.7) as being the impact of physical surroundings on customers and employees, defining it as *'all objective physical factors that can be controlled by the firm to enhance employees' and customers' activities.'* He proposed that even though customers perceive the servicescape holistically, in designing the servicescape, service providers need a more analytical point of view.

Bitner (1992) identifies three dimensions of servicescape which should be taken into account in designing the physical service environment composed of ambient conditions, spatial layout and process, and lastly signs, symbols and artefacts. Ambient conditions in servicescape is defined as background distinctions including noise, temperature, lighting, aesthetics, scent and colour which impact on customers' five senses. Spatial layout and process refer to the elements of the environment correlative with the core

elements of the service including machinery, equipment and furniture which are essential to deliver the service. Service layout and process dimension, therefore, indicate the way the service provider' arranges physical settings and the physical and psychological effects on customers. Lastly, signs, symbols and artefacts refer to the physical setting for explicit or implicit communication of the place with its users.

According to Bitner (1992), these three environmental dimensions affect a customers' response in cognitive, emotional and physiological dimensions. A cognitive response refers to all the effects from the physical environment on customers' understanding, beliefs and convictions. An emotional response is about customers' mood and attitude after they receive stimuli from the environment. In addition to cognitive and emotional responses, customers also physiologically respond. Servicescape also affects the social interaction among customers and between customers and employees as well as the individual response described above. In this respect, physical environment design and layout play a pivotal role in service operation. Fitzsimmons and Fitzsimmons (2008) claim that *'good design and layout enhance the service, from attracting customers to making them feel more comfortable to ensuring their safety'* such as suitable lighting,

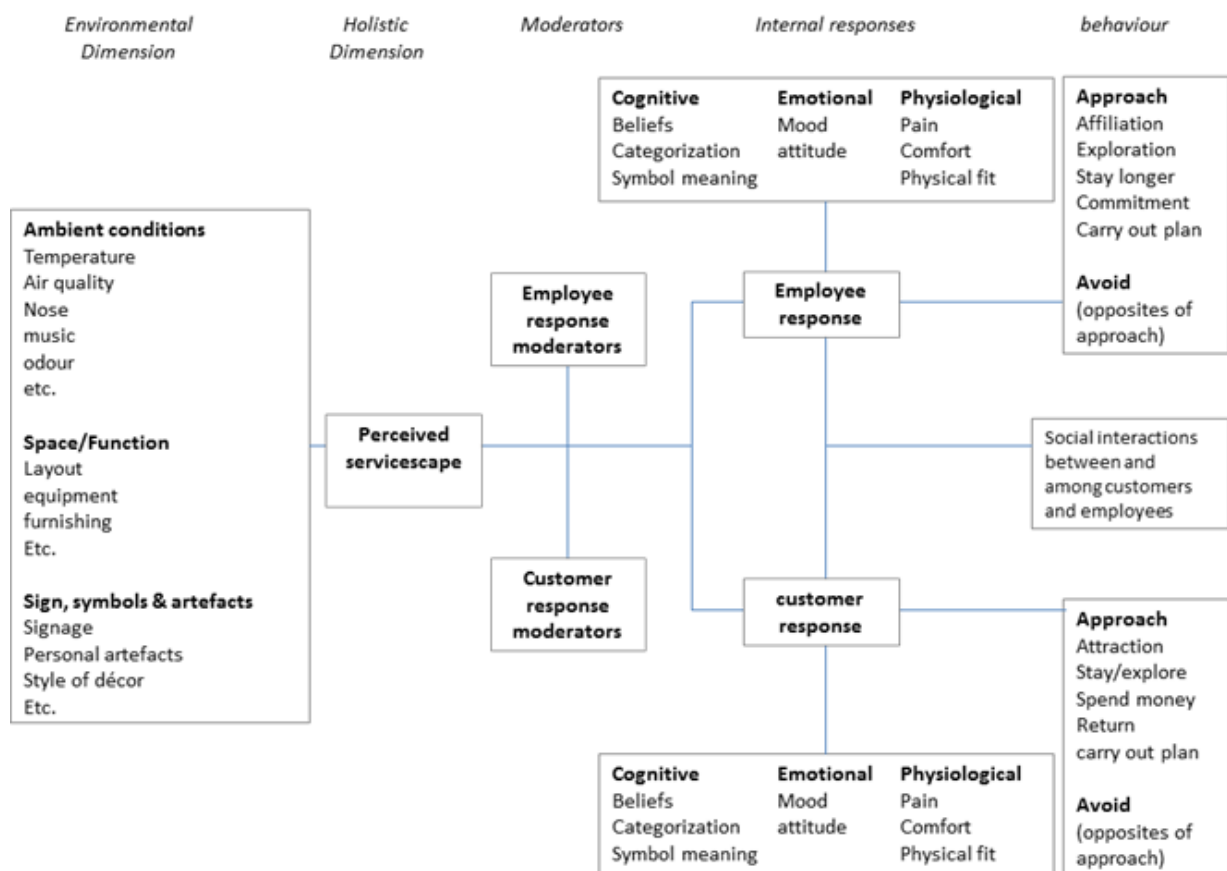


Figure 2.8 the conceptual framework of Servicescapes (Bitner, 1992)

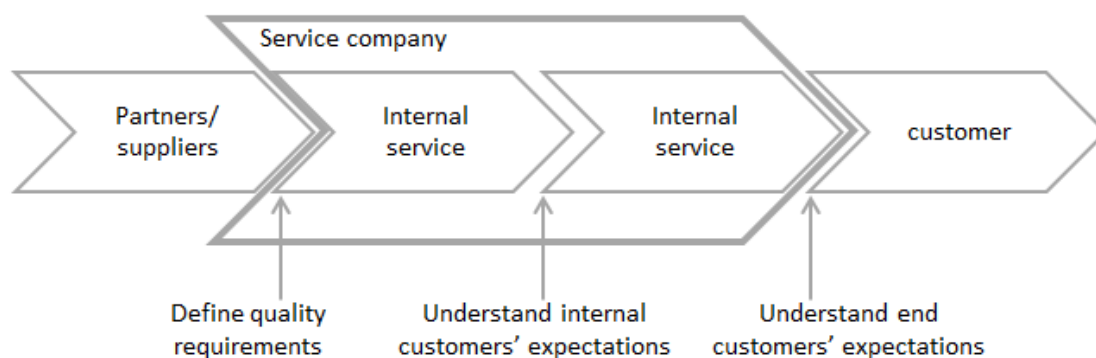


Figure 2. 9 service process (Edvardsson and Olsson, 1996)

the location of dangerous equipment, and fire exist.

Another component of the service system is the service company's staff in the back and front offices (Bateson, 1995; Edvardsson and Olsson, 1996). According to Edvardsson and Olsson (1996), the intangible service is transformed for customers through individual staff, in the service encounter, as *'it is in this interplay between staff and customer, the process of truth, that many services arise and become tangible'* (151). In this context, Heskett (1987) and Chase and Bowen (1991) claim that the design of a service delivery system should encompass the roles of the people as well as technology / physical environment. Cook et al. (2002) assert that service employees play a critical role in linking the service organization to customers since their responsibilities in the interaction between service organizations and customers are in understanding customers' needs and interpreting the customers' needs and requirements in real-time (Cook et al., 2002).

The sequence of touch points in the system comprises a service process which generates a service (figure 2.9) (Bellos and Kavadias, 2014; Edvardsson and Olsson, 1996). The process can be analysed and designed from service providers' and customers' points of view as Ramaswamy (1996) proposes that service processes is composed of service operation activities and customer service activities. According to Ramaswamy (1996), service operation activities transform input by customers and output by service providers through steps for service providers while customer service activities represent the interactions between customers and service providers. Service operation activities are the activities in the back office and customer service activities can be seen as the

activities in front line service, which contain direct interaction with customers.

	Back office	Front office
Location	Operations may be placed near the supply of skilled or cheap resources and facilities	Operations must be near the customer
Process design	Focus on efficiency through economies of scale Support of a smooth service delivery process	Focus on the needs and wants of the customer Use the customer as co-producer
Design of the physical setting	Make the factory appealing to the employees	Make the factory appealing to the customer and the employees
Operations strategy	Low-cost strategy	Differentiation strategy

Table 2. 7 major design considerations for back office and front office (Van Dierdonck et. al ,2003)

Physically or sometimes temporally separated activities from the customer are performed in the back office whilst the front office consists of the service activities which are performed in the customers' presence (Van Dierdonck, Gemmel and Desmet, 2003). Since the objectives of back office and front office are different, back office and front office are distinctively and separately designed (illustrated in Table 2.7). In this context, a theatre metaphor is used to describe a service as a process containing actors both visible and invisible and it emphasizes the design role in the service delivery process as '*choreographing*' a service and the structure of service process system (Harvey, 1998; Stuart and Tax, 2004).

As a design method for service delivery processes in a time dimension to integrate the sequence of touch-points (in her term, service evidences) and the visible and invisible production activities (Bellos and Kavadias, 2014), Shostack (1982, 1984) proposed 'service blueprinting' (figure 2.10). She divided the activities front line and back office with '*the line of visibility*' in customers' eyes. Whether the activities are visible or invisible to the customers, these two sorts of process are necessary to realize the service. Shostack visualised the whole service processes in time dimensions representing all activities above and below 'the line of visibility'. Her service blue print model has been appraised as an essential design tool for defining the characteristics and qualities of service encounters from the customers' point of view (Morelli, 2009).

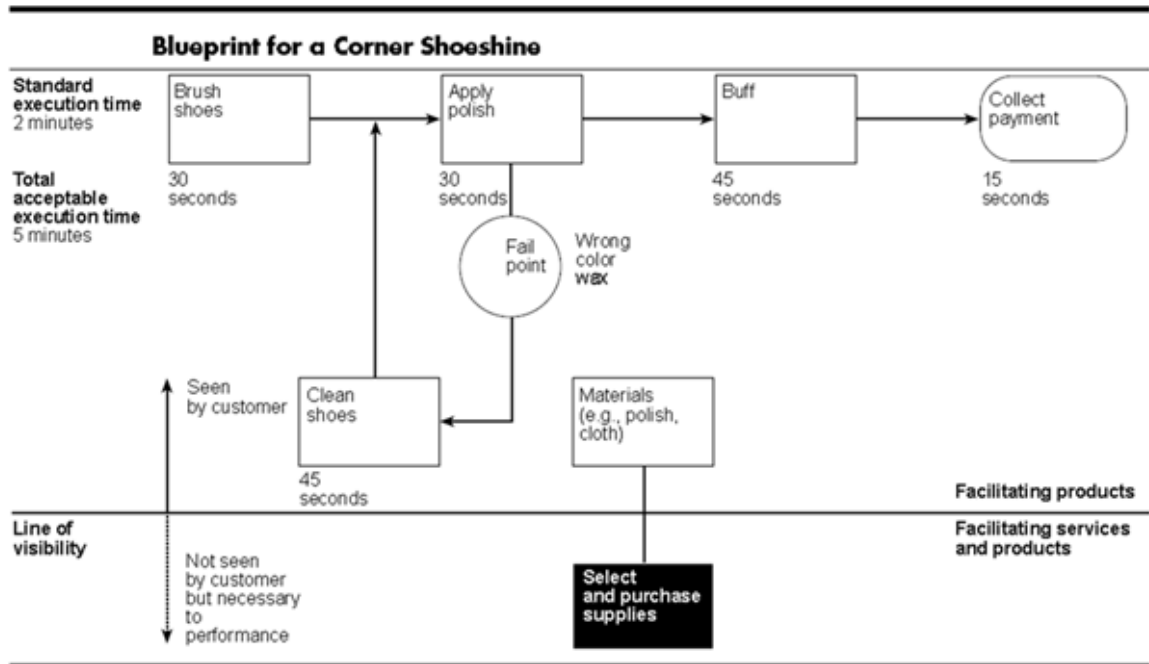


Figure 2. 10 service blueprinting (Shostack, 1982, 1984)

To sum up, what is meant by service design and the role of design in service has been scattered across literature depending on the context such as service concept, the service system, and the service process. In service management and marketing literature, design is defined or described as planning, decision making process or designing tangible elements, or touch-points or their flow in time dimension. In many organizations, the interaction with customers is dealt with by a number of different departments based on the conventional divisions in management such as operations management, marketing and IT (Kimbell, 2009). This phenomenon is accounted for by ‘silent design’ (Gorb and Dumas, 1987) which indicates that in many cases, the designing going on within organisations is undertaken by people who are not educated in design or do not even realise that what they do is design. Recently, based on this varied designing factor in service operation, what service design is and how services are designed is researched and proposed in an interactive dimension, in design discipline (e.g. Kimbell, 2009; Morelli, 2009; Mager, 2007).

Service design which design discipline suggests, holistically approaches users’ experiences generated by interaction as Kimbell (2009) claims that ‘a service design approach would see all of these interfaces or ‘touch-points’ with the customer (or other end users) as something to be thought of holistically, and it would seek to offer an intentionally designed experience of the organization’. Pacenti (1998) defines service

design in this manner, as designing *'the area, ambit, and scene where the interactions between the service and the user take place'* (Sangiorgi, 2009). She also claims that service designers manage *'the integrated and coherent project of all elements that determine the quality of interaction'* (Sangiorgi, 2009).

However, experience is not an object which is able to be designed and fully controlled by service providers (e.g. Bellos and Kavadias, 2014; Hume et al., 2006; Kimbell, 2009; Mager, 2007; Sangiorgi, 2009). Consumers themselves construct their own experiences based on their interpretation of a series of service encounters and interactions which a service provider has designed and offered (e.g. Hume et al., 2006; Kimbell, 2009; Shostack, 1982, 1984). Instead of offering experiences, therefore, service provider creates the prerequisites of the service which enable customers to have the desired and intended experiences (Edvardsson and Olsson, 1996; Gupta and Vajic, 2000) as Edvardsson and Olsson claim that *'the service company does not provide the service but the prerequisites for various services'* and as Mager (2007) claim that *'when designing an experience, experience cannot really be designed, only the conditions that lead to experience'*.

As literature on design, service marketing and management suggest, service design is to offer tangible conditions for intended experience not experience itself. In order to provide the prerequisites for user experience, there are lots of elements which should be considered and designed coherently, as examined above. This research addresses fear and the role of service design of London underground in mediating it from users' points of view. Therefore, in accordance with the working definition of design in this research, the working definition of service design as the conception or its application realising a service interface by arranging and amalgamating all service touch-points and their sequences in order to enable users to have desirable experience as intended by the service providers.

2.3.3 Service Errors: Females' Fearful Journey in the Underground

Before or during using the underground, female users experience a higher level of fear or anxiety than males (e.g. Crime concern, 2006; Yavuz and Welch, 2009). According to Walsh (1999), travel by train is one of the most fear inducing activities in a public space due to the feeling of being confined within the system and the sense of being unable to cope with dangerous situations. In this section, how a public transport service system involves safety measures and service attributes and affects female users' fear is examined during their journey in the underground, based on research data by through transit researches including Crime Concern in 2006 for Department for Transport in the UK.

Travelling time has been shown to have greater influence on female users than male users even though both groups express a higher fear of crime at night than during the daytime. According to a questionnaire given to 1809 respondents, in 2002, in the UK (Crime Concerns, 2006), the female group expressed higher levels of anxiety in using the underground, during the daytime and after dark, than the male group. In particular, they reported a very high level of feeling insecure when using the service after dark (60%) in comparison to the anxiety of travelling during the daytime (approximately 20%). It is greater than male users' concern of using the service after dark (32%).

During the journey in the underground at night, it has been shown that users feel more insecure or vulnerable according to the section or location in the service process. According to the qualitative research by Crime Concern (2004), 61 per cent of female

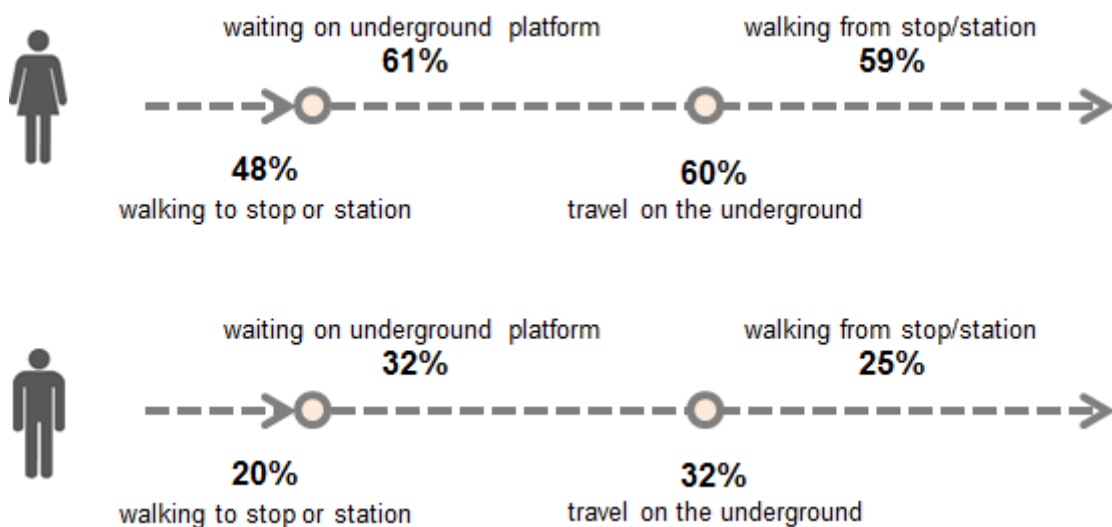


Figure 2. 11 journeys where women and men feel most insecure after dark (source from Crime Concerns, 2004)

users responded that the most insecure section during night time use is waiting on underground platform and when travel on the underground (60 %) and walking from stop or station (59%), and walking to stop or station (48%) were also responded in figure 2.11. Females' perceived vulnerability in the underground is greater than male users as another research surveyed in the UK (Cozens et al., 2004) also has shown that 93 per cent of women reported being fearful whilst waiting on a platform at night in comparison to 53 per cent of males.

In addition to the time of day / night and vulnerable sections of the journey, other users have significant influence in easing female users' fear or anxiety of being involved in criminal activities and the other way around. The presence of other passengers has influence on reducing female groups' perceived vulnerability since they tend to feel vulnerable when no one is around for surveillance against crime or in the presence of social incivilities (Crime Concern 2004; Yavuz and Welch, 2010). According to the Crime Concern studies in 2002, both male and female groups, but especially females, reported feeling less safe when out alone. Even though a crowded environment contributes to anxiety, passengers in general tend to feel safer when surrounded by more people (Crime Concern, 2004). However, paradoxically, when waiting for vehicles, women have been shown to feel more fear in presence of one other passenger around especially than being alone, if the person is a male (Crime Concern, 2004).

Moreover, passengers are shown to feel threatened by anti-social behaviour (Crime Concern, 2004). According to Crime Concern (2004), people who show aggressive behaviour or are under the influence of alcohol and/or drugs, stimulate both female and male users' fear due to the unpredictability of such behaviour and possible outcome of being involved in criminal incidents. Moreover, aggressive or noisy groups of young people also have been shown to be fear evoking stimuli when passengers are using or waiting for vehicles (Crime Concern, 2004).

According to Crime Concern' research in 2002, unfamiliarity with an area or service also provokes passengers' fear or anxiety. In the group discussion (1996, 2002), the participants identified familiarity with to travelling area or travelling route as an important factor in creating a sense of security while they expressed feelings of insecurity and apprehension about travelling in an unfamiliar areas. Moreover, infrequent users have shown a tendency to feel more insecure (Crime Concern, 2004).

In the service system, there are various safety measures and attributes which can intervene between the passengers and the fear evoking stimuli in the underground above. In terms of the physical environment, design and layout influence users to ensure their safety (Fitzsimmons and Fitzsimmons, 2008). According to Cozens et al. (2004), significant females (93 per cent of the respondents) report feeling fear while waiting on a train platform after dark because of the low visibility in the provided environment. In terms of visibility, according to Crime Concern (2004), sufficient lighting throughout the station was shown to be the second most commonly chosen measure to enhance personal security (26%). Sufficient lighting has been shown to be a significant influential factor to reduce fear of crime for passengers waiting on a platform (Loukaitou-Sideris, 1999) and to enhance female users' perception of safety more than males' (Wallace et al., 1999). In addition to the physical features of the environment, poorly managed environments such as the presence of litter and graffiti also influences on people's anxiety (Crime Concern, 2004).

CCTV surveillance cameras for formal surveillance of vulnerable areas also influence fear of crime among passengers since it is generally believed that potential offenders tend to deter committing crimes where they are observed (Transit Cooperative Research Program, 2001). According to Crime Concern (2004), the second most commonly chosen measure by users to improve personal security was CCTV surveillance in 2002 (25%).

In the service system, furthermore, staff and metro police have been shown to be the most effective and influential elements in ameliorating fear of crime, especially in female users (e.g. Cozens et al., 2004; Crime Concern, 2004; Schulz and Gilbert, 1996). According to Crime Concern (2004), it was the most commonly chosen measure in 2002 and 1996 to improve personal security, as 35 per cent of the respondents chose the presence of staff. When waiting for public transport and in transit, the presence of visible and available staff has been shown to be significant, in particular when there is no one or few people around (Crime concern, 2004; Reed et al, 2000; Transit Cooperative Research Program, 2003). Female users have indicated a preference for and reliance on staff security personnel rather than CCTV surveillance (Carter, 2005; Yavuz and Welch, 2010).

To summarize, female passengers feel greater vulnerability and fear of crime in the underground. In the service system, there are various influential factors in intervening with users' fear and anxiety such as physical environment features, CCTV or staff. However, the greater levels of female users' fear of crime and vulnerability signify the need to access the users experience and their perception and interpretation of the interface and hence provide more appropriate and efficient interventions by the organization.

2.3.4 Summary

Service is an intangible act, process, or system which is not connected to ownership unlike manufacturing products (e.g. Jobber, 2007; Kotler and Armstrong, 2008; Looy, Gemmel and Dierdonck, 2003). It is realized only when service providers and customers exist; therefore, it can be defined as intangible economic activities produced by the interaction between service providers and customers in mutually consented times and spaces (Looy et al., 2003 ; lovelock and Wright, 2007). The intangible interaction between two parties gives rise to distinctive attributes of service involving inseparability, perishability and variability (e.g. Fitzsimmons and Fitzsimmons, 2008; Kotler and Armstrong, 2008).

Even though service nature stems from its intangibility and intangibility is the main attribution of service, service naturally, in part, contains tangible aspects according to the type of service (Looy et al., 2003) such as physical environment (e.g. Bitner, 1992) and physical resources (e.g. Gronroos, 1990; Shostack, 1977). In this context, the discerning factor of whether it is a service or a manufactured product is the dominant form among intangible or tangible aspect of the product (American Marketing Association, 2012). Therefore, service in part, contains physical elements but dominantly has an intangible nature.

A customer acts as and takes the role of co-producer; therefore, from the customers' perspective, service is defined as an experience pertaining to the interaction with the service provider (e.g. Bitner et al., 1997; Fitzsimmons and Fitzsimmons, 2008). Since this research deals with service from the users point of view, service is defined here as a subjective experience which is formed of the interaction between service providers and

users and simultaneously co-produced and consumed in mutually consented time and space.

Even though researches on service have been shown to emphasize the importance of design for service and to frequently use the term 'design', service design or designing service has remained scattered across the literature and ill-defined. However, the various usage of the term indicates that service design is a multi-layered and faceted process as in the definition by the ISO standard (1991). Researches have shown that service concept is the starting point of service design and it is the core of designing service (e.g. Goldstein et al., 2002 Scheuing and Johnson, 1989). In the literature on service concept, design is described as a planning or decision making process for the integration of physical and non-physical components which are a combination of processes, people skills and materials (e.g. Akesson et al., 2008; Goldstein et al., 2002).

Service design can be defined differently depending on whose perspective is taken into account (Goldstein et al., 2002; Marger, 2007). From a customers' perspective, significant researches advocate the critical role of the tangible elements, or service touch-points in designing service (e.g. Shostack, 1977; Secoomandi and Snelders, 2011). It is connected to the service system (Edvardsson and Olsson, 1996) which is all the available resources, including the service company's staff, customers, organisation and control, and physical environment in order to deliver the service. In this context, research has been emphasizing the significance of the design of the facility (e.g. Bitner, 1996; Fitzsimmons and Fitzsimmons, 2008) and the roles of the people in the service system (e.g. Heskett, 1987; Chase and Bowen, 1991) as touch-points.

Moreover, the sequence of touch points comprises a service process which generates a service. The processes are operated through the back office activities which physically or sometimes temporally separate activities from the customer and the front office activities which are performed in the customers' presence (e.g. Van Dierdonck et al., 2003). In this context, service design is sometimes defined as 'choreographing' a service and the structure of the service process system (e.g. Larsen, 1992; Stuart, 2004). For designing the process and activities, 'service blueprinting' which was proposed by Shostack (1982, 1984) has been prevalently used and appraised as an important design tool for defining the characteristics and qualities of service encounters from the users' point of view (Morelli, 2009).

Along these lines, in the literature on service management and marketing, design is defined or described broadly as planning, decision making processes, designing tangible elements, or touch-points or their flow in time dimension. The various design activities are conducted and dealt with by a number of different departments, in many cases. Based on these facts, service design is researched and proposed in an interactive dimension from users' point of view in the design discipline (e.g. Kimbell, 2009; Morelli, 2009; Mager, 2007).

It has been suggested that service design holistically approaches users' experiences generated by the interaction between the users and the service providers (Kimbell, 2009; Sangiorgi, 2009). In this context, it is also emphasized that since experience is not an object which is able to be designed and fully controlled by service suppliers (e.g. Hume et al., 2006), service prerequisite is designed in order to enable customers to have the desired and intended experiences (e.g. Edvardsson and Olsson, 1996; Gupta and Vajic, 2000). Therefore, for the purpose of this research, the working definition of service design as the conception or its application realising a service interface by arranging and amalgamating all service touch-points and their sequences in order to enable users to have desirable experience as intended by the service providers.

In the underground service, many female users appear to experience fear of crime and anxiety (e.g. Crime Concern, 2006; Yavuz and Welch, 2009). It has been shown that female users are more sensitive to travelling time, locations, and other variables such as the presence of other passengers and anti-social behaviour (Crime Concern, 2004). In the service system, there are various safety measures and attributes which are shown to be effective in intervening with the female users' vulnerability and fear of crime. According to research findings on female users' fear of crime in public transportation (e.g. Crime Concerns, 2004; Yavuz and Welch, 2010), staff and metro police have been shown to be the most effective and influential elements in reducing female users fear of crime or anxiety. In addition, well-managed and designed physical environments have been shown to mitigate users' anxiety (e.g. Cozen et al., 2004). CCTV surveillance also has shown to be effective in reducing fear of crime even though female passengers prefer the presence of security patrols and staffs than CCTV (e.g. Cater 2005; Yavuz and Welch, 2010).

CHAPTER 3

Research Questions & the Conceptual Framework

CHAPTER 3 RESEARCH QUESTIONS & THE CONCEPTUAL FRAMEWORK

There are two fundamental questions which comprise a research: ‘What is the object of enquiry?’ and ‘How can it be enquired into?’ (Hollway and Wendy, 2000). In this chapter, the ‘what?’ is delineated on the matter of ‘who?’, together which form the foundation of ‘how’, or the research methodology. Based on the findings of the Literature Review, a conceptual framework of fear of crime in the underground is formulated in order to support the research territory and research questions. Accordingly, first, the cognitive process of fear of crime in the underground is conceptualized based on the appraisal theories. Subsequently, considerable factors of female users and the underground service in the cognitive process, which are revealed in the literature, are reflected upon in the model and in turn, based on the framework, research questions are formulated.

3.1 Female Fear of Crime in the Underground

Fear of crime has been vaguely defined, comprising both anxiety and fear, for instance, ‘*an emotional reaction of dread or anxiety to crime or symbols that a person associates with crime*’ (Ferraro, 1995: 30) or ‘*the wide range of emotional and practical responses to crime and disorder made by individuals and communities*’ (Pain, 2001:901). Although fear and anxiety are interrelated, fear as an emotion is a subjective response comprising psychological, physical and behavioural tendencies towards interpreted and evaluated specific objects, events or circumstances, different from anxiety, as in the working definition of emotion and fear in this research. Due to the research tradition on fear of crime, however, previous research and criminology theories are, in general, focused on anxiety or concerns towards criminal activities and theories on fear of crime as immediate responses towards stimuli have been absent to date. Therefore, in this section, the mechanism of fear in the underground is framed based on theories of appraisals of emotions in psychology.

3.1.1 Appraisal of Fear of Crime

Cognition links stimulus input and emotional responses, through processes named ‘appraisal’ as in the Literature Review. Stimulus events are appraised in relation to self and the environment according to the subject’s goals, beliefs and coping potential (e.g.

Smith and Lazarus, 1993). Through information processes, which Frijda defines as phases of 'Analyzer', 'Comparator', 'Diagnoser' and Evaluator, stimulus events turn into 'situational meaning structure', or events-as-appraised. Depending on the situational meaning structure which is appraised as threatening or beneficial or irrelevant or relevant to personal goals or beliefs, a distinct emotion is engendered and the emotion prepares the subject to avoid or minimise the appraised harm or to seek, maintain or maximise the appraised benefit (Lazarus, 1999).

The situational meaning structure has its own components according to each emotion and such components as low intrinsic pleasantness, novelty, focality, uncontrollability and very high urgency distinguish fear from other emotions and anxiety (e.g. Ellsworth and Scherer, 2003; Frijda, 1984). In this section, therefore, based on Frijda's emotion information process model (1984) and other relevant theories on emotion, examined in the Literature Review (e.g. appraisal theories of Lazarus (1999) and Smith and Lazarus (1993)), emotion process with constituent components of fear is conceptualized.

Fear is analysed as the theme of danger and motivationally relevant to bodily integrity and safety needs, and motivationally incongruent by primary appraisal (Smith and Lazarus, 1993). When an individual confronts a certain event or circumstance, the stimuli or certain aspects of them are analysed or actively scanned and evaluated in terms of the subjects' various concerns in the phases of Analyzer and Comparator (Frijda, 1984). In comparator phases, the 'intrinsic attractiveness or averseness' which the situation may possess is evaluated, in the case of fear, with presence of negative valence or absence of positive valence according to known types of the events and what it might imply to the subjects in terms of its cause or consequence, if possible. 'Novelty' also correlates with the evaluation of averseness and uncertainty concerned with the potential consequence of the event. Moreover, since it has direct stimuli in ongoing conditions which link behavioural changes, generated by the situational urgency connecting to the goal significance to subjects, 'focality' and 'urgency' also characterize fear and differentiate fear from anxiety.

As it conceptualised in figure 3.1, the first phase, which covers primary appraisal, therefore, can be seen to evaluate 'focality', 'low intrinsic pleasantness' and 'novelty' and with these criteria, subjects evaluate a certain stimuli as potential threat or danger. Secondary appraisal is the evaluation of subjects' coping potential in relation to the

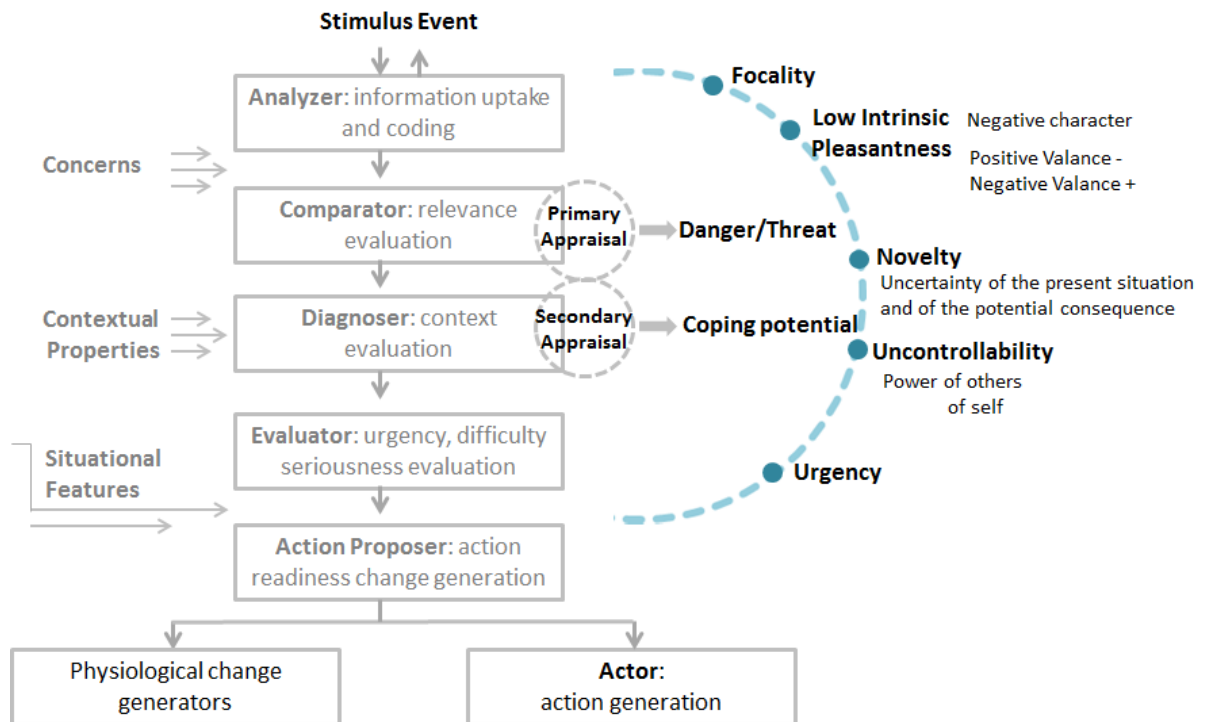


Figure 3. 1 conceptualized process and components of appraisal of fear (source from Frijda, 1984, Smith and Lazarus, 1993 etc.)

stimuli. In the phase of ‘Diagnoser’, the stimulus as a whole is appraised in respect of possibilities or impossibilities for coping. In this stage, the subjects’ ‘contextual properties’ are utilized to determine which action is possible or not in presence of the stimuli by combining prior experience of attempts to cope with similar or the same stimuli and other experiences.

Together with the primary appraisal, the secondary appraisal provides required information in evaluating the degree of urgency, difficulties or seriousness of the stimuli. In the ‘Evaluator’ phase, the stimulus is evaluated as high urgency leading to immediate responses which engender through ‘Action Proposer’ stage. Situational features or spatial contexts input into these stages and affect specific fear action generation. Finally, the outputs are generated: physiological and behavioural responses. Along those lines, fear responses are engendered by uncertain expectation of the presence of negative valence or absence of positive valence which stimulus events possess and by subjects’ insufficient controllability over the situations and its high urgency. In this manner, fear is characterised with ‘focality’, ‘low intrinsic pleasantness’, ‘novelty’, and ‘uncontrollability’ as presented in figure 3.1.

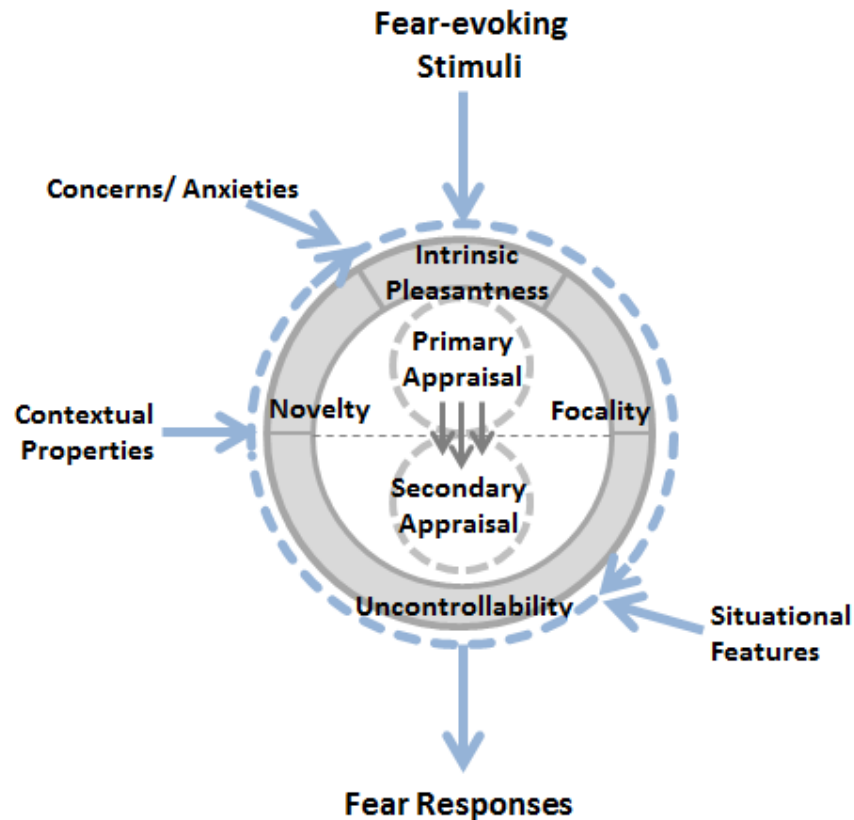


Figure 3. 2 a conceptual framework of fear of crime

In accordance with the information process of emotions and the situational meaning structure of fear, a conceptual framework of general processes of fear of crime is formulated in figure. 3.2. In the model, there are main inputs and outputs: fear-evoking stimuli and fear responses. The information about stimuli as a main input is analysed as potential threat in relation to subjects based on its focality, intrinsic pleasantness, novelty, and uncontrollability and accordingly, fear responses, comprised of physiological and behavioural changes, are generated as outputs of the information process. The fear appraisal is also affected by subjects' concerns, contextual properties and situational features.

In this framework, fear appraisal process is not depicted in a vertical sequence unlike the focal theory of Frijda (1984) but rather, it is focused on the components of fear appraisal as the information is not always processed sequentially. Fear is characterised with very high urgency; therefore, any phases between context appraisal and overt response can be by passed or overlaid and the process can be interrupted at any point. According to Frijda, for instance, in response to a sudden stimulus in which there is no

time to gather or process information, the diagnose phases for context evaluation is not activated and in this context, fear response also accounts for a reactive system (e.g. Epstein, 1982) as in Chapter 1. However, Frijda claims that in many cases, processes are not actually skipped by interruption but rather, activated more quickly by overlaying stages. In this light, for the purpose of the research which investigates how artificial structures of the underground affect a certain group's fear of crime, the processes are simplified, focusing on the themes of fear appraisal and the additional inputs to the process.

3.1.2 Contextual Properties and Gender in the Underground

Fear is a subjective response which involves an evaluation personalizing certain stimulus according to subjects' goal and beliefs and their perceived coping capability (e.g. Frijda, 1987, 1993; Stein, Trabasso and Liwag, 1994; Lazarus, 1994, 1999). Fear of crime, however, has been dealt with as a social problem which affects a certain group of people's lives as statistics and research on fear of crime have constantly highlighted a higher level of fear of crime in females than males and its negative influences on female groups. What makes the subjective response not subjective and a certain group of people have in common in recognizing particular stimuli as threat and in producing fear responses according to their gender? It, in part, can be accounted for by 'side conditions' of the fear processes.

In addition to stimuli, there are additional inputs to the fear appraisal processes: concerns and 'side conditions' (Frijda, 1984) which are described as contextual properties and situational features in the model. The emotion process is actualized by means of subjects' experience, knowledge and volition, which operates on a wide range of levels covering learned association and conscious evaluation as well as primitive reaction (e.g. Stein, Trabasso, and Liwag, 1994; Lazarus, 1999, Leventhal and Scherer, 1987). In this light, Frijda claims that emotion such as fear is not a discrete event as in order to process the information about stimulus, subjects need the coding categories for the context and knowledge with respect to the context. In this research, this 'side condition' is conceptualized as subjects' contextual properties which provide the coding categories and inference rules with situational features in accordance with Frijda's model.

This influential element on fear appraisal can be in part, accounted for by facilitators on fear of crime in criminology. Franklin and Franklin (2009) state that facilitators of fear refer to influential or triggering factors of fear including increased vulnerability or disorderly surroundings *‘that lead a rational individual to be more or less fearful’*. Previous research on fear of crime accentuates female perceived vulnerability as a pivotal facilitator in explaining the groups’ high level of fear (e.g. Franklin, Franklin and Fearn, 2008; Madiriz, 1997; Jackson, 2009).

Perceived vulnerability is affected by the physical, social and situational factors which the subject has perceived in the situation (Killias, 1990; Killias and Clerici, 2000) and learning has been shown to be a key influential factor in evaluating their vulnerability in relation between self and a certain circumstance (Akers, 2009). In the light of the role of physical and social status or ‘position in social space’ (Garofalo, 1981) in evaluating situational contexts, perceived vulnerabilities can be seen as moderator variables to fear appraisal as contextual properties. Therefore, it is postulated that sex and gender will affect female users’ perceived vulnerability and in turn, influence their fear of crime in the underground due to females’ physical and social status which their gender implies as conceptualised in figure 3.3.

Through literature review, the influential factors on females’ perceived vulnerability

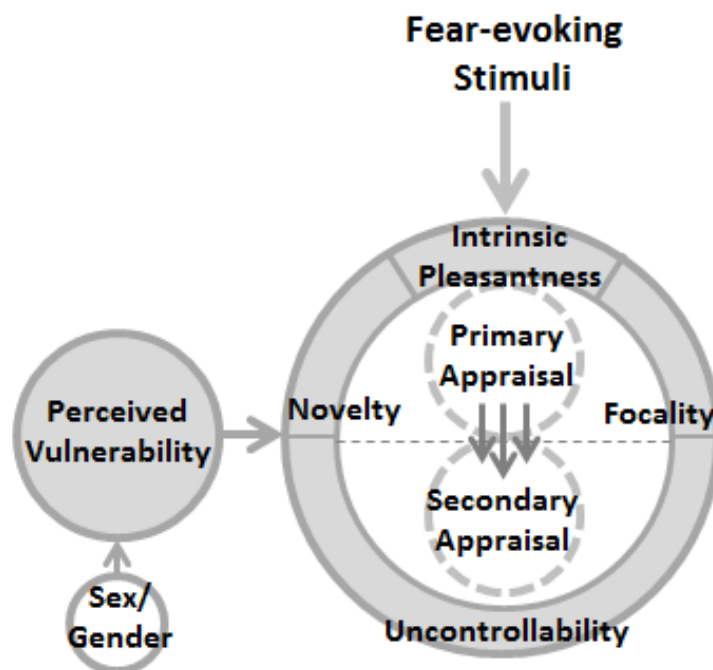


Figure 3. 3 postulated relationship between sex or gender and fear of crime in female users

and fear of crime, which are universal or reflecting social or cultural learning in certain cultures, are identified, for instance, body size and physical strength and gender stereotype. In researching into female users' fear of crime in the underground, however, there are two problems in connection with previous research which should be taken into account. First, previous research on females' fear of crime and their vulnerabilities are mainly focused on anxieties or concerns. Secondly, female fear of crime has been researched mainly focused on the gender and sex effects on their anxieties and concerns about crime in relation to a certain place and time.

The generalization of dualism in relation to genders and fear of crime is recently criticized (e.g. Day, 2006; Pain, 2001). Moreover, there are other variables which appear to affect fear of crime, such as age (e.g. Box, Hale, Andrews, 1988; Ferraro, 1995; Tulloch, 2000), race, cultural background (e.g. Killias, 1990; Crime Concern, 2004) or geographic location and life style (Garofalo, 1981) as well as situational factors (e.g. Killias, 1990). In this light, in order to understand female users' relatively high levels of fear in the underground, first, how gender or sex and other influential factors interact with each other in relation to their perceived vulnerability towards criminal activities and affect the components of fear appraisal should be taken into account. In this context, a research question is formulated as:

R.Q 1) "How does gender affect female users' fear of crime in the underground, in conjunction with other individual and social traits?"

3.1.3 Service in the Context of Fear

Service is an intangible act or process (e.g. Kotler and Armstrong, 2008; Looy et al., 2003) and from a user's point of view, an experience (e.g. Bitner et al., 1997; Fitzsimmons and Fitzsimmons, 2008). A user experiences service by interacting with service touch-points, or tangible aspects of service and their flows (e.g. Shostack, 1977) which are designed prior for users' experiences as service prerequisites (Edvardsson and Olsson, 1996). In this regard, 'tangibles' including physical facilities, appearance of personnel, tools or equipment used to provide the service and other customers in the facility are regarded and researched as one of determinants of service quality (Parasuraman, Zeithaml and Berry, 1985, 1988, 1990) and objects of service design (e.g. Clatworthy, 2011; Shostack, 1977, 1993; Parker and Heapy, 2006). Service providers enable the user experience by creating and structuring a service interface, in which various user experiences including fear of crime take place, engaging tangible components' of the service system as the working definitions of service and service design indicate. Users themselves construct their own experiences based on their interpretation of a series of service encounters and interactions which a service provider has designed and offered (e.g. Hume et al., 2006; Kimbell, 2009; Mager, 2007).

In this manner, users in the underground experience fear of crime by inevitably

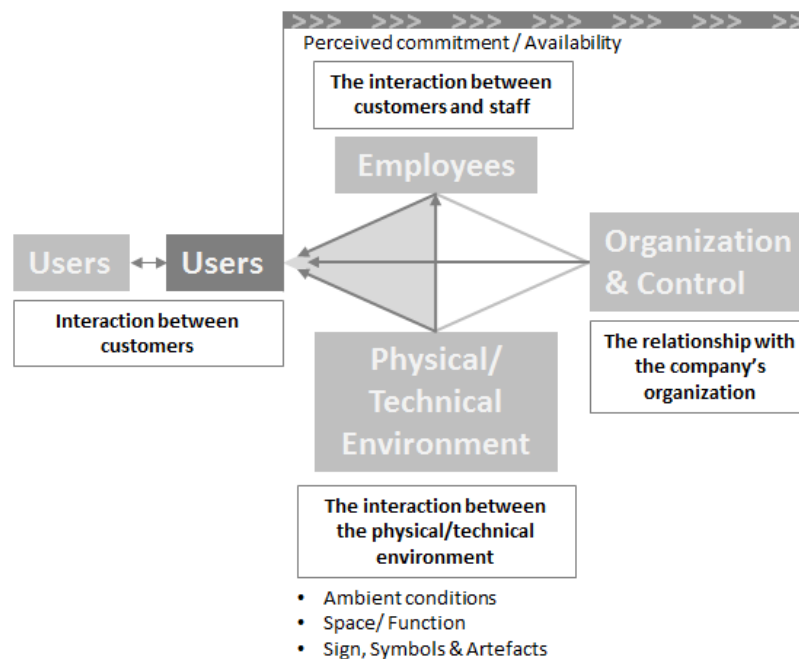


Figure 3. 4 components of service systems and their relationships, postulated to affect female users' fear of crime (source from Edvardsson and Olsson, 1996; Bitner et al., 1997, etc.)

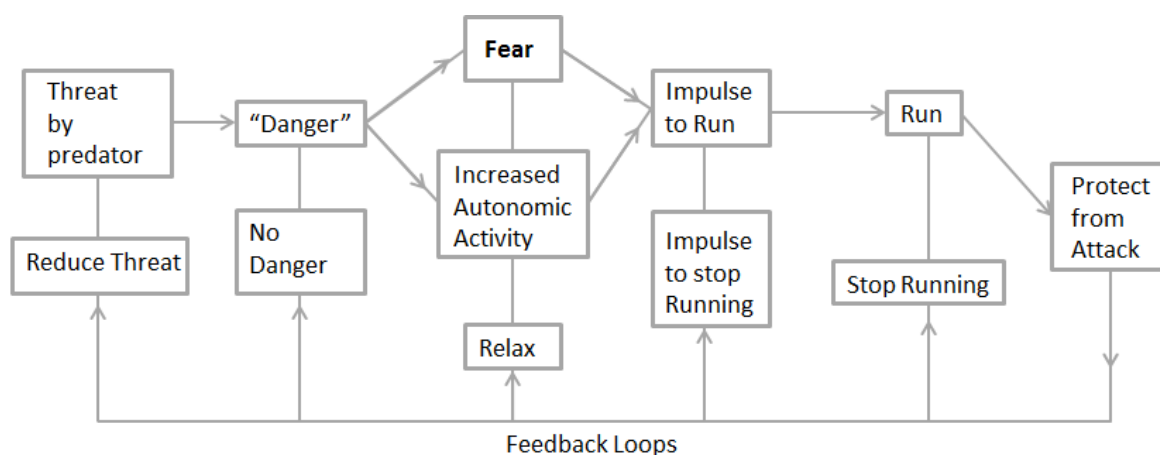


Figure 3. 5 the complex chain of events defining fear (Plutchik, 1983, 1993)

interacting with other components of the service system as conceptualized in figure. 3.4 based on Edverdsson and Olsson’s service system model. Research on fear of crime in public transportations suggests the significant roles of other users and physical and social environments of the service as fear evoking stimuli and as moderator variables (e.g. Crime Concern, 2004; Cozen et al., 2004; Yavuz and Welch, 2010). Along those lines, the underground systems contain fear evoking stimuli and other influential situational factors on the fear process.

Situational contexts or features are shown to mitigate or aggravate or maintain the emotional state of fear. In the light of the mechanism of the situational factors, in psychopathology, emotions including fear are postulated as ‘*complex chains of events with stabilizing loops that tend to produce some kind of behavioural homeostasis*’ (Plutchik, 1990, 1993, 2001). In the case of fear as illustrated in figure 3.5, until the threatening factor is dissolved and the emotional arousal is stabilized, the circumstances are constantly scanned and affect producing behavioural responses.

In this research, therefore, in addition to contextual properties which women utilize in evaluating threats in relation to self (R.Q.1), it is hypothesised that the underground service will affect female users’ fear appraisal and the resultant behaviour by influencing the selection of specific actions. In this context, the components of the service system comprising the service interface are investigated as situational features which input into the fear process as in figure 3.6. Accordingly, the second research question is formulated as:

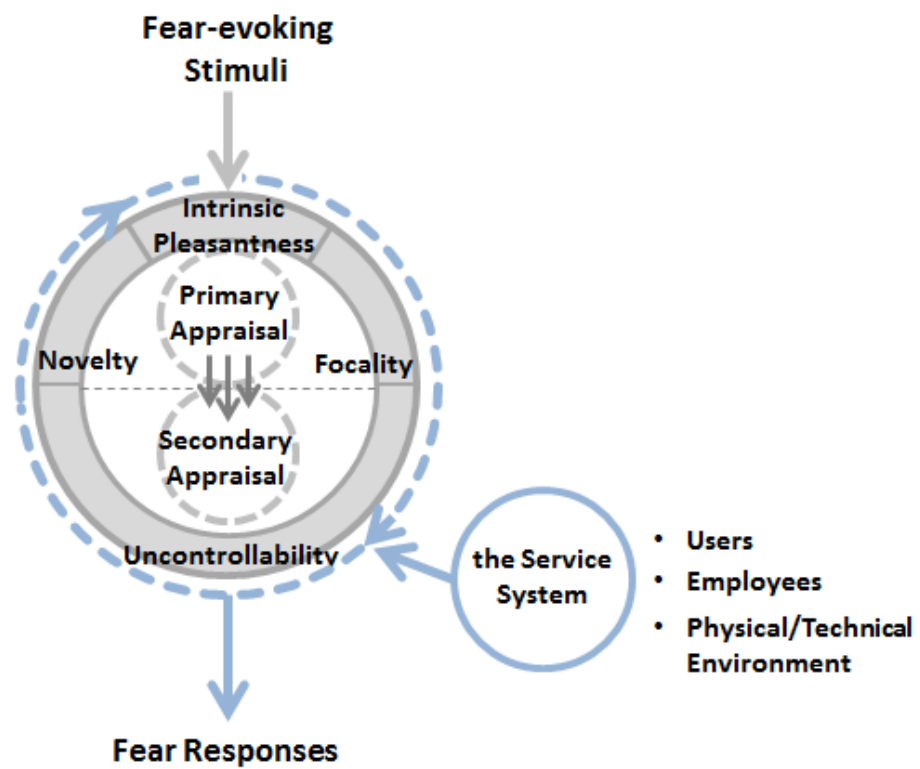


Figure 3. 6 the service systems as situational features

R.Q 2) 'How does the service design affect female users' fear of crime when using the underground?'

3.2 Conclusions and Summary of Chapter 3

This research investigates the relationship between service design and the phenomenon of female groups' statistically high levels of fear of crime in the underground, aiming to identifying service design attributes which affect the subjects' groups fear. The phenomenon of females' fear of crime in the underground inevitably involves the intersection of two research domains which are women, the subjects and the underground service where the phenomenon takes place. Therefore, the two research questions are sequentially formulated in order to examine the two interrelated research domains, which are 'How does gender affect female users' fear of crime in the underground, in conjunction with other individual and social traits?' and 'How does the service design affect female users' fear of crime when using the underground?'

These research questions are formulated based on the model of fear of crime in the underground, which is fully conceptualized in figure 3.7, based on preceding theories, explored in the Literature Review. To summarize the framework, potential dangers are analysed through primary and secondary appraisal in relation to its focaliity, intrinsic pleasantness, novelty or uncertainty, and uncontrollability and accordingly, fear responses are generated. The fear appraisal is mediated by concerns and side conditions

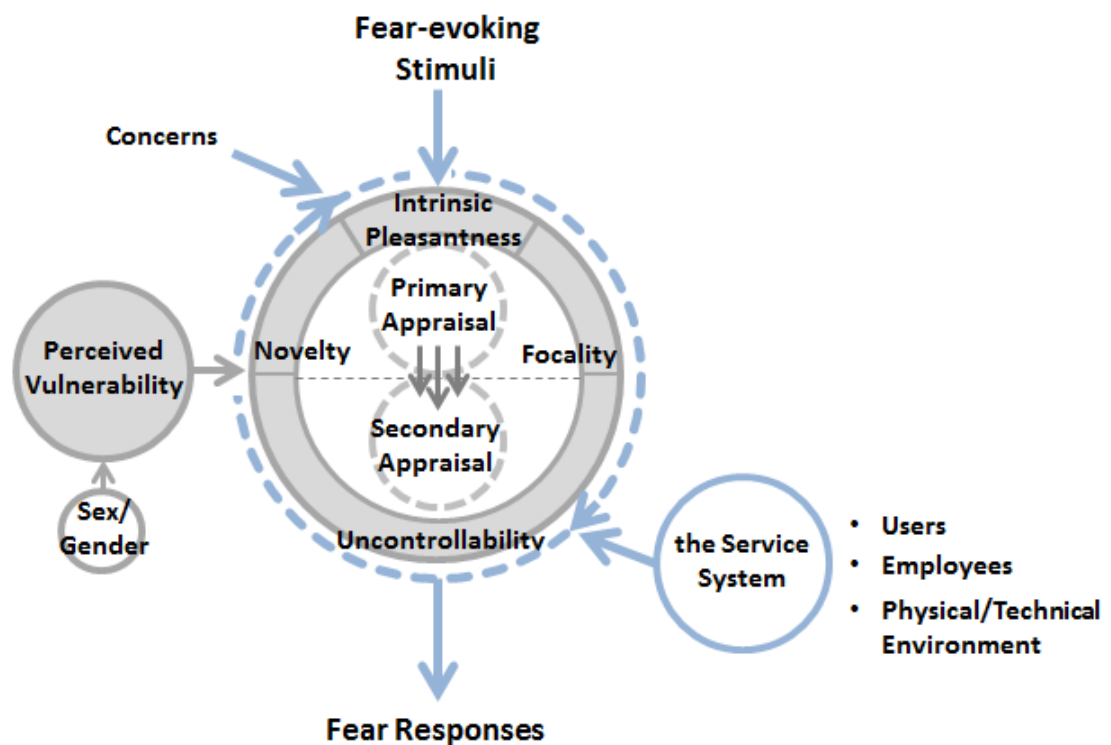


Figure 3. 7 the conceptual framework of female fear of crime in the underground

such as contextual properties and situational features and in this research, these influential factors account for the commonalities of female users in evaluating stimulus events. In terms of contextual properties, it is postulated that sex and gender will affect female users' perceived vulnerability and it will affect their fear of crime in the underground. In addition to females' perceived vulnerability, it is also hypothesised that the underground service design, the arrangement or amalgam of the components of service system on the service interface will affect the subjects' groups fear of crime as situational features.

In this chapter, a conceptual framework of female users' fear of crime in the underground is formulated based on the Literature Review in order to provide theoretical background of the research. Consequently, two sequential research questions are formulated. In the subsequent chapter, the methodology of the research is designed in order to answer the research questions.

CHAPTER 4
Research Methodology

CHAPTER 4 RESEARCH METHODOLOGY

In the previous chapter, the question ‘What is the object of enquiry?’ is answered by research questions and the conceptual framework. In this section, ‘How it can be enquired into?’ is discussed along with the research structure and the methodology is formulated in detail. In order to configure the research methodology for this research, first, the ontological and epistemological stance of this research approaching an artificial environment, which involves the emotional appraisal or fear of crime, is overviewed. Subsequently, the appropriate research methods for data collection and analysis are discussed and formulated.

4.1 Overview of the Research Paradigm

This research is rooted in constructivism, in which there exist multiple realities in the form of diversified mental constructions that are socially and experientially based constructed by agents (individual persons or groups) while positivists and postpositivists believe there is one true reality (Guba and Lincoln, 1994). It, therefore, emphasizes understanding the meanings of social phenomena and ‘lived experiences’ which Dilthey (1894) claims as the goal of human science, ‘*Geisteswissenschaft*’ (Schwandt, 2000).

In this light, constructivism stands for idiographic and emic perspectives, which characterise qualitative researches (e.g. Denzin and Lincoln, 2005; Guba and Lincoln, 1994; Schwandt, 2000). Hamilton (1994) traces back the seed of constructivism and qualitative approaches to Kant’s Critique of Pure Reason (1881) which according to him, Kant thought of human perception as not only deriving from evidence from the senses but also from inside-the-head processes that functions to organize the sensory stimuli. Constructivists analogously deem that reality is subjective and influenced by situational contexts such as the individual’s experience and concern or perception, and the environment.

This research seeks realities and interactions between structures and agents which form the mechanisms of the service design in the underground. In this context, this research anchors to the transactional and subjectivist epistemological stance of constructivist (Guba and Lincoln, 1994) in order to approach ‘lived experience’. This research,

therefore, automatically takes hermeneutical and dialectic qualitative approaches in relation to its ontological and epistemological points of view above.

Methodology is *'how the inquirer goes about finding out whatever he or she believes can be known'* and a constitutional assumption of the research paradigm intertwined with ontological and epistemological assumptions (Guba and Lincoln, 1994). This research consequently takes hermeneutical and dialectic approaches in accordance with constructivist methodological approaches, which emphasizes interactions between and among investigators and respondents, conventional hermeneutical techniques to interpret individuals' constructions, and comparing and contrasting through a dialectical interchange in order for a consensus construction (Guba and Lincoln, 1994).

In accordance with this research paradigm, it goes with the critical views on previous quantitative base researches on fear of crime. Research on fear of crime has frequently been questioned as to its imprecision and its lack of dependability in terms of the obscure concept of fear of crime (e.g. Akers, 2009; Ferraro and LaGrange, 1987), in which fear and anxiety are mixed, and the methodological approaches related to the vague concept of fear are problematic (e.g. Hollway and Jefferson, 2000). Even in the early 80s, the problematic approaches pointed out by Garofalo (1981) who divided fear of crime into actual fear and anticipated fear, such as general concerns and worries about crime and suggested taking different approaches to each form of fear of crime in order to alleviate it. However, it has been shown that a substantial number of researches have followed suit regarding the conceptual and methodological problems (Akers, 2009; Ferraro and LaGrange, 1987; Farrall and Gadd, 2004; Hollway and Jefferson, 2000).

To typify the conceptual and methodological problems, the British Crime Survey used the scenario of 'alone in the dark in a public space' and asked 'how would you feel safe if you were in the situation' to the respondents and quantified the answers (Ferraro and Gadd, 2004; Hollway and Jefferson, 2000). Hollway and Jefferson (2000) criticize it due to the possibility of different interpretations and meanings by different groups since it is hard to guarantee the same meanings of the 'walking alone in this area after dark' scenario for different groups. For instance, according to them, older people might associate it with being mugged, for women with sexual assault and for young men with fighting. Mishler (1986) states the respondents' answers are disconnected from both the survey's setting organized by the survey research and from the respondents' actual lives.

As presented in the scenario and frequently in other researches, moreover, fear of imagined threat has been assimilated to fear of crime, which is related to a whole range of fear and anxieties (Hollway and Jefferson, 2000). In fact, darkness, being alone, and unfamiliarity, which were used in the scenario of BCS, are main elements of fear appraisal and fear evoking stimuli as in the Literature review, regardless of crime. Using these imaginary representative factors of fear, worries and anxieties against potential threat to safety have been frequently measured and studied as being fear of crime, as if fear of crime is the opposite concept of being safe (Hollway and Jefferson, 2000).

Above and beyond the conceptual weakness in which fear is defined as mixed forms with anxiety or the opposite concept to being safe, therefore, the traditional deductive methodologies which are designed to measure the concept in terms of quantity, intensity, and frequency and to verify the relationships between variables also has been criticized (e.g. Hollway and Jefferson, 2000; Mishler, 1986). A number of researches quantify the respondents' answers to the vague and closed questions using the Likert Scale in order to measure and verify hypotheses and causal relationships between variables, which raises sceptical doubts about the reliability and validity of the findings (Hollway and Jefferson, 2000). These criticisms about fear of crime research accord with defects of quantitative based researches which qualitative researchers have asserted in terms of stripped context and exclusion of meaning and purpose of human behaviour in quantitative based research (Guba and Lincoln, 1994).

In general, the quantitative forms of data collection and analysis are associated with positivism (e.g. Guba and Lincoln, 1994) and postpositivism (Denzin and Lincoln, 2005). Even though, at intervals, hypothetic-deductive research approaches are deemed as typical forms of positivist researches and generally positivism as antagonistic relationship with phenomenology, positivism covers from hypothetic-deductivism to the inductivism of Bacon which is defined as *'a theory of scientific method according to which science progresses by inducing laws from observational and experimental evidence'* (Halfpenny, 1982). The logical positivism, moreover, is defined as *'a theory of meaning, combining phenomenalism and logistic method and capture by the principle of verifiability, according to which the meaning of a proposition consists in its method of verification'* and *'a programme for the unification of the sciences both syntactically and semantically'* (Halfpenny, 1982).

In positivism, scientific theories are subjected to being tested which is, to sum up, that they can be verified (positivism) or be falsified (postpositivism) through control over variables, such as through statistical control as in survey researches and physical control as in experiments (e.g. Denzin and Lincoln, 2005; Guba and Lincoln, 1994; Hammersley and Atkinson, 2007). According to positivists' rationale, the main idea is that there is a reality or truth out there to be captured and understood through rigorous methods and procedures (Denzin and Lincoln, 2005). It is based on the research employing universal or statistical laws and like any other research including researches in engineering design (Collins, Joseph and Bielaczyc, 2004), a substantial number of enquiries into fear of crime also have been conducted in this deductive manner using surveys with closed questions.

However, regardless how variables are rigorously controlled or how the data is accurately and statistically analysed, it is problematic where the assumptions and hypotheses, which are the basis of the enquiry, are abstract. Ferraro and LaGrange (1987) highlight that the vague and closed questions in fear of crime enquiries delimit the horizon of thought of the respondents since the respondents' agendas are not framed in their responses to the questions. According to Farrall and Gadd (2004)'s omnibus survey which was designed to measure the frequency and intensity of fear of crime based on the respondents' experiences, fear of crime was not shown to be as high as other research had suggested. It, therefore, suggests that the knowledge which is quantified based on a poorly conceptualized fear of crime is difficult to be admitted neither is it to be conclusive nor is it to be justifiable.

In this context, research emphasizes the significance of qualitative approaches to fear of crime highlighting the meaning of events for respondents and fear of crime (e.g. Farrall et al, 1997; Gilchrist et al, 1998; Hollway and Jefferson, 2000). It has been criticized that crime surveys disregard the meanings and processes of fear of crime including contextual variables and influential factors (Farrall et al, 1997; Hollway and Jefferson, 2000). Therefore, 'more sensitive qualitative understanding' of fear of crime is required (Gilchrist et al., 1998) and qualitative attempts should be made to amend the problems of quantitative or survey-based approaches to fear of crime (Hollway and Jefferson, 2000).

The problematic methodological approaches of previous quantitative researches underpin the standpoint of this research. Qualitative approaches emphasize the qualities of entities, meanings and processes in socially constructed reality, which are not experimentally measured in terms of quality, frequency and intensity (Denzin and Lincoln, 2005). Qualitative researchers look for answers to questions that accentuate how social experience occurs in inductive ways unlike quantitative researchers who stress the measurement and analysis of causal relationships between variables (Denzin and Lincoln, 2005). Therefore, this research takes qualitative research formats in accordance with the research paradigm and the criticisms of previous quantitative research.

4.2. Methodological Approach of the Research

On the basis of the research paradigm, two sequential grounded theory studies are designed in order to answer the research questions: *'How does gender affect female users' fear of crime in the underground, in conjunction with other individual and social traits?'* and *'How does the service design affect female users' fear of crime when using the underground?'* 'Grounded theory' is *'a general methodology for developing theory that is grounded in data systematically gathered and analysed'* (Strauss and Corbin, 1994), or in short, *'discovery of theory from data'* (Glaser and Strauss, 2009). This research takes a qualitative approach in order to examine the mechanism of the underground service affecting female users' fear of crime from the users' point of view; therefore, the user studies are designed based on 'grounded theory'. In this section, the way in which 'grounded theory' is applied in designing the user studies is delineated.

'Grounded theory' is a 'general' methodology for qualitative approaches as it fundamentally guides qualitative data collection and analysis and, hence, systematically finds patterns, themes, and relationships in relation to the phenomenon under study (e.g., Miles and Huberman, 1994). It was developed by Glaser and Strauss in the 1960s where deductive and quantitative research methods were dominant forms of social research, which they criticised as *'master great man theories and test them in small ways'* (Glaser and Strauss, 1967:10). Against the research tradition where inductive and qualitative research was predominately deemed as an unsystematic and unreliable approach to the social world (Hodkinson, 2008), grounded theory was developed in order to encourage researchers to generate their own new theories from empirical data in a systematic way (Hodkinson, 2008).

In fact, the user study does not completely concur with conventional grounded theory studies since it takes a more pre-structured format. Contrary to Glaser's version of grounded theory (1992), which advises approaching the data without anything other than an open mind, the specific research questions are pre-formulated with a pre-conceptualised framework based on existing literature which is provisional until verified repeatedly against data. Reviewing existing related literature provides a logical framework for the research (e.g., Marshall and Rossman, 2006) and in this light, many grounded theorists advocate the role of existing literature in qualitative research; as Dey (1993) states, *'there is a difference between an open mind and empty head'*. In this

respect, Thornberg and Charmaz (2014) state that *'instead of running the risk of reinventing the wheel, missing well-known aspects, and coming up with trivial products or repeating others' mistakes, researchers should take advantage of the pre-existing body of related literature to see further'*.

Abduction refers to *'selecting or inventing a hypothesis that explains a particular empirical case or set of data better than any other candidate hypothesis, as a provisional hypothesis and a worthy candidate for further investigation'* (Thornberg and Charmaz, 2014). Abductive reasoning requires constant moves back and forth between data and existing theories in order to develop knowledge or theories for the best possible explanation of the researched phenomenon (Thornberg, 2012; Thornberg and Charmaz, 2014). This research takes a form of abductive inference with a more specific research scope (illustrated in figure 4.1), benefited from existing theories and literature. In addition, since the user studies are designed and conducted with a more specific focus due to its abductive nature, the 'theoretical sampling' which Glaser and Strauss (1967) define as *'the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyses his data and decides what data to collect next and where to find them'*, is excluded.

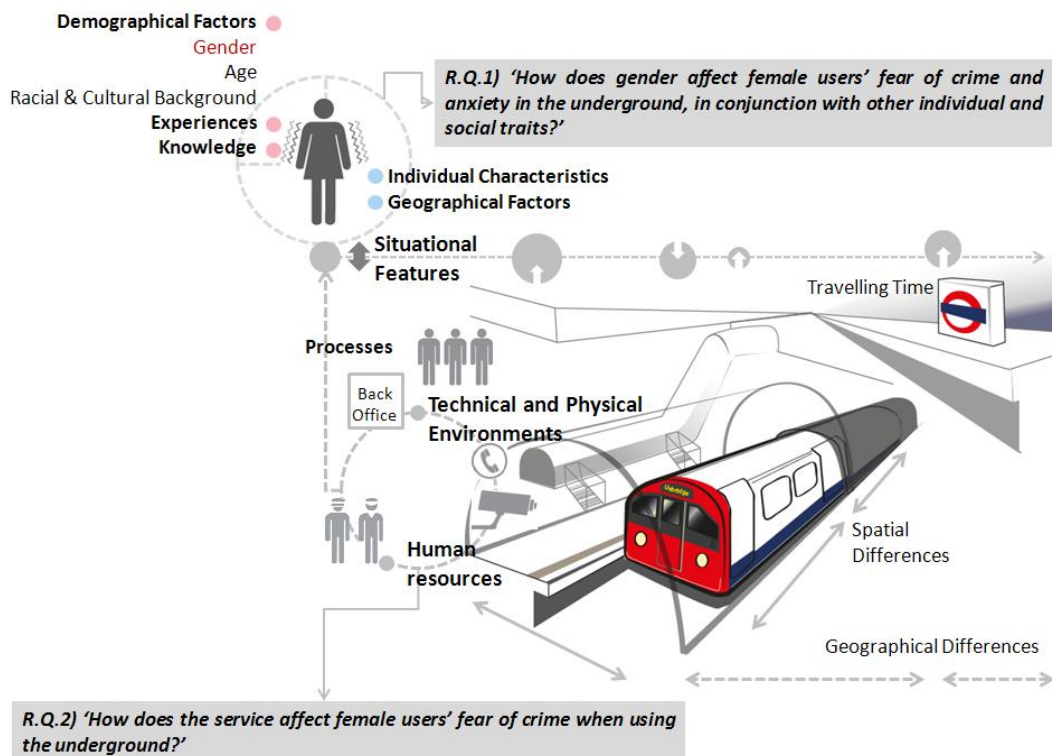


Figure 4. 1 the scope of the research

Therefore, the user studies are designed and conducted based on the grounded theory in an ‘abductive’ manner for the research purpose to construct theories, or a theoretical model regarding the underground service design. Consequently, in subsequent sections, the strategies and methods for data collection and analysis of the user studies are designed based on grounded theory.

4.3 Strategies and Method for Data Collection

There are several possible qualitative research strategies and methods for grounded theory studies that could be used in approaching the scope of the research. In qualitative research, researchers generally rely on 1) participation in the setting, 2) observation directly, 3) in depth interviews and 4) analysing documents and material culture in order to gather information (Marshall and Rossman, 2006). These methods, furthermore, can be used in different ways and leverage with different techniques and strategies. In this section, an appropriate method for this research is discussed and configured. Subsequently, based on the method chosen for data collection, sampling and the enquiries are designed.

4.3.1 Overview of the Method for Data Collection

Researching into fear accompanies a limitation in choosing methods for the data collection to some extent. For instance, in psychology in which fear is clearly classified and separated from anxiety or other moods, emotions are difficult directly to observe, measure and anticipate through observation; therefore, enquiries into emotional phenomena are mainly dependent on the subjects' actual experiences and their diaries (Oatley, Keltner and Jenkins, 2006). Garofalo (1981) also states that since actual fear of crime is triggered by fear evoking stimuli, it is unlikely that a respondent is experiencing actual fear during the inquiry. In this light, the difficulties of getting direct access to emotions limit research methods such as participating in the setting and observation and make the researcher rely on the subjects' actual accounts of their emotional experience.

By and large, inquiries into individuals' lived experience rely on an in-depth interview strategy, which is mainly to capture the meaning structure of experience in the subjects' own words, and thus, employ a single primary method, when interviewing (Marshall and Rossman, 2006). Interviews are generally categorized by the degree of structure of their formats as standardised or structured interviews, semi-structured interviews, and unstructured or focused interviews (e.g. Fielding and Thomas, 2008; Marshall and Rossman, 2006). Depending on the degree of structure of its formats, the method is used both for quantitative and qualitative research.

Standardised or structured interviews are used for quantitative researches, in which the order and the wording of questions are the same from one interview to another (Fielding and Thomas, 2008). Quantitative interviewing is for maximizing the reliability and validity of measuring key concepts and accordingly, unlike qualitative interviewing, it is inflexible, since the standardized interactions are needed, not to compromise the validity and measurement (Bryman and Teevan, 2005). Standardised or structured interviews, therefore, are appropriate when a researcher has certain conceptions about the phenomenon with a sample regarding the research topic and there is no danger of loss of meanings from asking standardised questions (Fielding and Thomas, 2008).

On the contrary, qualitative interviewing tends to be flexible and less structured or almost totally unstructured, in which the researchers pursue rich and detailed answers from the respondents (Bryman and Teevan, 2005). In this light, qualitative interviewing is characterized with openness and flexibility in modifying and adding to initial ideas when conducting the research in the field. According to the degree of the systemizing format of questioning, qualitative interviewing is divided into unstructured and semi-structured interviewing (e.g. Bryman and Teevan, 2005; Fielding and Thomas, 2008; Marshall and Rossman, 2006).

Unstructured interview is based on the fundamental qualitative research assumption that emphasizes the participant's perspective, or the emic perspective (Marshall and Rossman, 2006) and has been described as being like a conversation (e.g. Bryman and Teevan, 2005). When conducting an unstructured interview, the researcher simply has a list of topics and is free to the order and wording of the questions (Fielding and Thomas, 2008). Given its qualitative nature, this type of interviewing provides a greater depth of data than other types (Denzin and Lincoln, 2005).

Semi-structured interviewing, on the other hand, is conducted by asking major questions in the same way for each interview but it is possible to alter their sequence according to the responses and to probe for more information (Fielding and Thomas, 2008). In semi-structured interviewing, the interviewer has a list of questions or an interview guide that includes adequately specified topics to be covered and the use of a variety of probes such as "Tell me more about that" (Bernard and Ryan, 2010). This type of interview is conducted not in exactly the same way from interviewee to interviewee and the interviewees have a great deal of freedom in responding. As a whole, however, all of

the premeditated questions are asked in a similar ways in terms of wording and phrasing (Marshall and Rossman, 2006). Gillham (2000) describes a face to face semi-structured interview as an enormously time-consuming and costly method; therefore, it should be considered whether it is necessary, appropriate, or possible as shown in table 4.1.

Marshall and Rossman (2006) state that at the analysing and interpreting stage for collected data, a degree of systematization in questioning is necessary. Bryman and Teevan (2005) also state that when the research begins with a fairly clear and specific focus, semi-structured interview strategy is likely to be adopted so that more specific and focused issues can be addressed. This research begins with a specific focus as described in the research questions and the conceptual framework based on the finding through the Literature Review rather than with a general focus; therefore, the semi-structured interview format is appropriate for this research.

Reviewing existing materials or previous studies, which this research employs to formulate the conceptual framework, is one of the typical methods for qualitative research (Marshall and Rossman, 2006). Review of related literature is an unobtrusive method; however, an accurate and insightful discussion of related literature forms a logical frame work for the research and places it within a research tradition and context

Is a face-to –face interview appropriate, necessary or possible?	
No if	Yes if
Large numbers of people are involved	Small numbers of people are involved
People are widely dispersed	People are accessible
Most of the questions are ‘closed’ i.e. predictable, factual	Most of the questions are ‘open’ and require an extended response with prompts and probes
A 100 percent response is not necessary	Everyone is ‘key’ and you can’t afford to lose any response
The material is not particularly subtle or sensitive	The material is sensitive in character as trust is involved
You want to preserve anonymity	Anonymity is not an issue, though confidentiality may be
Breadth and representativeness of data are central	Depth of meaning is central, with only some approximation to typicality
Research aims are factual and summary in character	Research aims mainly require insight and understanding.

Table 4. 1 Is a face-to –face interview appropriate, necessary or possible? (Gillham, 2000: 11)

of related research (Marshall and Rossman, 2006). In the light of the role of existing literature, many ground theorists and qualitative researchers claim that there is no fully inductive research (e.g. Bernard, Ryan, 2010; Gilbert, 2008). Moreover, in ethnography, the review of the relevant literature is deemed to be a source for choosing research domains (Spradley, 1979).

On the frame of the theoretical background of previous relevant research, this research, therefore, employs semi-structured interviewing as the single method for data collection, taking a form of ethnographic interviewing due to the cultural aspects of this research. Spradley (1979) defines ethnography in relation to Symbolic Interactionism, which seeks to account for human behaviour in terms of meanings, as ‘a culture-studying culture’, in order to build ‘*a systematic understanding of all human cultures from the perspective of those who have learned them*’ and ethnographic interview is ‘*one strategy for getting people to talk about what they know*’.

As stated in the previous sections, in this research, a service interface can be seen as an artificial structure comprised of groups of people or individual who may be affected by their social characteristics or positions in one shared context and physical environments. In the light of cultural aspects in the extended notion of gender and learning aspects of fear, this research employs ethnographic questions. The features of the ethnographic work of Hammersley and Atkinson (2007) underpin the appropriateness of this technique to this research, which is

- ‘*The focus is usually on a few cases, generally fairly small-scale, perhaps a single setting or group of people. This is to facilitate in-depth study*’;
- ‘*The analysis of data involves interpretation of the meanings, functions, and consequences of human actions and institutional practices, and how these are implicated in local, and perhaps also wider, contexts, what are produced, for the most part, are verbal descriptions, explanations, and theories; quantification and statistical analysis play a subordinate role at most.*’ (2007:3)

From this standpoint, three main types of ethnographic questions are adopted for the inquiries with female user groups, which Spradley (1979) identifies as descriptive, structural and contrast questions.

Therefore, this research employs semi-structured interviewing applying ethnographic questions. Like all other forms of qualitative methods, however, this method has weaknesses that can impose the researchers' values through the phrasing questions or the interpretation of the data (Marshall and Rossman, 2006). In this respect, based on ethnographic questions, free association technique and narrative approaches are adopted for user studies which are designed accordingly to Research Question 1 and 2. Detailed descriptions about sampling and formulation of interview questions for the inquiries on females are placed in the subsequent section.

4.3.2 Sampling

In order for the user studies comprising semi-structured face to face interviews, two sample groups are drawn for female users of the underground, who have and those who have not experienced fear of crime when using the underground. The user studies are designed to understand how gender or sex affects females' fear appraisal in the underground in conjunction with the subjects' individual and social traits and how the service design affects their fear of crime. Therefore, two sample groups who express or have experienced fear of crime and those fearless are drawn as a homogeneous sample in order to compare the differences which occur between the same gender groups.

Accordingly, purposive sampling which is a technique for subject selection depending on the subjects' characteristics (Patton, 1990, 2002) is used for this stratified purposeful study. Stratified purposeful studies illustrate traits of particular subgroups of interest so as to facilitate comparisons (Patton, 1990, 2002). Even though gender and existence or non-existence of experience of fear in the underground are adopted as parameters in sampling, previous research on fear of crime accentuates the role of age (e.g. Evans, 2009; Killias, 1990; Ortega and Myles, 1987; Tulloch, 2000), race, and cultural background (Ortega and Myles, 1987; Pain, 2000) as social identities which affects individuals' perceived vulnerability, anxiety and fear of crime, which female users may be also affected by and which may interact with their gender. Moreover, other factors such as income, geographic location and life style (e.g. Garofalo, 1981; Jackson and Stafford, 2009) have been shown as influential factors on vulnerability and fear of crime. In this respect, within the predetermined parameters, this research adopts random sampling of the representative population to investigate the role of gender in conjunction with other variables, which female users have, in fear of crime.

Based on the parameters of sampling, in order to achieve 'theoretical saturation', or the point at which no new information or themes are observed in the data, (e.g., Guest, Bunce, and Johnson, 2006) and maximum variation, the sample sizes are predetermined as over at least twelve individuals for each sample group. Although there are few specific guidelines for determining sample sizes for qualitative research, according to Guest, Bunce, and Johnson (2006), basic elements for themes appear within the first six interviews and saturation occurs within the first twelve interviews and Kuzel (1992) claims six to eight interviews for a homogeneous sample and twelve to twenty data to

achieve maximum variation. Therefore, two sample groups, comprising at least 12 individuals each, are drawn for female users with the main moderator variable: existence and nonexistence of the experiences of fear of crime in the underground.

4.3.3 Design of Interview Schedule and Strategies

In order to interview the sample groups, major interview questions and strategies are formulated. This inquiry is to gain live experiences and cultural meanings within the service structure in the fear of crime context; therefore, the questions aim to facilitate eliciting narratives of interviewees' experiences. In this light, ethnographic question technique including descriptive, structural and contrast questions and free association technique are used in designing the interview questions. The interview questions are refined by pilot studies which were conducted with two native users in her 20s and in her 60s and with a non-native Chinese user in her 20s at three different times before finalizing the formats.

This study takes basically a form of narrative inquiries due to the research paradigm and the nature of the research subject, or fear of crime which makes the inquiry dependent on the subjects' experience. The correlation between realities, experience and narratives has been explained by qualitative researchers. Polkinghorne (1988) states that human behaviour is produced from and instructed by meaningfulness learned through experience and hence, the research on human behaviour needs to address the meaning systems which form human experience. Polkinghorne also states that narrative meaning is a cognitive process which functions to organize components of awareness into meaningful episodes and this process occurs in the mental realm that constitutes human existence. In this context, Chase (2005) defines narrative as '*retrospective meaning making*' and '*a way of understanding one's own and others' actions, of organizing events and object into a meaningful whole, and of connecting and seeing the consequences of action and events over time*'.

In the light of the dominant role of the narrator, in narrative approaches, the interviewer's role is to be a good listener and the interviewee's is a story-teller rather than a respondent to questions (Hollway and Jefferson, 2000). By this method, the researcher elicits narratives, selecting the theme and topics, ordering the questions and

wording questions in the narrators' own language (Bauer, 1996). Questions in narrative enquiry, therefore, take open-ended forms; moreover, they need to elicit stories according to the selected theme and topics. In this manner, Hollway and Jefferson (2000) state that in researching into fear of crime, the question such as 'what do you most fear?' is open-ended but it could elicit one word answer rather than a story; therefore, it should be more specific like 'tell me about a time when you were fearful'.

In order to derive narratives about the fearful experience of the target users, therefore, the initial type of main question was:

'Could you recount any experience of fear of crime you have had as a woman while travelling on the underground in as much detail as possible?'

This question also takes the form of a descriptive question in ethnographic interview but has a different purpose since the descriptive question is for gathering information about a particular cultural scene in order to discover other culturally relevant questions (Spradley, 1979, 2003). Among the kinds of descriptive questions, experience questions ask any experiences the respondents have had in a particular setting; however, the research puts weight on the experience itself as well as the cultural setting and in turn, their relationship.

Initially, the question was designed for delimited narratives into female specific fear of crime in the underground in order to access female fear appraisal in the underground setting. However, through a pilot study conducted with a female user in her 60s, a problem was raised: the question delimited the respondent's answer, linking to general female features and crime not to her own experience and feelings.

"... I am vulnerable to sexual crime or mugging crime. I think... I guess actually you are more vulnerable as a woman on your own in stations I don't think it makes much difference in a mugging crime. I think you definitely feel more on your own because as a woman you are not as strong as most men and you do feel very wary if you are on platforms on your own because men are quicker than you if they try to catch you they would catch you..."

After she said she was vulnerable to sexual crime or mugging crime, she expanded it to all women's feelings and general physical differences between men and women,

switching the subject to the interviewer, female. When asking the reason for the generalization after the interview, she answered that she did not feel vulnerable to or fear of sexual crime but fear of mugging; however, since the question was about fear of crime as a woman she answered in that way, according to what she expected as what the interviewer wanted to hear. According to Fielding and Thomas (2008), it is a common problem that respondents answer to the questions according to their anticipation of what the interviewers want to hear.

As the pilot study revealed, fear of crime or feeling vulnerable to crime as a woman can be interconnected with sexual crime against women; in addition, asking about their fear as being a female can demarcate the answer, linking to their knowledge of gender and the relevant crime, not eliciting their experience of fear. Therefore, more systematic elicitation was needed to be addressed.

In this manner, the initial question is amended to elicit live experiences without the interruption of self or general conceptions about the correlation between gender and crimes, not mentioning 'female'.

- *'Could you recount any experience of fear of crime you have had while travelling on the underground in as much detail as possible? From the moment you decided to use the underground until the feeling went away?'*

Since this research focuses on emotional cognitive processes, or fear appraisal of individuals in the presence of fear evoking stimuli and the influence of the service structure on mental processes, perceived vulnerability in a certain situation is the central axis in the narrative experiences as in the Literature review. In this context, three sub-questions are added according to the working definition of perceived vulnerability which is the perception of 1) exposure to danger, 2) a sense of lack of control over the situation for subjects' self-protection and 3) the consequences in response to the situational uncertainty.

- *'Why did you think that you could be a target of the crime? Why did you think that you could be in danger?'*
- *'Why did you think that you were not able to protect yourself?'*
- *'What was the worst scenario you experienced of being involved in the situation?'*

As adapting Killias's theory of vulnerability (1990), these questions are based on the three dimensions of threat: likelihood, consequences and controllability linking to subjects' personal, social and economic resistance for self-protection; therefore, these sub-questions are designed to elicit information additionally in case any of the vulnerable evaluation factors is not lucid in the narratives.

In addition to the narrative interview question and its sub-questions above, as an extension of the former question asking about fear of crime as a female, a dyadic contrast question in terms of perceived vulnerability as a woman compared to male users are formulated.

- *'Do you think you are more vulnerable to crime in the underground compared to a male traveller? What do you think makes you vulnerable?'*

Contrast questions are to elicit the difference of meaning of a symbol from other symbols' (Spradley, 1979). The interviewer simply asks an interviewee to identify any difference in a contrast set and the interviewee freely discloses contrasts which are meaningful to her or himself (Spradley, 1979). The question is designed to compare females and males in terms of perceived vulnerability, which is known and shared by the female target groups rather than imposing contrasts by the researcher. Moreover, three dyadic contrast questions are formulated in relation to the likelihood, consequences and controllability in evaluating their vulnerability like the question for narratives as a set of sub-questions in order for systematic elicitation.

- *'Do you think you are more likely to be a target of crimes? Compared to male travellers'.*
- *'Do you think you are not able to protect yourself?'*
- *'Do you think when you are involved in crime such as the trouble you spoke of before the consequences would be more serious for a man?'*

In order for systematic elicitation from initial open-ended questions to the main questions above, free association technique and descriptive ethnographic interview technique are employed. The free association technique is to discover the unconscious meaning of stream of fear before rationalizing it through social or preferred concepts such as gender as shown in the pilot study aforementioned. The forms of descriptive questions, in addition, are used to disclose the interviewees' travel patterns which are relevant to their fear of crime in the underground.

In qualitative interviewing, it is pivotal to evolve latent information through the interaction between the interviewee and the interviewer (e.g. Denzin and Lincoln, 2005). In this light, it is emphasised that questioning techniques enable encouraging interviewees to communicate their fundamental attitudes, beliefs and values. During interviewing, respondents' attempts at rationalisation can be made, offering only logical reasons and explanations for their actions and hiding emotional and evaluative aspects of behaviour, that may be more concordant with reality (Fielding and Thomas, 2008). In this context, it can be explainable that certain groups such as male groups avoid expressing their fear of crime which is not consistent with the expected and preferred image of them (e.g. Goodey, 1997; Sutton and Farrall, 2005). In the light of this rationalizing tendency, free association technique is employed.

Free association is a method in psychoanalysis as being the replacement of the hypnosis (Freud, 1986) and in research on fear of crime, Hollway and Jefferson (2000, 2008) used it. Freud (1912) emphasizes the magnitude of the unconscious, as stated in *'unconsciousness is a regular and inevitable phases in the processes constituting our psychical activity; every psychical act begins as an unconscious one, and it may either remain so or go on developing into consciousness, according as it meets with resistance or not'* and he contrives the free association as a way to access a subject's unconsciousness. The free association method has contributed greatly to psychoanalysis as Freud (1986) describes it as the real birth of psychoanalysis even though the notion of unconscious has been frequently disputed. In fact, his conceptions of the unconscious have a disparity with the conception in this research, which is based on cognitive processes for emotion since according to his theory, this research deals with the conscious and the foreconscious, or preconscious which refers to latent ideas or thoughts at particular time and which can be conscious by recalling them, rather than the unconscious.

In this research, the free association technique is employed in order to explore thoughts which are not structured according to conscious logic. Hollway and Jefferson (2000) used it to grasp the subject' meaning structure of fear of crime, assuming by eliciting a narrative which is structured according to the principle of free association, they can access unconscious logic. Since as seen in the pilot study aforementioned, certain words regarding this research such as female can contaminate a respondent's answers

and thoughts, the free association method is used for initial open-ended questions which are:

- *‘Can you think of something that you’ve read, seen or heard about recently, anything that made you feel afraid?’ Could you tell me whatever comes into your mind’*
- *‘What do you most fear when using the underground?’*

The opening question is to discover respondents’ fear structure and their concerns in relation to fear, adopting Hollway and Jefferson (2000)’s questions. The following question also takes the form of a free association question and a structural question (a form of cover term question) in ethnographic interviews, extending general fear into fear in the underground. Structural questions are to test hypothesized domains and discover additional included terms (Spradley, 1979) and it is used to identify fear-evoking stimuli included in and related to the underground. (figure. 4.2)

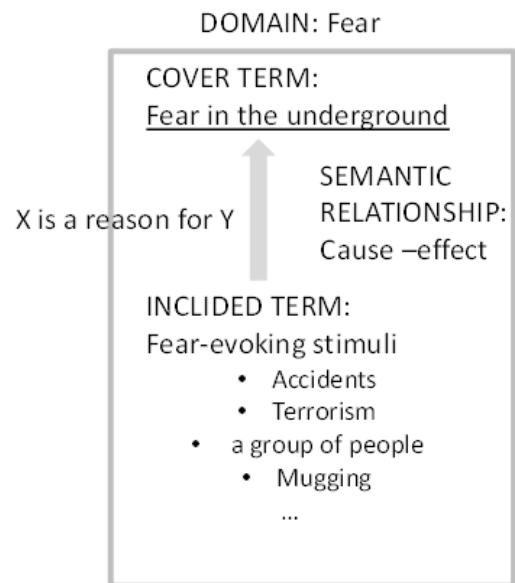


Figure 4. 2 the domain of Q.2

Narrowing it down to the underground, a typical ground tour question is formulated in order to discover individuals’ travel patterns which are interrelated to fear of crime. A ground tour question is for ‘a verbal description of significant features of the cultural scene’, using space, time, events, people, activities or objects (Spradley, 1979). In this study, a typical ground tour question which is for a description of how things usually are, is formulated to discover the individual’s typical journey on the underground. After the typical ground tour question, a mini-tour question, which deals with a much smaller unit of experience than a ground tour question (Spradley, 1979), is designed related to typify fear of crime in their journey on the underground in terms of the frequency of their feelings and the relationship between the travel patterns and the feeling.

- *‘Could you describe your typical journey using the underground?’ ‘When and where do you regularly use the underground and why?’*
- *‘Have you ever felt fear of being involved in crime in the underground?’ ‘How often do you feel that kind of feeling?’*
- *‘Could you describe how that feeling affects your use of the underground?’*

In addition to the questions aforementioned, included term questions which are a kind of structural questions in ethnographic interviews are formulated as sub-questions in terms of 1) fear evoking stimuli and 2) intervening factors with fear of crime. They are designed to discover other factors which are shown to affect their fear appraisal process in the underground other than the factors the interviewees have mentioned, using previous research’s results on the London Underground. The included term questions are designed to follow the explanation and repetition principles, offering sufficient explanations when introducing the questions and repeating many times to elicit all the included terms or symbols of the domain (Spradley, 1979). The examples of questions are:

- *‘You said that ____ makes you feel fearful in the underground, I’m interested in finding out about all the different kinds of things that make users fearful, are there any other things that make you fearful or affect your use of the tube service?’*
- *I have learned from some books and research on fear that ____ also makes females fearful, is that right?*
- *You said that ____ makes you feel safe, could you recall any other kinds of things which intervene with your feeling and make you safe when you feel fear in the underground’*

Moreover, after additional pilot studies, conducted with another female user, with the sequence of the interview schedule and questions, two more questions are designed as ending questions since the pilot studies suggested that female users’ fear of sexual crime is difficult to examine when only relying on the interviewees’ accounts and narratives.

‘Females have been shown to be much more exposed to sex-related crime such as sexual harassment and rape. Research shows that fear of rape amplifies females’ fear of crime. Do you think it affects your feelings and behaviour when you travel on the underground?’

- *‘Would you hesitate to report a sexual crime committed against you or ask for help? If so, why would you do that?’*

The interview questions and strategies are designed in order for a systematic elicitation of latent thoughts, which are described in figure. 4.3, based on the narrative approach, the free association method and ethnographic interview questions of Spradley (1987). Based on the interview questions and the schedule, appropriate follow - up questions such as ‘what do you mean by that...’ and probing and prompting are used to encourage respondents to give relevant answers when conducting the user interviews.

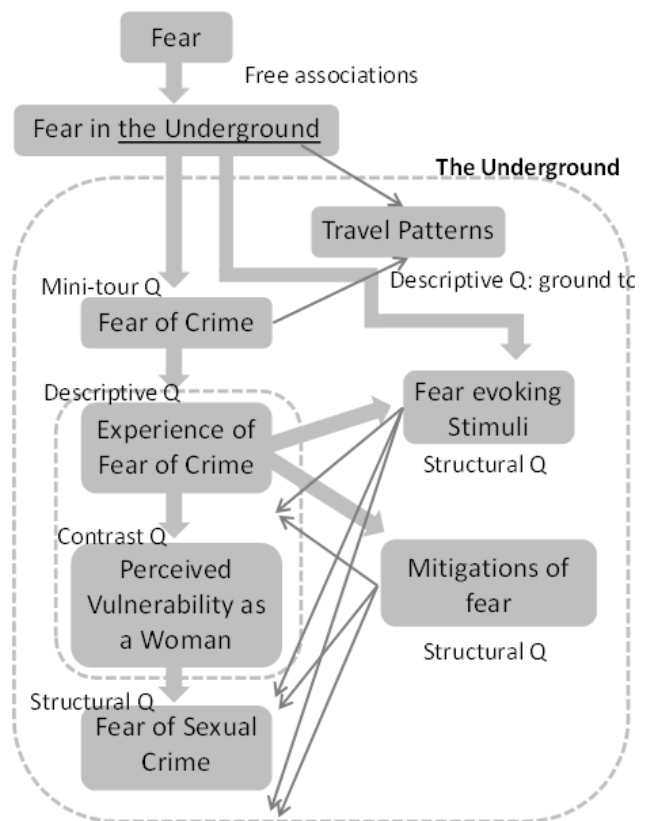


Figure 4. 3 the flow of the interview

According to this interview schedule and questions, thirty one interviews are conducted, but in a flexible manner depending on the interviews’ answers to these predetermined questions. In the next section, the process of the interviews involving the managing and analysing data is accounted for.

4.4 Strategies and Methods for Data Analysis

In qualitative research, analysis in general, refers to a systematic examination involving segmenting the data into parts and reassembling the parts again into a coherent whole in order to identify patterns or themes and concepts in data (Boeije, 2010; Fielding and Thomas, 2008; Marshall and Rossman, 2006; Strauss and Corbin, 1997; Spradley, 1979). Qualitative analysis involves procedures such as examining something to determine its parts, the relationship among the parts and their relationship to the whole (Spradley, 1979). There are several analysis methods which overlap each other to some extent and the distinctions between them are not evident in some cases (Guest, Namey and Mitchell, 2013). However, the procedures are guided by the analytic methods applied; therefore, analytic methods and strategies must be employed according to the characteristics of the research and the research structure. In this section, therefore, appropriate analytic methods for this research are discussed and selected.

4.4.1 Overview of the Data Management

According to the sampling and the interview schedules and questions, interviews with thirty one female users who were randomly chosen were conducted from February to May in 2013 (table 4.2). The data was gathered and simultaneously analysed until theoretical saturation has occurred. In fact, the sample size was predetermined as at least 12 individuals each for the two sample groups as stated in section 4.3.2; moreover, theoretical saturation regarding main themes were observed before reaching 12 interviewees. However, since the user studies also examine the role of female users' perceptions of their gender or sex in fear-evoking situations, which might be affected by their various social and physical background, more interviews with women with various cultural background and age differences were conducted to address as many demographical and social variables as possible.

Age	Total	Anxiety	Fearless
20-29	6	4	2
30-39	6	5	1
40-49	3	2	1
50-59	2	2	-
60-69	7	2	5
70-	7	3	4
Total	31	18	13

Nationality	Total	Anxiety	Fearless
Non-native	9	8	1
Native	22	10	12

	Total	Anxiety	Fearless
Experience of Fear of Crime	20	17	3
No Experience	11	1	10

Table 4. 2 interviewees

Among them, 18 female users expressed anxiety of crime when using the underground and 13 users answered they are not afraid of using the underground. Among the 31 interviewees, it appears that 20 users (17 females who express anxiety regarding crime in the underground and 3 fearless users) have experienced fear of crime in the underground.

All interviews are audio-recorded with permission from the interviewees and the whole audio-recorded data is transcribed. Audio-recording interviews and transcribing them are emphasized as a common procedure in qualitative research for unbiased data collection and analysis (Bryman and Teevan, 2005) as well as for making the foundation of analysis, or text to be analysed (Fielding and Thomas, 2008). In this light, although transcribing interviews is very time-consuming according to Bryman and Teevan (2005), five to six hours of transcription for every hour of speech, all the user interviews are transcribed in order to keep intact the interviewees' words. The transcribed data are analysed in parallel with data collection.

4.4.2 Analytic Methods and Strategies

In order to answer the research questions, the collected data from the semi-structured in-depth interviews with female users were analysed in terms of their perceptions of self and the underground service in the context of fear of crime. In analysing the data involving segmenting the data into parts and reassembling the parts, coding is used as a main analytic tool based on the grounded theory. A code is a label or a tag for an assigning unit of theme or meaning to the descriptive or inferential information in data (e.g. Boeije, 2010; Gilbert, 2008; Miles and Huberman, 1994) and coding is the fundamental analytic process (Carbin and Strauss, 1990) of free-flowing text as proxy for experience (Ryan and Bernard, 2000), such as the textual data from the user interviews in this research. As techniques for analysis of codes, generated in free-flowing text, the Grounded Theory is commonly used (Guest, Namey and Mitchell, 2013). In the user studies, concepts of the grounded theory of Corbin and Strauss (1990 and 1998) are mainly employed for the data analysis due to the 'abductive' approach of the research and the analytic purpose to construct theories, or a theoretical model regarding the phenomenon under study.

The analysis of the user interviews is conducted, taking the abductive approach with the conceptual framework as a provisionally hypothesised frame. Consequently, theoretical models are built, 'grounded' on the interplay between the concepts emerged from data and pre-existing theories. This approach is related to 'theoretical sensitivity' which Strauss (1987) describes as 'by viewing the data through a certain theoretical lens'. Boeije (2010) highlights the significance of 'theoretical sensitivity' as follows: *'a code is not just a name for a category; it has to lead to meaningful interpretation of the data. To name categories accurately, insight is required into the research area, current research issues, the common explanations for phenomena, and the theoretical models that are usually used. Armed with this knowledge, a researcher can look at the data properly, in other words, with theoretical sensitivity or theoretically charged'* (88). The analytic approach is also applied to coding strategies of the user studies as employing 'in vivo coding' which are derived from the interviewees' terminology or generally used terms in their culture (Charmaz, 2006) and 'theoretical concepts' or 'constructed codes' (Flick, 2009).

As grounded theory studies, the studies adopt strategies and methods of the grounded theory, such as analysing data in parallel with data collection, coding, the constant comparative method, memo-writing and the 'theoretical sensitivity', to produce a substantive theory, a set of concepts that are related to one another in a cohesive whole according to the aim of the research, which is the resultant output of a grounded theory study. In terms of analytic procedure, it takes the coding methods of Corbin and Strauss's version of grounded theory to facilitate the analysis of the data which are open coding, axial coding and selective coding. The descriptions of the coding methods are as follows:

Open Coding: Is the interpretive process in which data are analytically fractured and examined as discrete parts for differences and similarities as Strauss and Corbin (1998) describe as *'broken down into parts, closely examined and compared for similarities and differences'*. Open coding is to identify discrete concepts, which are the basic units of analysis. Initially, the data are line-by-line reviewed and divided into pieces and the fragments, compared to other fragments; events/action/interactions related to phenomena under study are compared with others for similarities and differences and conceptual labels are applied. By means of this procedure, conceptually similar events/action/interactions are grouped and form categories and subcategories (Corbin

and Strauss, 1990). Due to the comparative process, open coding is characterised with the ‘constant comparative methods’ (Glaser and Strauss, 1967).

Axial Coding: Refers to the analytic process of development of relationships between categories and sub-categories. Strauss and Corbin (1990) define it as ‘a set of procedures whereby data are put back together in new ways after open coding, by making connections between categories’. This process involves identification of the specific features such as its causal conditions, phenomenon, contexts, consequences, intervening conditions, and interaction or action as in the Paradigm Model of Strauss and Corbin (1998) and hence, in new ways, connections are made between categories and sub-categories (e.g. Fielding, 2008; Charmaz, 2006; Grbich, 2007). The relationships are also tested against data, searching instances where there are variations and contradictions in the data so as to make the theory conceptually denser and the conceptual linkages more specific (Corbin and Strauss, 1990).

Selective Coding: Refers to the final integration of codes and categories into a coherent theory, unified around a core category (Corbin and Strauss, 1990). Strauss and Corbin (1990) define selective coding as ‘the procedure of selecting the core category, systematically relating it to other categories, validating those relationships and filling in categories that need further refinement and development’. During coding process, categories emerge and among them, an especially crucial category may appear as a storyline which frames the account (Strauss and Corbin, 1990) or a core category which is the focus which other categories are combined around (Bryman and Teevan, 2005). The core category and categories represents the central phenomenon of the study or the

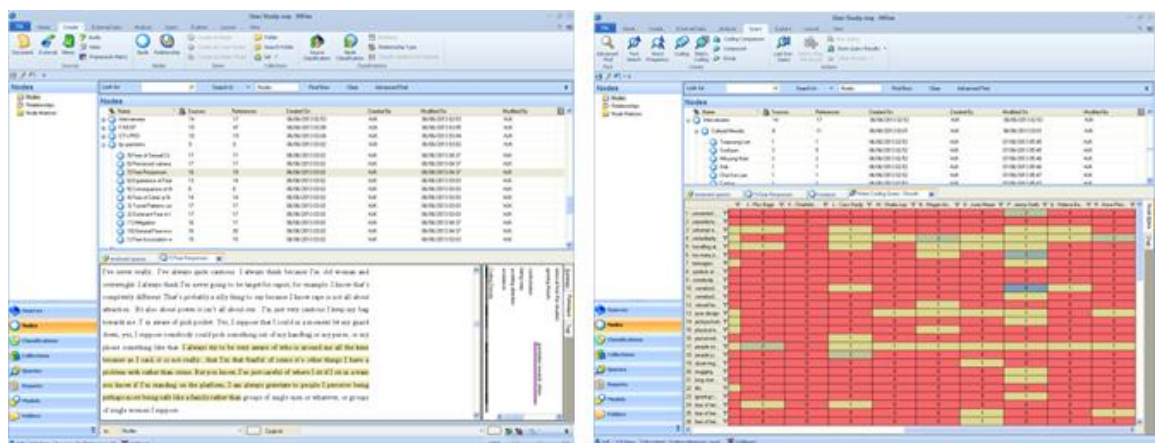


Figure 4. 4 using NVivo

essence of what the research is all about (Corbin and Strauss, 1990).

In order to facilitate the use of the coding procedures, in addition, computer assistance in qualitative data analysis (CAQDAS) is used. The interview transcriptions are imported into NVivo which is one of the code-based theory builder software packages. In order to facilitate the use of the coding procedures, in addition, computer assistance in qualitative data analysis (CAQDAS) is used. The interview transcriptions are imported into NVivo which is one of the code-based theory builder software packages and coded (figure 4.4). While text retriever and text based manager software packages are used in relation with the quantitative ‘content’ of qualitative data (e.g. content analysis), code-based theory builders such as Nvivo are used mainly for the thematic analysis and interpretation of textual data (Lewins, 2008). Even though unlike when using computer software to quantify data, the usage of software is not indispensable, Nvivo is used as an assisting tool during open coding, axial coding and selective coding. It is to facilitate managing the complexity of the tasks, supporting searching text, adding memos or annotations directly linked to text, flexible management for codes, and mapping connection between codes and categories (Lewins, 2008; Welsh, 2002).

Therefore, the analytic methods and strategies of the Grounded Theory, to be precise, Corbin and Strauss’s version of grounded theory, are applied to user studies due to the appropriateness in systematically examining social psychological phenomena and

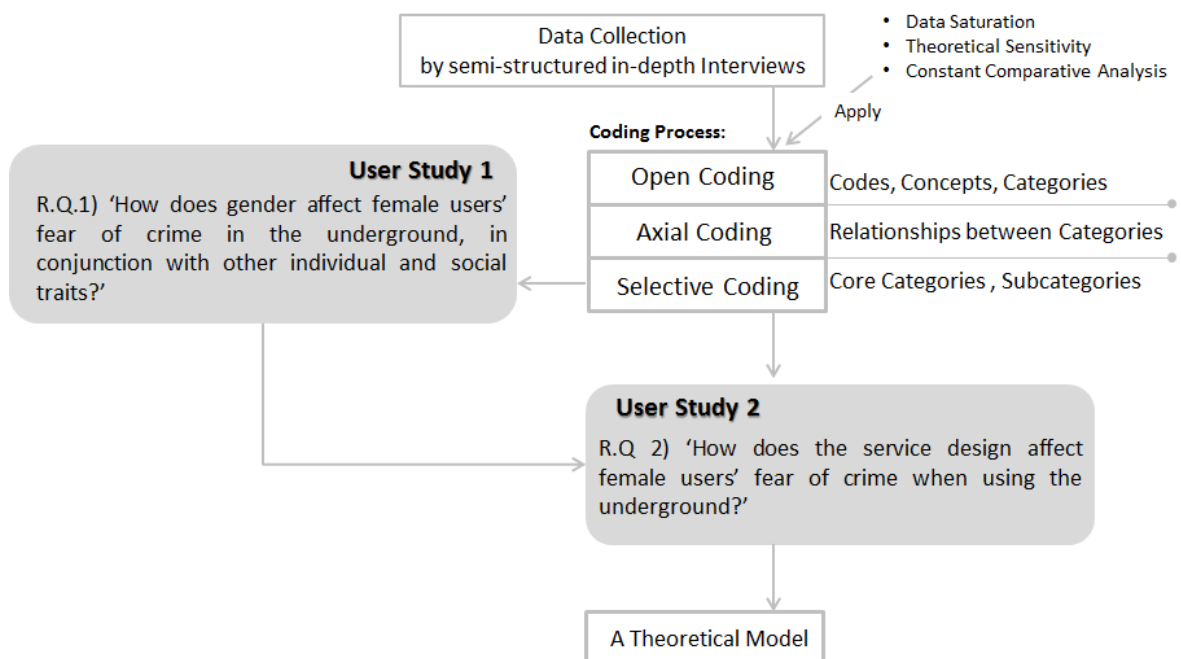


Figure 4.5 the application of analysis methods and strategies

building a thematic structure and theoretical model (e.g. Guest, Namey and Mitchell, 2013; Guest, MacQueen, Namey, 2012). Although it requires exhaustive coverage of data and hence, is time consuming, it is good for smaller data sets and offers relatively well organised and systematic guidelines for qualitative data analysis compared to other methods such as thematic analysis which is appraised as to be poorly demarcated and rarely acknowledged (e.g. Braun and Clarke, 2006). In addition, a set of coding procedures of Corbin and Strauss's grounded theory is employed since:

- 1) Coding 'paradigm' offers a suitable and organisational scheme to analyse phenomena of fear of crime in the underground which involves conditions, context and consequences and;
- 2) By selective coding, themes or concepts related to gender and the underground service and their properties can be analysed as the pivot of the phenomena without losing contexts, answering the research questions assigned for each user studies, developing a theoretical model, consequently (described in figure 4.5).

4.4.3 Analytical Protocol

Qualitative studies are exposed to some threats which might influence the credibility and validity of the research outcome as the analysis of qualitative data relies on interpretations and classifications by the researchers and, therefore, analytical protocols to avoid bias in the analysis must be systematically designed and informed (Brownell, 1995; Lillis, 1999). From a similar standpoint, Timmermans and Tavory (2012) note that inductive reasoning does not logically lead to novel theoretical insights and suggest abductive reasoning in qualitative data analysis. In order to avoid any bias and to build a credible theory, this research takes an abductive approach along with the conceptual framework based on existing literature as the provisional hypotheses and research questions. Coding techniques of 'grounded theory', in addition, are chosen for the data analysis of user interviews. Based on the research design, the analytical protocol for the user studies is outlined in order of precedence as follows:

Step 1: All user interviews are audio recorded and transcribed to check against deficient memory and to prevent modification in order to fit better with the researcher's

theoretical proclivities (Schechter, 1997; Timmermans and Tavory, 2012) during the analysis.

Step 2: The transcribed data are line-by-line reviewed thoroughly and initially open coded. The chunks of data are divided into pieces and categorised according to similarities and differences with other codes, concepts and categories. The coding in this phase is a thematic grouping of text units. Concepts and themes, therefore, are named based on the interviewees' terminology or generally used terms in the culture as a form of 'in vivo coding' in order to minimise potential for bias.

Step 3: In this stage, axial coding to identify the relationships between categories is conducted. The codes and categories resulting from Step 2 are categorised in terms of causal conditions, intervening conditions and action strategies in relation to fear of crime. During the process, the relationships are constantly tested against data and the pre-conceptualised framework based on literature reviews.

Step 4: On the basis of the schema identified through steps 2 and 3, further open and axial coding are conducted in order to identify themes of fear appraisal and relationships among the themes. The categories and codes classified as the causal factors of fear of crime are additionally open and axial coded based on the semantic relationships of attribution and of rationale. Under conceptual headings, the transcripts are summarised including quotations and summaries in the researcher's own words.

Step 5: Selective coding on the axis of the intervening factors is conducted in order to identify the role of gender based vulnerability on the themes of fear appraisal. Based on the semantic relationship of attribution, the interviewees' accounts regarding their self-evaluations in situations are further coded and categorised and through additional axial coding, the relationship between perceived vulnerability and the themes of fear appraisal is identified together with the intervening factors. Through this process, the provisional hypothesis in relation to the role of gender and perceived vulnerability in fear of crime is tested against the data and research question 1 is answered.

Step 6: In this phase, based on the results through the preceding steps, further open and axial coding is conducted in parallel in order to identify the role of the underground service in the themes of fear appraisal and its consequences. The intervening factors of service between the consequences of fear and the themes of fear are further analysed

and, as a result, the whole mechanism of female users' fear of crime are identified and diagrammed.

Step 7: In this phase, selective coding to answer research question 2 is conducted, focusing on the influence of the underground service on fear of crime. The underground service as the centre is additionally open and axial coded in relation to the identified mechanism of fear of crime.

Throughout the coding processes, memo writing, constant comparing and sorting and diagramming memos are used in a way to support the analytic process. In order to facilitate the constant comparison between codes, concepts and categories and to remain readily auditable back to the transcripts, NVivo, the qualitative analysis package, is used in developing and linking codes and the relevant texts in transcripts and notes. The themes and variables and their relationships which emerged during the coding processes are constantly tested against data, comparing existing theories in order to find the best possible explanations. Consequently, the research questions are answered and the conceptual framework is refined as being specific to females' fear of crime in the underground. The analytic procedures for the user studies are described in detail in subsequent chapters.

4.5 Conclusions

In chapter 4, user studies are designed according to research questions 1 and 2. In order to do that, the research paradigm is overviewed and appropriate strategies and methods for data collection and data analysis are discussed in detail and selected. Consequently, semi-structured interviewing is employed as the single method for data collection and narrative and ethnographic interview and free association techniques are employed in designing the interview schedule and questions. In analysing the data, Corbin and Strauss's version of grounded theory is theoretically based and data saturation, theoretical sensitivity and the constant comparative analysis are applied in collecting and analysing the data. In line with the grounded theory, open coding, axial coding and selective coding are employed in analysing the data so as to answer the research questions and build a theoretical model pivoting around service design in female users' fear of crime in the underground.

CHAPTER 5

User Study1:

The Components of Female Users' Fear Appraisal

CHAPTER 5 USER STUDY1

In User Study 1, in order to answer R.Q 1 ‘How does gender affect female users’ fear of crime in the underground, in conjunction with other individual and social traits?’, the themes of female users’ fear appraisal are identified and in turn, how gender affects the themes of fear appraisal are analysed. In this chapter, first, how the research question is answered is recounted in a holistic manner and the result of User Study 1 is examined and discussed. Subsequently, based on the result, a conceptual model answering the research question is developed.

5.1 Overview of Data Analysis for User Study1

In order to understand how female users feel fear of crime in the underground, the criteria which they evaluate situations with is initially identified and based on the result, in this user study, the influence of gender is identified. In order to do that, the theoretically based framework of fear of crime in the underground is conceptualised based on appraisal theories and the emotion information process of Frijda (1984). In addition, perceived vulnerability due to female users’ gender or sex, which has been highlighted as a main influential factor in females’ fear of crime, to be precise, anxiety or worries about crime, is conceptualised as ‘contextual property’. This conceptual framework is used as a provisional hypothesis and verified and developed by extrapolated patterns from the collected data. The analytic procedure to identify the themes of female users’ fear appraisal and the influence of their gender and sex on the themes is sequentially presented below.

First, the transcribed data of thirty one female users’ interviews are open coded and categorised by the semantic relationship of strict inclusion ‘X is a kind of Y’. Subsequently, the codes are categorised and sub-categorised with the frames or schemas of causal conditions, intervening conditions and action strategies by axial coding. As pre-conceptualised, the codes emerge,

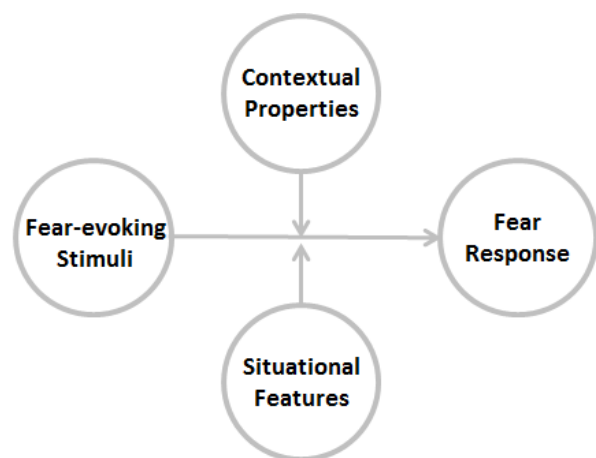


Figure 5. 1 the categorised frames of fear of crime

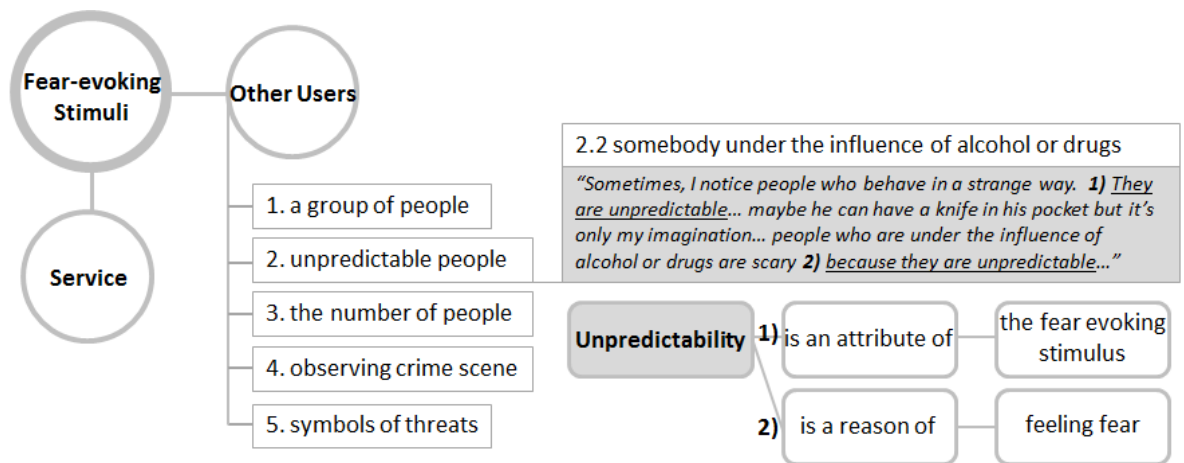


Figure 5. 2 an example of thematic analysis of fear appraisal

structured with ‘fear-evoking stimuli’ as causal factors, ‘contextual properties’ and ‘situational features’ as intervening factors and ‘fear responses’ as the effect (the causal connection is diagrammed in figure 5.1). Among the categories, in User Study1, fear-evoking stimuli and contextual properties are scrutinised and analysed for R.Q.1.

On the basis of the schema, the themes of fear appraisal are identified by further open and axial coding fear evoking stimuli in tandem in terms of the context and condition of phenomenon. It is analysed in relation to the semantic relationships of attribution which is ‘Y is an attribute (characteristic) of X’ and of rationale ‘X is a reason for doing Y’ (exemplified in figure 5.2). The interviewees’ accounts of fear evoking stimuli are coded and combined into overarching themes, compared to the predetermined theoretical concepts of the components of fear appraisal which are ‘Intrinsic Pleasantness’, ‘Focality’, ‘Novelty’ and ‘Uncontrollability’. Consequently, ‘Valence’, ‘Unfamiliarity’, ‘Uncertainty’ and ‘Uncontrollability’ emerge as the themes of fear appraisal and the relationships among the themes are also identified by accessional axial coding.

Subsequently, contextual properties and their influence on the themes of fear appraisal are analysed as a part of selective coding in order to identify the role of their gender and sex. Based on previous research on females’ fear of crime, it was provisionally hypothesised that female users’ perceived vulnerability due to their sex and gender will also affect the themes of fear appraisal. On the basis of the semantic relationship of attribution, female users’ self-evaluations regarding their vulnerability as a woman in situations are analysed and categorised. After identifying the themes of female users’

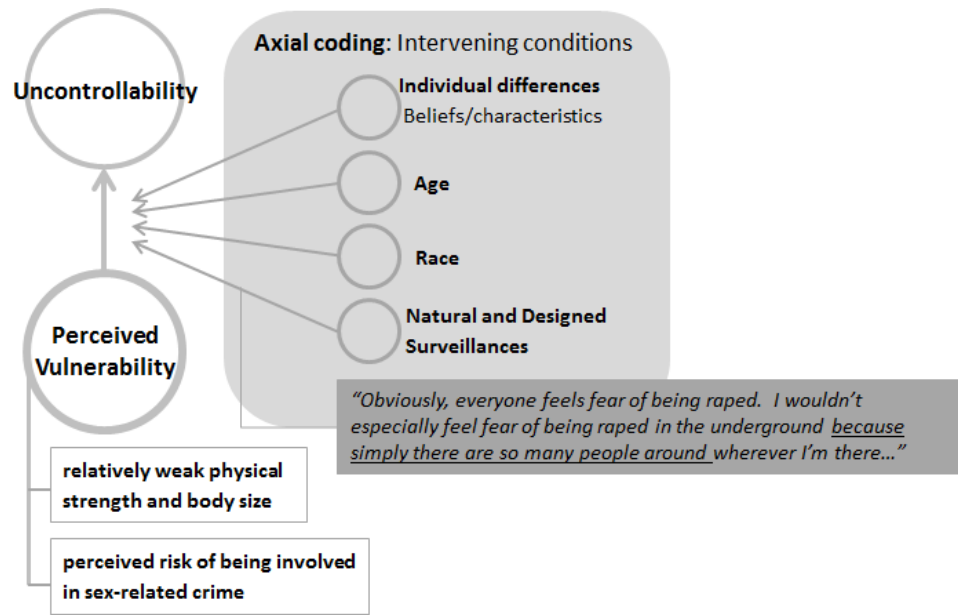


Figure 5. 3 an example of the analysis process identifying mediating factors by axial coding

perceived vulnerability, the causal relationship between females' perceived vulnerability and the themes of fear appraisal is analysed. In addition, the intervening factors between the themes of fear appraisal and female users' perceived vulnerability are identified by additional axial coding (exemplified in figure 5.3).

These processes for analysis and interpretation of the data to identify the themes of fear appraisal and the influence of perceived vulnerability as a woman on the themes are conducted, by open, axial and selective coding with the constant comparative method. In the subsequent section, the results of the user study is examined in detail and based on that, a conceptual model of female users' fear appraisal is developed.

5.2 Results of the Study

5.2.1 Fear-evoking Stimuli

The underground is a public transportation service, which is available to all the public, and since it is a form of shared service, fear evoking stimuli in the underground are shown to be mainly other users, as one interviewee answered, when asked ‘what is most fearful in the underground’ as *‘Travelling with total strangers on the underground... they could attack me anytime’*. In connection with other users, observing a crime scene and symbols of threats such as knives and beer cans is also shown to affect the generating of fear. In addition to the other users, moreover, service itself such as features of service environments and delays in the service appears to influence female users’ feeling of safety. These stimuli (coded and categorized in Table 5.1) appear to operate on female users in the underground, either alone or in conjunction with other stimuli or other components. In this section, fear evoking stimuli which appear in the users’ experiences are examined in connection with the components of fear appraisal: intrinsic pleasantness, novelty and uncontrollability, which pre-conceptualised in

Fear evoking stimuli	Other Users	a group of people	misbehaving	rowdy young males teenagers		
		Unpredictable people	somebody suspicious	somebody under the influence of alcohol or drugs	somebody who fits a stereotypical criminal image	
			unwanted approach	males of a different race		
			the number of people	too many people	few or no people	
			observing crime scene	sexual harassment	pickpockets	violence
				symbols of threats	knives	beer cans
		physical environmental features			unfamiliarity	unkempt environment
			errors of the service			

Table 5. 1 fear evoking stimuli in the underground

chapter 3.

As categorized in Table 5.1, other users are shown to operate as dominant fear evoking stimuli in the underground. Certain groups of people are frequently exhibited as strong fear evoking stimuli in the underground in the user interviews due to their features and behaviour. To typify them, the presence of misbehaving rowdy young males or teenager groups in the same place is shown to stimulate female users' fear responses.

"...depends on who the people are. If it is a group of lads then probably you would be fearful but if it is mixed groups or commuters, it would be fine." (a native user,30-40)

"...and I saw a teenage group on a train. They used a carriage as if the carriage was theirs, talking very loudly. I was in the next carriage but their voices were so loud that they could be heard even in the next carriage. Seeing them was also scary because I thought that if I made eye contact with them, they would follow me." (a non-native Asian user, 30-40)

As it appears in the user's account above, young males and teenager groups are shown to tend to evoke fear within females due to the uncontrollability over the stimuli and their potential consequences and the uncertainty of the consequences which subjects may get involved in. Although there appear individual distinctions in perceiving a certain group of people as a threat, what evokes female users' fear of crime appears the same which is manifested in their aggressiveness and anti-social behaviour. In accordance with this result, other research has also underpinned that the disorderly behaviour of other people in trains is shown to significantly affect feelings of safety (LaGrange et al., 1992) and to be the most threatening factors to female passengers while it is shown not to affect male users as much as females (Crime Concern, 2004; Yavuz and Welch, 2010).

Another notable point is that in most cases, a young male or a teenager is not shown to be deemed as a potential threat; however, when they are in a group, interviewees appear to perceive them as threats, which are out of control and may be directed towards themselves. Interviewees expressed fear and anxiety of teenager groups or young male groups as they encourage each other's rowdy or aggressive behaviour, which is exemplified by a user's account below.

“Oh... I think teenage groups are very frightening. I think the thing about teenage groups is that they egg each other on. They get a sort of energy in being in a group, a power they engender within themselves. They build on a sort of bully factor and become more powerful as a group and get out of control very easily and that’s very fearful. Male or female... I think ... obviously much more male.” (a native user, 60-70)

This fear of a group due to the lack of possibility of control over them frequently appeared in the user interviews. According to them, *‘being out numbered’*, there is no possibility to protect themselves against a rowdy group, which can be accounted for by one of the criteria of fear: uncontrollability or a lack of coping potential.

In addition to uncertainty and uncontrollability over the rowdy behaviour of a group of misbehaving people, unpredictability towards certain users is also shown to generate fear. Unpredictable people such as individuals who are suspicious and who fit a stereotypical criminal image and those who are under the influence of alcohol or drugs and their unwanted approach frequently appear in the user interviews as significant fear evoking stimuli in the underground.

“...sometimes I notice people who behave in a strange way. They are unpredictable... maybe he can have a knife in his pocket but it's only my imagination. Nothing ever happened ... people who are under the influence of alcohol or drugs are scary because they are unpredictable...” (a non-native user, Polish, 20-30)

“Usually drunk people are scary... because sometimes, they do not know what they are doing. So they are dangerous... sometimes.” (a non-native user, Syrian, 30-40)

Statistics of users’ feelings of safety in the London underground (Crime Concern, 2004) also underpin that people being under the influence of alcohol or drugs is a fear evoking stimuli and they greatly affect female users’ fear of crime at night. This can be accounted for by uncertainty of the effects of potential danger like the case of fear of misbehaving groups. As it is stated in previous chapters, when the effects have not fully materialized, the probability or certainty of potential effects is as significant as the event or the situation itself.

By extension, unfamiliarity with males from a different race and their behaviour also appears to be a fear evoking stimuli in the underground to certain females, especially to

non-native users. This result is accordant with the previous research on anxiety and fear of crime which shows that in many cases, males in cultural minorities evoke fear (e.g. Madriz, 1997) even though, they are also shown to be highly exposed to fear of crime (e.g. Day, 2006). In the user interviews, mainly non-native interviewees expressed fear of males from a different race based on their physical features and unfamiliarity with their attitudes and the stereotypes about them.

“I feel like... some people here I do not know why, but here people keep looking at me. I feel a bit afraid ... Especially of black males. Some black people’s attitudes are not good. So I feel afraid of them sometimes. They just look scary they are strong and tall. If they want to do something to me they can do it... I am afraid” (a non-native user, Chinese, 20-30)

“Once I was waiting a train at late night, and three black guys came to me... you know... they looked like criminals. The way of they were wearing clothing. I was very afraid... because they might kill me or rape me. Everything was ok though.” (a non-native user, Syrian, 30-40)

As appears in the users’ accounts above, unfamiliarity with certain people and their behaviour appears to affect non-native subjects’ uncertainty of the likelihood of criminal activities in the presence of fear evoking people and in some cases, uncontrollability over those whose physical features are evaluated as being threatening.

In fact, even though in these user interviews, mostly non-native interviewees, who had lived in the UK for a relatively short period of time, displayed it, fear of males from different races may not be seen to be a certain groups’ exclusive fear. A certain native user in her 60s also expressed fear of Arab males; moreover, in additional interviews, another native interviewee in her 70s appeared to perceive males from different races to be more dangerous. Results of other research targeting Caucasian females also indicate that the fear of males from different races is pervasive in Caucasian females (e.g. Madriz, 1997). However, it appears to be difficult to express it for natives as one interviewee answered regarding the issues that it is hard to be explicit due to racial issues in a follow up interview. In the light of that the fear evoking stimuli being from different races from the subject, it may be accounted for by users’ unfamiliarity with specific groups of people and uncertainty of the likelihood of criminal activities and its

consequences in presence of them, which is shown to be affected by the subjects' stereotypical image of certain groups of males.

In addition to uncontrollability, uncertainty and unfamiliarity with other users and their behaviour, female users are also shown to be affected by the number of people around them. When they sense there are too many people, it appears to be associated with fear of accidents or pickpockets.

“Yes, because although there is safety in numbers, sort of thing, it could be in the rowdy behaviour, you get caught up in something. Then knocked to the ground or, knocked over a parapet or knocked on to the line in the underground” (a native user, 40-50)

“I am scared when there are many people, that I may accidentally be pushed on to a coming train or a track.” (a non-native user, Korean, 30-40)

“There are so many people there that you are well aware that you could easily get pick pocked and I don't think there are any other kinds of crime in Piccadilly, but you do have keep your bag very close to you because there's lots of muggings that go on in that area.” (a native user, 60-70)

On the other hand, where there were few or no people around the user, it also appears to produce fear in female users. Power or the perception of one's own ability to influence the course of events is appraised with others' help, contingently (Ellsworth and Scherer, 2009). Thus, when the user perceives there is no possible help in the case of a threatening situation emerging, it can evoke fear even if there are no threatening factors around them as the interviewees describe below. It can be accounted for by the situational meaning structure of fear: the absence of positive valence.

“For example like I said, in the morning on Sunday, there's nobody on the platform in Heathrow...Sometimes, there are very few people on the underground station waiting for the train. And I feel very uncomfortable because I feel very vulnerable... Because if something happened there would be nobody there I could turn to.” (a native user, 60-70)

“Sometimes there are only a few numbers of passengers on the station and I get really scared because of the fact that I am alone. Because I am all alone I could be an easy target for someone awkward and when someone tries to harass me, it could be very difficult to ignore or confront him or her by myself.” (a non-native user, Korean, 20-30)

“Being alone in a carriage is unusual but quite frightening.” (a native user, 80-90)

Observing a crime scene and symbols of threats such as knives and beer cans are also shown to be fear evoking stimuli in the underground in relation to the presence of negative valence, uncontrollability over the situations and uncertainty of the consequences. In particular, observing violence and sexual harassment in the underground is shown to significantly affect the female users' feeling of safety and to generate fear. In addition, seeing knives which teenagers carry with them and beer cans in the service environment appears to amplify fear of crime in conjunction with other stimuli such as the other users with knives or no presence of other passengers around.

"I saw they were carrying knives. They might have killed me or taken away my money. Maybe... they would have not killed us but hurt us with knives. ... I am a lady and they are three guys and they were carrying a weapon, knives. I did not have anything to protect myself." (a non-native user, Syrian, 30-40)

"... When I had nearly arrived at Uxbridge, I walked toward the front side of the train and then I saw some beer cans on the train floor. Someone drunk on the train... because I have a bad perception about the underground, when I see that kind of thing, it makes me fearful." (a non-native user, Korean, 30-40)

In addition to other users, service attributes are shown to affect female users' fear in the underground. Unfamiliarity with the service environments, unkempt environments and certain physical environmental features, which may lead to accidents, appear to affect female users' feelings of safety in accordance with results of other research on the underground (e.g. Crime Concern, 2004) and in some cases, evoke or amplify fear of crime. Moreover, train delays are also shown as fear evoking stimuli due to the uncontrollability of the situation and the physical environment. According to another research (Yavuz and Welch, 2010), reliability of the service is shown to affect male users more than female users. However, in the user interviews, delays on the service in the London underground also significantly affect female users' fear with uncontrollability and uncertainty over the situation in relation to fear of terrorism, which frequently appears during the interviews due to the London Bombings in July, 2005.

"I feel the most fear when there are strikes especially during the rush hour; without giving any proper notice why there has been a strike. We know from that London bombing 2007..." (a non-native user, Korean, 20-30)

In conclusion, other passengers in the service environments and service attributes are shown to operate as fear-evoking stimuli in the underground due to uncontrollability over the situation and its potential effects with the presence of negative valence and the absence of positive valence and uncertainty of the effects of the stimuli. Unfamiliarity or novelty with certain male users or with the service environment appears to evoke fear and anxiety in connection with situational uncertainty and uncontrollability.

5.2.2 Themes of Female Users' Fear Appraisal in the Underground

Based on the results of fear evoking stimuli, themes of appraisal of fear of crime in the underground are identified and listed below.

Valence: Refers to the positive or negative aspects or characteristics of stimuli and the service environment, which elicit fear including the emotional arousal, appraisal and behavioural responses to the stimuli. In emotion theories, categorised in 'affect valence' and 'emotion valence', the term 'valence' is frequently used as a criterion which demarcates an emotion from other emotions and from cognition and refers to a property of particular feelings or of emotion experience (Charland, 2005; Colombetti, 2005). In the user study, however, the theme refers to the positive or negative charge of objects in the service environment or situations, which connect to subjects' approach or withdrawal behaviour, adopting the concept of valence of Frijda (1986), Lang et al (2000) and Lewin(1935). Fear is generated by impending danger as subjects perceive high risk and it is defined with low intrinsic pleasantness with negative valence as in the conceptual framework of this research. In the user interviews, female users appear to experience fear 1) in the presence of negative valence of certain users and the service environment, 2) the absence of positive valence of the service environment, and 3) the absence of knowledge or experience to evaluate positive or negative aspects of other users and the environment in terms of their safety.

Unfamiliarity: The theme refers to the absence of knowledge or experience to evaluate positive or negative valence of stimuli, which is conceptualized as novelty in the framework. It appears in the interviews with the users who are not familiar with the social and physical environments of the London underground and exemplified by fear of male users from different races and of unfamiliar physical service environments. The

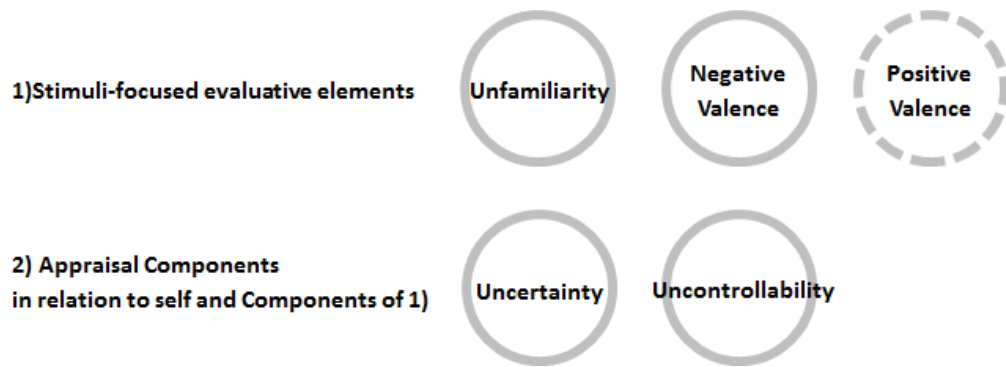


Figure 5. 4 the components of females' fear appraisal in the underground

Oxford Dictionary (2011) defines ‘unfamiliar with’ as ‘not having knowledge or experience of’ and novelty as mass noun as ‘the quality of being new, original, or unusual’, and as count noun as ‘a new or unfamiliar thing or experience’. In the user study, the term, unfamiliarity is used to refer to the theme of the unknown or incomprehensible aspects of stimuli and ongoing situations for interviewees, instead of novelty according to users’ accounts and descriptions.

Uncertainty: This theme is defined, separated from unfamiliarity, as unpredictability of future events which the stimuli may lead to. It is also derived from novelty in the conceptual model and differentiated from unfamiliarity since unfamiliarity refers to lack of knowledge or experience to evaluate the negatives or positives of the present stimuli and uncertainty is unpredictable consequences of the events or stimuli. The Oxford Dictionary (2011) defines it as 1) not known, reliable, or definite or 2) not completely confident or sure. Fear accompanies high anticipated exertion (Smith and Ellsworth, 1985; Lerner and Keltner, 2000) and the uncertainty of the likelihood of the event happening and its consequences. In emotion appraisals, the probability or certainty of potential effects is as significant as the event or the situation itself (Ellsworth and Scherere, 2009). The interviewees’ evaluations of the unpredictable people and their approaches in the result of the interviews as fear evoking stimuli typify this theme.

Uncontrollability: Implies lack of subjects’ capability of modifying or influencing the course of events and its potential consequences. Lexical definition of control indicates subject’s power to influence people’s behaviour or the course of events (The Oxford Dictionary, 2011). Controllability and coping potential, or power, are closely related with fear and fear of crime (e.g. Frijda, 1984; Smith and Lazarus, 1993; Smith and

Ellsworth, 1985; Van der Wurff et al., 1989). When confronting potential threats, the subject evaluates herself compared to the threats in terms of power and controllability is destroyed by unequal power relationships (Frijda, 1984). The power evaluation of oneself against the fear evoking stimuli such as a group of rowdy males appears to be pivotal in generating fear. In addition, the power or the perception of one's own ability to influence the course of events is shown to be appraised with others' help, contingently (Ellsworth and Scherer, 2009). Thus, when the user perceives there is no possible help in the case a threatening situation emerges, the power or coping appraisal evokes fear even if there are no threatening factors around them.

In this light, the themes of fear appraisal in the underground are identified in relation to the stimuli and subjects (feature 5.4). The presence of negative valence, the absence of positive valence and unfamiliarity are defined as components in primary appraisal or stimuli focused appraisal. These components appear to be evaluated in terms of uncertainty of the consequences of events and uncontrollability over the situation in secondary appraisal in relation to self. In this respect, appraisal tendency of fear can be described as perceiving negative events as unpredictable and under situational control (Lerner and Keltner, 2000, 2001). The valence reflects subjects' concerns and values in respect of physical and emotional safety in the underground and according to the female subject, the evaluation has in common with other females or differences as it appears in the result of fear evoking stimuli. In the subsequent section, how females' gender or sex affects the evaluative elements of fear in the underground in conjunction with other individual traits to female users are examined and discussed.

5.2.3 Gender and Other Influential Factors on Themes of Fear

In the previous section, fear evoking stimuli in the underground and themes in evaluating the stimuli are identified and discussed. As the fear evoking stimuli and the themes indicate, female users are shown to have shared features and differences between individuals and groups in evaluating the stimuli and the service environment. In this section, therefore, how their common denominator, gender or sex, influence the themes of fear appraisal is examined by analysing results of the interviewees' perceived vulnerability in relation to their gender and their concern and anxiety towards the underground in terms of crime and their safety during the service encounter.

Females' higher level of fear of crime in public spaces has been accounted for by their perceived vulnerability due to physical and social aspects of their gender or sex. Preceding research on fear of crime in females has highlighted their perceived vulnerability to crime as a dominant predictor in explaining their greater levels of fear (e.g. Franklin, Franklin, and Fearn, 2008). Gender or sex is shown to affect the anticipated perception of the subjects themselves in terms of exposure to non-negligible risk, capabilities for self-protection and the serious consequences (e.g. Killias, 1990; Killias and Clerici, 2000; Jackson and Stafford, 2009). In accordance with the previous research on females' fear of crime, in the user interview, the users' sex, female, appears to play a role in evaluating themselves against the fear evoking stimuli, but in varying degrees according to the individuals. It is, in particular, shown in relation to their physical strength and controllability over the stimuli which appear to be mainly male users.

The majority of interviewees in general, appear to think they are more attractive targets, in comparison to male users due to their relatively weak physical strength. Moreover, their perception of their physical strength and size appears to affect their vulnerability in interaction with the stereotype of female victim and male predator.

"Definitely, Arr... Because of the fact that in most people's minds, women are weaker than men..." (a native user, 60-70)

"I suppose on balance, I probably would be more vulnerable because the stereotype would be that the attacker or thief would be more likely to be male and therefore, probably target the weaker or perceived weaker sex therefore, approach women trying to steal from them or attack them rather than a man who's more likely to fight. As I said that's based entirely on the media and portrayal of crime always seems to be male for predator and female for victim." (a native user, 30-40)

"I don't know but according to what I've heard... yes, I think women are more easy targets.... more likely to be targets in that kind of situation because especially criminals...men think a woman is not as strong as a man and I'm a woman so..... It's just the general opinion that we are the weaker sex." (a non-native user, Polish, 20-29)

Their perceived weak physical strength appears to affect their vulnerability in terms of their coping potential, to a certain extent according to female individuals. Sex and the

gendered factor such as the sexually dimorphic portions of the human body and stereotype of criminals and victims in the interviewees' minds are shown to influence the likelihood of being involved in criminal activities and controllability in case of they get involved in dangerous situations. However, in respect to the consequences in the underground, many female users are shown to think differently as the interviewees below stated.

"... then again if the attack was on a man then perhaps the method used would be more violent because of the fact that men are stronger therefore, they might come off worse. People might be little gentler with a woman but they just try to steal handbags unless they actually want to hurt her particularly. I think they might be likely to go in a bit lighter whereas a man could be pushed in such a way as you know causes fractures by falling. I can't say I'd be less likely badly hurt."

"... Because I think I just have this perceived idea that most men are possibly fitter and more able to look after themselves than a woman, I mean they're stronger for example, whether that means more likely to fight back therefore, make themselves more susceptible. ... Perhaps because man is more likely to fight back, they're more likely to be seriously injured than women. Women being quite passive might just get away with having their handbag stolen or something."

"...but hypothetically, you are a woman there is a mugger and he takes your purse and it's easy for him to take your purse and run away...it doesn't affect.. you lost your purse but if it happened to a man... if somebody try to take his wallet and then there could be a fight and it could be much severe than only stealing or mugging..."

As the users' accounts above exemplify, perceived vulnerabilities as a woman are shown to mainly influence uncontrollability and do not appear to notably affect situational uncertainty or certainty regarding the seriousness of the consequences of the potential danger when female users make a comparison of themselves with males in the underground.

Along those lines, the perceived vulnerability of female users appears to affect the theme of fear appraisal, uncontrollability. However, even though most interviewees perceived themselves as the physically weaker sex, it appears not to affect all the interviewees' sense of uncontrollability in the underground. Twelve out of thirteen

fearless users are shown to think they are relatively weaker than males and could be easy targets, compared to males, and some of them described their precautionary behaviour before and during using the underground service. However, they answered it does not affect their use of the underground and certain users exhibited rejection of fear itself with personal beliefs, saying *'No, fear invites bad things.'* (a native user, 20-30) and *'I work on the basis if your card's marked you can't do anything about it so...'* (a native user, 30-40).

The conflict between self-evaluation in the underground and the general perception of vulnerability, which is applied to their sex, also emerges within the group who express anxiety and fear of crime in the underground. Individual physical characteristics are shown to affect the perception of their vulnerability which is socially applied to them and which they are aware of.

"I appear to be physically weak. In fact, I'm not but people would think I would be easy to push over or mug... It depends on the person who was attacking me I'm stronger than lots of small men but if it was a group or it was a man who was bigger than me I probably would not because I'm... probably not as strong as they are ... I'm a big woman and may not suffer too badly but a small man will be more hurt than I would be. Depends on the physique of the man and strength." (a native user who express anxiety and fear of crime in the underground, 60-70)

As exemplified in the user's account above, individual faith and characteristics appear to offset perceived vulnerability as a woman. The individual differences due to individual faith and characteristics also appear when they evaluate the likelihood of being involved in sexual assault or harassment in the underground, which accounts for female specific vulnerability due to their physical factors, in contrast with the literature on females' fear of crime and public spaces (e.g. Gordon and Riger, 1989; Koskela and Pain, 2000; Madriz, 1997).

"I always think because I'm old woman and overweight. I always think I'm never going to be a target for a rapist, for example. I know that's completely different. That's probably a silly thing to say because I know rape is not all about attraction. It's also about power it isn't all about sex." (a native user who express anxiety and fear in the underground, 50-60)

“...sexual crimes are sometimes perceptual. But I work with men so I have to be twice as quick with the humour as they are then you know how to deal with it. But it can work both ways it’s not always women that are subjects of sexual crime.” (a native fearless user, 30-40)

“I hear about sexual harassment. I read about it in the Newspapers sometimes, I do not believe it is true because I have never met that kind of situation...I am not the type of person they would target for sexual harassment. (Laughing) It’s true.” (a non-native user, Chinese, 20-40)

In addition to personal beliefs and characteristics, age is also shown to mediate female vulnerability related to sex-related crime in the underground, desensitizing their anxiety and fear. Although some interviewees were aware of danger, they appear not to be notably affected by the fact they were aware of.

“...Slightly not hugely because I’m older but I think nowadays even older people, older women get raped so it’s always slightly in my mind but not predominantly...I think the reality is older people are no challenge from the sexual point of view to groups because there is no challenge but older people are very vulnerable from the point of mugging because they don’t have as much strength as younger people and women are more vulnerable than men from some points of view.” (a native user who express anxiety and fear , 60-70)

“Mm... personally no but I do know statistically it is. That’s probably related more to my age. I think if I were younger, I might feel that... that would be more possible a fear but not at my age.” (a native fearless user, 60-70)

Furthermore, perception of the environment and the nature of the underground are shown to influence the interviewees’ anxiety and perceived vulnerability in relation to sex-related crime. Female users appear to think there is no high risk of rape in the underground compared to other public places or other modes of transportation. Natural and designed surveillances in the underground created by other users and the service providers, is shown to mitigate female users’ anxiety and fear of sex-related crime.

“No, I wouldn’t... Obviously, everyone feels fear of being raped. I wouldn’t especially feel fear of being raped in the underground because simply there are so many people around whenever I’m there. So I think my fear of being raped would be much more

heightened if I was out working and I was exposed in that way rather than in the underground.” (a native user, 30-40)

“I have to say that I'm more afraid of being raped going by the taxis than going by the tube. Because it happens a couple of times when I was alone on the platform... I was alone in the carriages but there's always someone from service people working from tube... in the emergency, you can do something because for sure there are people somewhere in the train... but if you are going by taxi the driver can take you anywhere... and sometimes you can't do anything about it. So I have to say that me personally I'm much more afraid of going on my own by taxi than going by tube.” (a non-native user, Polish, 20-30)

“Because it is an open space, I do not think that it is likely to be raped there. But sexual harassment is possible...so I always try to make sure of enough space when someone is near me and try to avoid the situation.” (a non-native user, Korean, 30-40)

On the other hand, racial differences appear to affect self-evaluation in respect of gender and their vulnerability to criminal activities. Ethnic or racial minorities such as certain Korean and Chinese interviewees expressed more intense anxiety in the underground and vulnerability due to their physical strength and body size which they evaluate weaker and smaller than other females from different races as well as males.

“Well... I am a woman and I am abroad. Because I am an Asian woman, I am physically weak. I've never thought that other women or Asians would think of me as an easy target but compared to men, if I were a man, I would feel less fear. ... I think that Asian women are physically weaker than even white women and I am not tall. I am short and small so they could think of me as an easy target and make fun of me and possibly hit me or could have a knife and stab me.” (a non-native user, Korean, 30-40)

In addition to female users' physical traits such as lack of physical strength and the likelihood and consequences of sex-related crimes, female individuals' social traits also appear to influence their vulnerability and fear of crime in the underground according to the subjects' resources for coping potential which affects their physical vulnerability. In relation to the social traits, subjects' unfamiliarity with the underground service due to their age and their lack of cultural assimilation is shown to mediate female users' vulnerability. Many interviewees whose age is over 65 year-old, WHO (2013) defines

as elderly, described 'disorienting' or 'too big' stations of the underground on fear evoking stimuli although most of them have used the underground their whole lives.

"... I probably wouldn't be 100% relaxed but that's partly because I don't go into London very much. London can feel overwhelming sometimes. I lived in London many years ago so I don't feel... It's not as though I've never been to London. It's amazing how quickly familiarity goes. It's obviously much busier than it used to be." (a native user, 60-70)

"I think that is what we need back, we need proper guards to be able to man the stations like it always was when I was young" (a native user, 70-80)

"When I was young on the underground they used to have emergency cords. I think that is a brilliant idea because it was like a rope that went right the way from one carriage to another so even if you were sitting down, you could reach up and pull the cord and the train came to a stop... and the guard would come to see if there was trouble in the carriage. I know they stopped because some stupid people played games on it ... I still think that something like that should be replaced very much so for people's safety...." (a native user, 60-70)

Although there are differences of degree, in association with fear and the underground, they expressed worries about their unfamiliarity with the environment and some suggested a regression in their feelings of safety in the underground as exemplified in the latter two user's accounts above.

In addition to age, the degree of cultural assimilation also appears to affect the interviewees' anxiety and fear of crime in connection with the subjects' unfamiliarity with the environments by mediating their perceived vulnerability. Fear of crime which is influenced by unfamiliarity with the social and physical environment is displayed by non-native users who had stayed relatively shorter periods of time than other interviewees. Their absence of accumulated knowledge and experience of the environment appears to have them susceptible to incorrect rumour and indirect experience and hence, to affect their vulnerability and use of the underground.

"...he was screaming in the underground... well... it was very scary because it is abroad. So I searched the London Underground through Korean web sites. I am not sure that if what I read is true or not. One story which made me afraid to use the

underground service was that. ... After reading that kind of story... it is too scary to use the underground. I know that it could be just a rumour and not testified. ... I came here just months ago and I cannot speak English very well” (a non-native user, Korean, 30-40)

As in the interviewee’s account above, who came to the UK four months before the interview, language proficiency and the length of residence are shown to be salient predictable factors of the subject’s fear of crime in accordance with the literature on immigrants’ fear of crime (Lee and Ulmer, 2000; Yun, Kercher and Swindell, 2010). Unfamiliarity with service environment of the underground of such interviewees can be accounted for by their low level of acculturation. Their lack of social interactions with different ethnic and cultural groups can be in part, explanation of fear of males from different races. Moreover, their unfamiliarity with physical environment, which also appears to negatively affect fear of crime, can be in part, accounted for in this context as they constantly showed adherence to what they are familiar with, making a comparison between the London underground and those in their countries.

“When there is graffiti on the walls, the physical environment is not well managed. It makes me feel fearful. Uncomfortable. Usually all the stations here are dirty and very old. They are all old and you can see wires on the ceilings when you are on the underground, sometimes it is very dark. It makes me scared.” (a non-native user, Syrian, 30-40, stayed in the UK for 6 years)

“...platforms in stations are very narrow and sometimes there are many people on a platform. In my country, we have safe doors on every platform and have safety bars so I am scared when there are many people, that I may accidentally be pushed on to a coming train or a track. And when I take the Piccadilly line, it is not well lit inside the trains and the trains’ ceilings are too low. These kinds of things make me scared.” (a non-native user, Chinese, 20-30, stayed for a year)

“In the Seoul underground, there are notes, saying ‘if you have any trouble, text here’ in every carriage. Actually if there are any weird people or drunk men, text them and they text back straightaway saying ‘we will take care of it immediately’... and we can record with our mobiles and send it.” (a non-native user, Korean, 30-40, stayed for 2 and half years)

It is notable that native interviewees, who are in their 20s to 40s like the non-native interviewees above, did not express anxiety or fear due to unfamiliarity with the underground system. Instead, they showed confidence in using the underground, saying *“I use the underground without anxiety or fear of crime”* (a native user, 20-30).

“It’s to do with body language and I believe my body language says I’m not worried and I know where I’m going so there is no hesitation in what I’m doing. I was born, grew up and lived in London all my life. I work with men on construction sites so... I have appropriate body language which says don’t mess with me... if you are not a confident person, you are gonna find fear in a lot of places unfortunately.” (a native user, 40-50).

Unfamiliarity also appears among some native interviewees in a similar age, who irregularly use the underground or usually use other transportation modes; however, it is shown that their unfamiliarity with the system does not significantly affect their fear of crime in the underground. In this manner, unfamiliarity, which the elderly and cultural minorities have, is shown to affect the subjects’ resources for coping potential and hence, their perceived vulnerability and uncontrollability in the underground. In this manner, unfamiliarity with the service, which certain cultural minorities and older interviewees displayed, in part, is also comprehensible due to the subjects’ lack of resources for coping potential over situations.

In addition to unfamiliarity, subjects’ social positions are shown to mediate their perceived vulnerability. The majority of the non-native interviewees who are international students or have stayed in the UK relatively a short period of time expressed intense anxiety and fear of crime due to their vulnerability in connection to their limited coping potential. Their deficient material resources and social support appear to play a role in their self-evaluations and fear appraisal in the underground interacting with their perceived physical vulnerability as a woman. It clearly emerges when comparing two interviewees whose accounts were:

“...I used the underground all my life without anxiety or fear. ... When I am late, either my brother or my boyfriend picks me up.” (a native user, 20-30)

“...because I’m alone here, late at night, on my way home from the tube station, I always run until I get home.” (a non-native user, Chinese, 20-30)

Both these two women are in their 20's and have a similar education background, graduated on the same MA course in Cass Business School in 2013. However, the former who is British who has lived her entire life in London and has her family and friends here and the latter is an international student who has lived in the same city for one and half years alone. A sense of uncontrollability frequently appears in the interviewees' accounts and descriptions of experiences of the interviewees who have limited coping potential to deal with ongoing situations and to prevent fearful events by precautionary behaviour such as be accompanied by friends or husbands or using a different mode of transportations which other interviewees do for their safety.

“...I thought I could be mugged or be raped. I felt slight fear a couple of times on the underground before but I had never worried about being raped until then...but I did not know what's going on and what's going to happen to me. I would ask for help if there was anyone I could call for help. There was no one I knew in London at that time...” (a non-native user, Korean, 20-30)

“...but I still have to use the underground to go back home even though I don't feel secure... because I don't own a car myself.” (a non-native user, Korean, 20-30)

In this manner, subjects' social positions which affect their resources for coping potential appear to mediate their perceived vulnerability and hence, to affect their uncontrollability and fear of crime in the underground.

Along those lines, the perceived vulnerability as a woman in the underground is shown to affect the theme of fear appraisal, uncontrollability. Female users' individual and social traits including individual beliefs and characteristics, age, racial differences, unfamiliarity with the service social and physical environments and social position appear to mediate their perceived vulnerability in the underground. The underground service also appears to positively affect female users' perceived vulnerability and uncontrollability and hence, fear of crime.

5.3 Discussions

In User Study 1, themes of fear appraisal of female users and the role of gender or sex in conjunction with other individual and social traits in the themes of fear are examined and discussed in order to answer R.Q.1. In this regard, fear evoking stimuli in the underground are analysed in relation to their meanings to the subjects in section 5.1; furthermore, in section 5.2, the interviewees' self-evaluations against the stimuli in the underground are analysed in respect of their physical and social aspects of vulnerability, which has accounted for female users' fear and anxiety in previous research on fear of crime. In this section, the results of User Study1 are holistically reviewed and discussed in connection with previous research. Subsequently, a conceptual model of female users' fear appraisal in the underground service is developed.

Fear evoking stimuli in the underground appear to be mainly male users, and service itself such as delays in service and features of the service environment is shown, in part, to evoke fear in female users. Female users appear to respond to the negatives or positives which the stimuli and situations have or have not with their sense of certainty of the consequences of the stimuli and controllability in the ongoing situation and the potential consequences. The negative valences of other users such as a certain group of people or individuals and their behaviours and service environments such as unkempt environment are shown to affect users with uncontrollability and uncertainty and induce fear. Moreover, the absence of positive valence of social and physical service environments, for instance, the number of other users around or uncertain delays in service without proper notice, which can offset the negatives of the stimuli in the underground, also appears to affect the users' sense of uncertainty and uncontrollability

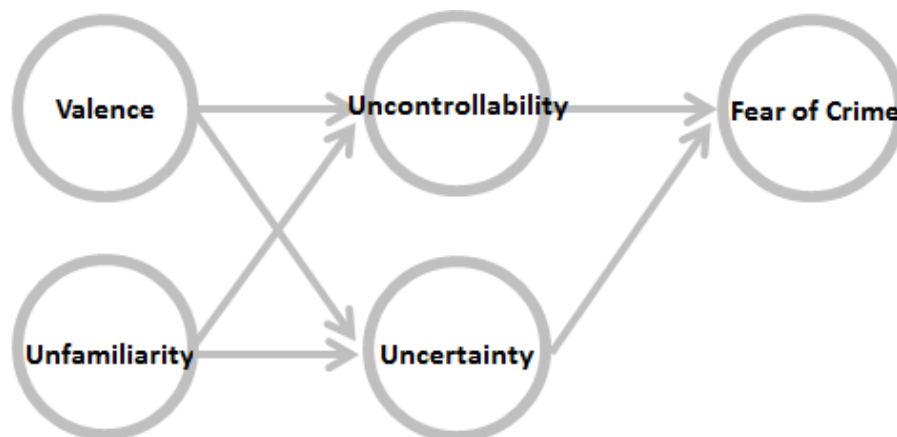


Figure 5. 5 the themes of fear appraisal and their relationship

and hence, produce fear responses. On the other hand, when the users have no knowledge or experiences to appreciate the negatives or positives of stimuli or environments, their unfamiliarity is also shown to affect users' uncertainty and uncontrollability and consequently fear. These themes of fear appraisal in female users and their causal relationships are conceptualized in figure 5. 5.

Perceived vulnerability by sex or gender appears to affect female users' fear appraisal in the underground as it is shown to affect the subjects' uncontrollability. When encountering fear evoking stimuli such as a group of rowdy males, the subject is shown to tend to perceive herself as a woman with weak physical strength as certain interviewees described themselves as 'a lady', 'Asian woman' or 'an old woman' in the presence of the fear evoking stimuli. Individual differences such as personal beliefs and characteristics, age and racial differences and perception and the nature of the underground appear to mediate the physical aspects of female users' vulnerability which is pertained to their relatively weak physical strength and concerns about sex-related crime. The relationship between female users' fear appraisal in the underground and their perceived vulnerability as a woman is conceptualised in figure 5.6.

These results regarding female users' perceived vulnerability are somewhat divergent from the preceding research deriving from Killias' framework of the three dimension of vulnerability (1990). First, the results of the user studies signify vulnerabilities as influential factors on themes of fear appraisal as presented in the model and as pre-

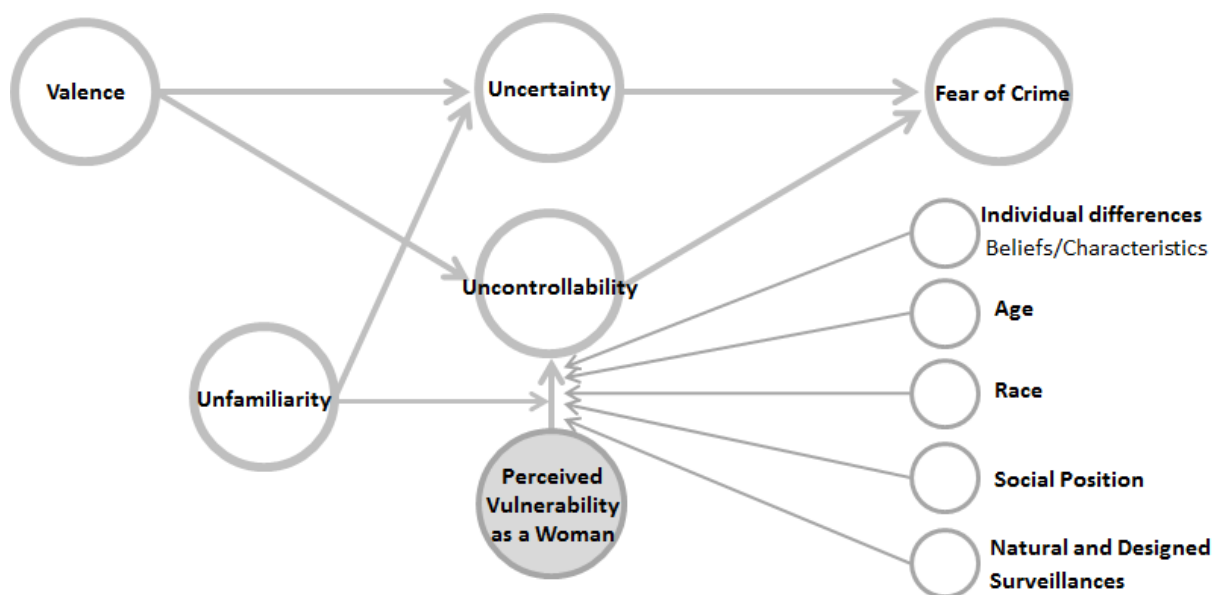


Figure 5. 6 the causal relationship between the themes of fear appraisal and perceived vulnerability

conceptualised as ‘contextual properties’ or ‘side conditions’ based on the focal theory (Frijda, 1984). On the other hand, preceding research on fear of crime in females has highlighted their perceived vulnerability to crime as a dominant predictor in explaining their greater levels of fear (e.g. Franklin, franklin, and Fearn, 2008). However, in the light of that perceived vulnerability is evaluated and anticipated when there is no distinct stimulus and previous research in general, has been dealt with fear of crime as worry regarding crime (e.g. Jackson, 2009; Jackson and Stafford, 2009), the discordance can be comprehensible.

By extension, whereas gender or sex is shown to affect females’ perceived vulnerability in terms of exposure to non-negligible risk, capabilities for self-protection and the serious consequences in preceding research (e.g. Killias, 1990; Killias and Clerici, 2000; Jackson and Stafford, 2009), in the user study, it appears to affect, in particular, capabilities for self-protection, or uncontrollability in the underground. In addition to the conceptual differences in respect of fear and anxiety, it can be accounted for by the characteristic of the underground service, natural and designed surveillances.

In previous research, females’ perceived exposure to risk and the seriousness of consequences originate from females’ concern about sex-related crime. Killias (1990) claims that since females are exposed to sexual attacks, which males experience only under exceptional circumstances, and rape causes serious long-term consequences, females feel a high level of vulnerability and in this respect, females’ high levels of fear of crime can be accounted for. The risk of rape is shown to amplify females’ fear of crime in substantial volumes of research (e.g. Farraro, 1995; Madriz, 1997; Stafford and Galle, 1984; Gordon and Riger, 1989; Scott, 2003; Koskela and Pain, 2000). In the user study, however, female users’ vulnerability in fear evoking situations is shown to be affected by their physical strength but not significantly by concerns about sex- related crime.

It appears that when female users encounter fear evoking stimuli in the underground, their vulnerability to sex-related crime are mediated by other variables, mainly by the nature and characteristics of the underground as the interviewees are shown to think it is unlikely to be raped in the underground compared to other modes of transportation or other public spaces. Even though in certain situations such as being alone on an outside platform at night, concerns about sex-related crime is shown to affect female subjects’

fear appraisal to some extent, female passengers' general perception of the underground as crowded or as an open space are, in general, shown to diminish their perceived vulnerability to rape. In this respect, the discordance regarding the likelihood of being involved in dangerous situations and the anticipated seriousness of the consequences, can be accounted for by natural and designed surveillances of the underground service.

5.4 Conclusions

Although females' high levels of fear of crime has been dealt with as a social problem, anxiety or fear of crime in the underground is not a substantial problem for all female users as among thirty one female interviewees, who were randomly chosen, seventeen users answered that they use the underground service without anxiety or fear even though some of them displayed cautious behaviour when using the service. According to certain research on fear of crime (e.g. Gray, Jackson and Farrall, 2010), moreover, a moderate level of anxiety or fear is shown to be beneficial to the subjects' safety. However, the result of the user study suggests differently, given the subjects of females' fear of crime to whom fear of crime is a substantial problem.

It is significant that the subjects' individual lack of coping potential interacts with the gender effects on their self-evaluation in certain situations and in turn, affects their fear of crime. For instance, the majority of the interviewees who displayed intense anxiety of crime or worries have experienced fear of crime in the underground, in accordance with study on the relationship between experience of criminal incidence and anxiety (e.g. Crime concern, 2004; Yavuz and Welch, 2009) although in this research their experiences are of fear of crime not of involving in serious criminal incidences. However, many of them answered that they need to use the underground nevertheless due to their lack of resource for coping potential.

Previous research on fear of crime, to be precise, concerns or worries about crime, has highlighted vulnerable groups of people's constrained behaviour as consequence of fear of crime and their impaired quality of lives resulted from the avoidance and constrained behaviour such as avoiding use of public transportation (e.g. Jackson and Stafford, 2009; Whitley and Prince, 2005). However, the results of the user study indicate that to the users who are in general, socially vulnerable and cannot even choose avoidance

behaviour regardless of their anxiety and fear, female fear of crime is a substantial problem. It also supports the need to approach the phenomenon, focusing on service attributes which affects females' fear of crime, separating from concern and anxiety of crime in the underground. In this connection, influential factors of the underground service on female users' fear of crime are analysed and discussed in the subsequent chapter in order to answer R.Q 2 *'How does the service affect female users' fear of crime when using the underground'*.

CHAPTER 6

User Study 2:

The Influence of the Underground Service Design on Fear of Crime

CHAPTER 6 USER STUDY 2

In User Study 1, the themes of female users' fear appraisal in the underground and the role of their gender in fear appraisal in conjunction with their individual and social diversity are identified. As the results indicate, the service affects female users by forming fear evoking stimuli and by intervening in female users' self-evaluation and the fear evoking stimuli. In User Study 2, the mechanism of the underground service in female users' fear of crime, which is formed by other users, employees, technical and physical environments and organization and control, is examined from the subjects' point of view. In this chapter, first, the analytic procedure to answer R.Q 2 'how does the service design affect female users' fear of crime when using the underground?' is depicted and subsequently, the result of the user study is examined and discussed.

6.1 Overview of Data Analysis for User Study2

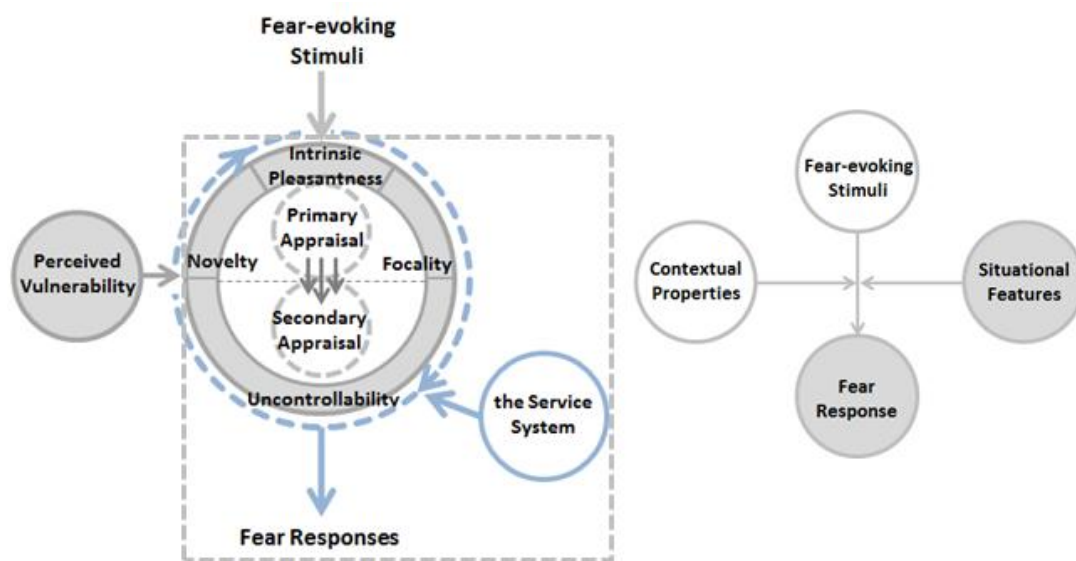


Figure 6. 1 the scope of the analysis

In order to answer the research question, how the service affects female users' fear of crime is first defined and on the axis of the underground service, the design attributions which influence female users' fear of crime are identified. Based on the conceptual framework, which provisionally hypothesises that the underground service system will affect female users' themes of fear appraisal and their immediate response, as situational features, first, female users' fear response and the relevant situational features, which are categorised by open and axial coding in the prior study, are analysed (the scope is diagrammed in figure 6.1). Consequently, the influence of the

underground service in female users' fear of crime is identified and a conceptual model of female users' fear of crime in the underground as a cohesive whole is developed together with the result of user study 1. Based on the findings, by selective coding, the underground service as the centre is scrutinised in terms of its features and the features' arrangements which affect female users' fear of crime and as the result, the service design attributes in females' fear of crime are identified. The detailed procedure is sequentially presented below.

First, female users' behavioural responses, which are categorised by open coding, are further analysed in terms of its relationships with the themes of fear appraisal and the service conditions by axial coding on the principle of the semantic relationships of cause-effect and rationale as exemplified in figure 6.2. Accordingly, the influence of the service on female users' fear and the main factors in the mechanism are identified by analysing the intervening conditions of the service and in turn, the hypothesised relationship between the underground service and fear of crime is verified against data. Based on that and the result of the prior study, a conceptual model of female users' fear of crime in the underground, which identifies the mechanism of the underground service,

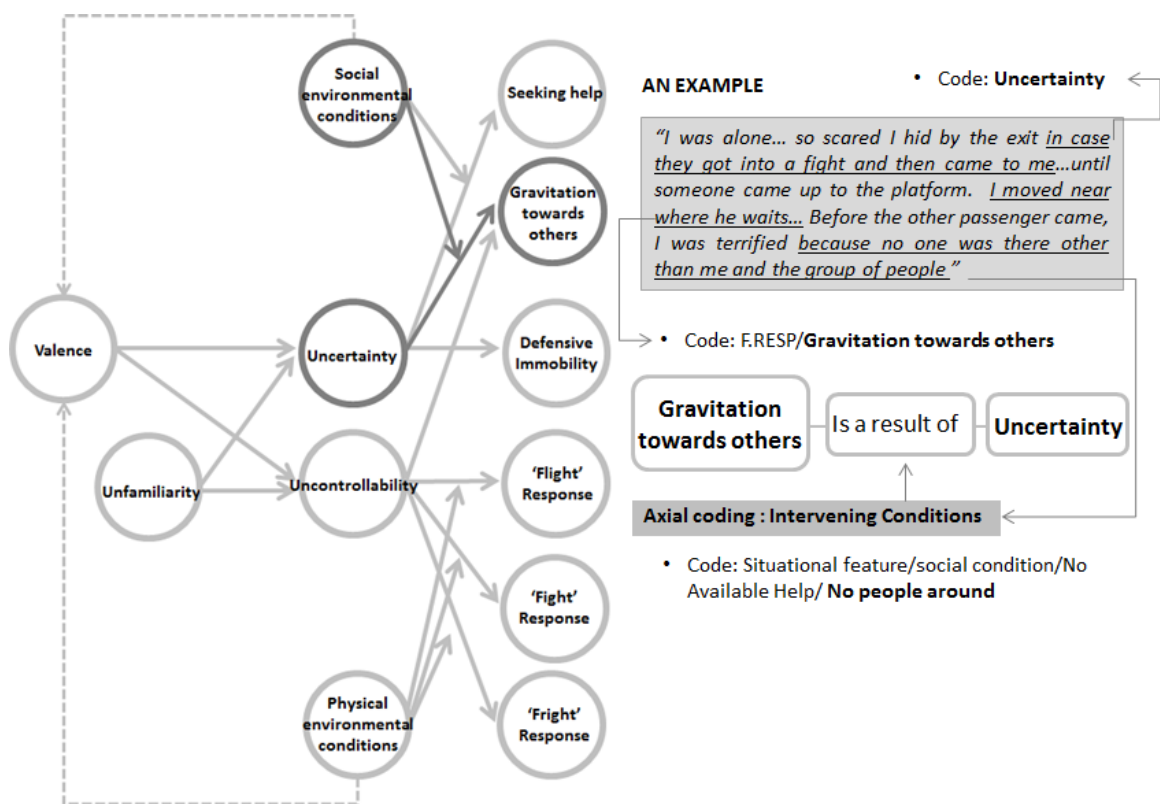


Figure 6. 2 an example of the analysis of the relationship between a theme of fear and behavioural responses

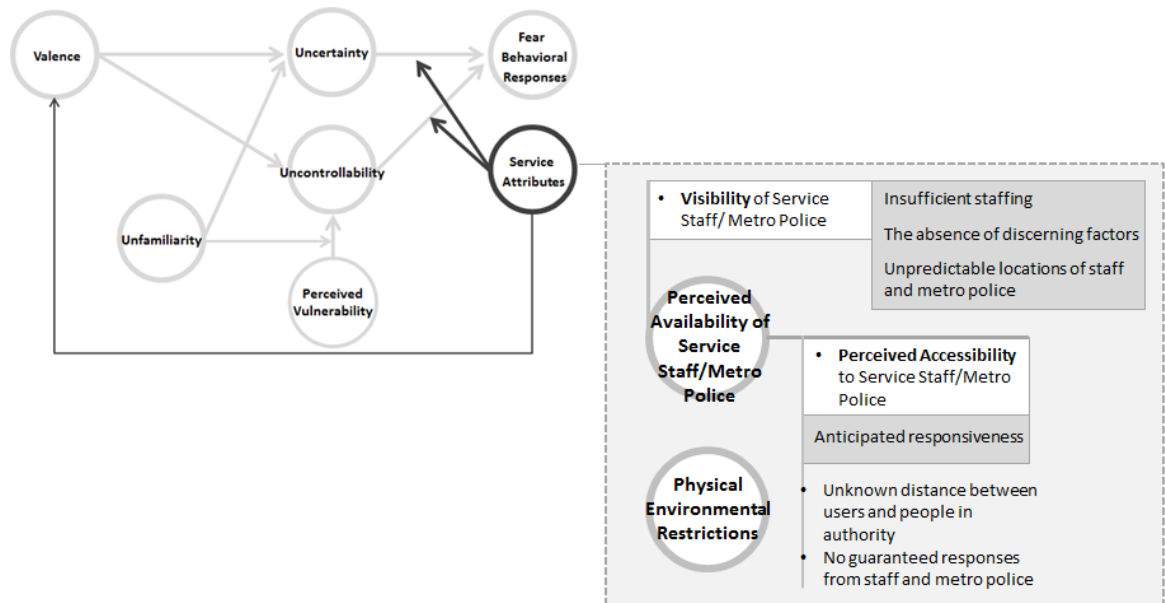


Figure 6. 3 selective coding to identify the service design attributes affecting female users' fear of crime is developed.

Secondly, on the axis of the underground service, selective coding is conducted to specifically identify the design attributes and the properties in connection to female users' fear of crime as shown in figure 6.3. In order to do that, the main influential factors of the underground service design on fear of crime and their attributes are identified and categorised.

In this manner, the influential design attributes on female users' fear of crime are identified. In order to facilitate that, a theoretically based framework based on appraisal theories and the vulnerability model is pre-conceptualised and the frame is tested as the initial provisional hypostasis against the data of the user studies. Subsequently, the user studies are analysed, using additional axial and selective coding. Consequently, the influence of the underground service in female users' fear of crime is identified, developing the conceptual framework to the underground specific conceptual model of females' fear of crime and in turn, the design attributes in the mechanism are identified. In the subsequent sections, the results are examined and discussed in this analytic order.

6.2 Fear Responses on the Service Interface

In the underground, in response to a sense of uncontrollability over situations and situational uncertainty, the interviewees are shown to react with 1) defensive immobility, 2) gravitation towards others, 3) 'flight' response, 4) 'fight' response and 5) 'fright' or tonic immobility. These resultant behaviours appear to be generated sequentially according to the conditions of the service environments in which fear is engendered. It is shown that the physical environmental and social conditions of the surroundings, such as the number of other passengers around, do not only facilitate or aggravate fear of crime, as it appears in the results of the fear evoking stimuli of the previous study, but they are also shown to enable the immediate defence behaviours to be generated.

In accordance with the literature on behavioural aspects of fear (e.g. Cannon, 1927, Lang et al., 2000), the responses of fear in the underground appear to be comprised of protective or withdrawal responses to the events, including defensive immobility and defensive action, according to the situational features. In the user interviews, defensive immobility appears in the form of being wary, freezing and hyper attentiveness and defensive actions typifying the 'fight or flight' response appears taking the form of removal from the situation, confrontation and avoiding attention. The resultant behavioural responses are shown to be affected by situational features in accordance with the conceptual framework in chapter 3 and have a coherent sequence according to the proximity to danger, which are sequentially, defensive immobility, flight, fight, and tonic immobility.

Firstly, defensive immobility is shown to be displayed as the initial response to fear evoking stimuli when the potential danger is at some distance. This response appeared when interviewees sensed potential danger but were not certain whether it would affect them or not and the behavioural response is shown to take the forms of being on guard, watchful or alert. For instance, one interviewee described her behaviour in the presence of *'messed up people being aggressive in carriages'* as *'keep quiet'* since *'it makes me wary'*. Another interviewee also described her experience of this behavioural response as:

"... so scared I hid by the exit in case they got into a fight and then came to me... until someone came up to the platform."

As a sequence to the initial freeze response, 'flight' response is shown to be displayed. It appears as the most common response to fear evoking stimuli in the underground in accordance with literature (e.g. Epstein, 1972; Frijda, 1987), indicating that fear motivates avoidance and escape and hence, in the case of no internal or external restraints, fear supports the action of flight as a consequence of the executive functions of the amygdala and the hypothalamus in the brain (e.g. Bracha, 2004; Gray, 1971; Misslin, 2003).

"I would remove myself if I possibly could away from it as quickly as possible."

"I try to get as far away as possible from the number of people."

"I just avoid it and flee from the situation... like running."

In association with removal from fearful situations on the underground, getting out of a carriage and transferring to another carriage frequently appeared in the respondents' narratives. In users' narratives and accounts, fear of crime in the underground is shown to be naturally linked to being in the train and transferring to another carriage is their response towards potential threats.

"... and probably try to change carriages at the next stop."

"...so when the carriage doors opened, I ran through the long passage like crazy... worried that he was not blind and would follow me."

"I'd certainly move away from them I wouldn't confront them I wouldn't make eye contact with them I would take the next opportunity to leave the carriage and move to another one."

When the response of 'flight' is impossible due to spatial restriction such as being in a moving carriage, the reaction of 'fight' appears to be displayed. It is accordance with Blanchard et al.' experiments on wild rats (1986), which showed that when the experimenter came within the rats' flight distance therefore making escape from the threat impractical, the subjects displayed the 'fight' response, jumping against the experimenter and biting (Blanchard and Blanchard, 1989). In the user interviews, this type of response appears when the 'flight' response is not possible and the stimuli are directly towards subjects.

“I used the underground and a man opposite exposed himself to me...” (fear evoking stimulus)

“No, I’m afraid I told him not to be so stupid.” (‘fight response’)

“Well...obviously, if there’s more than one person then I would try...I would get from the train or move somewhere to a safer point.” (no possibility of ‘flight’)

In immediate proximity of potential danger, as another form of immediate defence behaviour, female users are shown to display immobilizing behaviours or ‘fright’ responses in order to avoid the attention of the threatening people, such as avoiding eye contact, minimizing movements, or staying silent. These types of behaviour are shown to be more common than the ‘fight response’ in the underground. In the underground, this behaviour pattern is shown when a threatening factor is in such close proximity that there is neither a possibility of escape (flight) nor a chance to win from confrontation (fight) as in the females’ narratives below.

“...the men came round us surrounding us jeering and making very crude gestures and we were both very scared... We just talked to each other and ignored them but they were very much in our space...”

“Another person who sat next to me moved to the other side... but I could not. It could have attracted their attention. So in order not to get their attention, I did not move and looked down... looking at my hands to avoid eye contact with them...I thought that if they paid attention to me, I would be dead. I was alone...”

In addition to the sequence of immediate defence behaviours which are defensive immobility, ‘flight or fight’ response and ‘fright’ response, another common fear response in the underground is gravitation towards other passengers. In accordance with the results, literature on fear of crime indicates that separating from people and being alone evokes fear since to female users, the absence of another person indicates the absence of a capable companion who could help in the event of attack with potential offenders. A person alone, therefore, perceives his or herself as a more attractive and suitable target than one who is accompanied (e.g. Painter, 1996; Warr, 1985, 1990). As in the result of fear evoking stimuli and the themes of fear appraisal in the previous chapter, being alone is shown to affect female users’ fear appraisal due to the absence of

positive valence. In this light, the respondents' behaviour of gravitating towards others can be accounted for by offsetting the negatives by supplementing positive valence.

“Just that feeling of there is nobody there to take care of me. I think I’m always better with people...But you know, I’m just careful of where I sit if I sit in a train. You know if I’m standing on a platform, I always gravitate to people I perceive being perhaps more safe, like a family, rather than groups of single men, or groups of single women”

“If there are many people in the tube I’m ok with that. I can be far away from him ... I would transfer to another carriage where more people are.”

In this context, seeking help, which appears a potential behavioural response towards fear evoking stimuli, is also comprehensible. However, although many interviewees said that if need be, they would seek help, no one among the thirty one interviewees had actually had experience of seeking help from others such as other passengers or staff in order to ease their fear. They appear to tend to avoid seeking help before perceived danger becomes certain due to uncertainty of help and danger as users accounted for below.

“... I think that if I ask for help... it could also provoke some people so.. I tend to avoid it if I’m not in imminent danger... I have never called staff or a police officer. Or asked help from other passengers... I’m not sure if they would help me or not... In most cases, I avoid eye contact to avoid any trouble and not to get their attention. If it is possible to move to another carriage, move or get off then wait for the next train.”

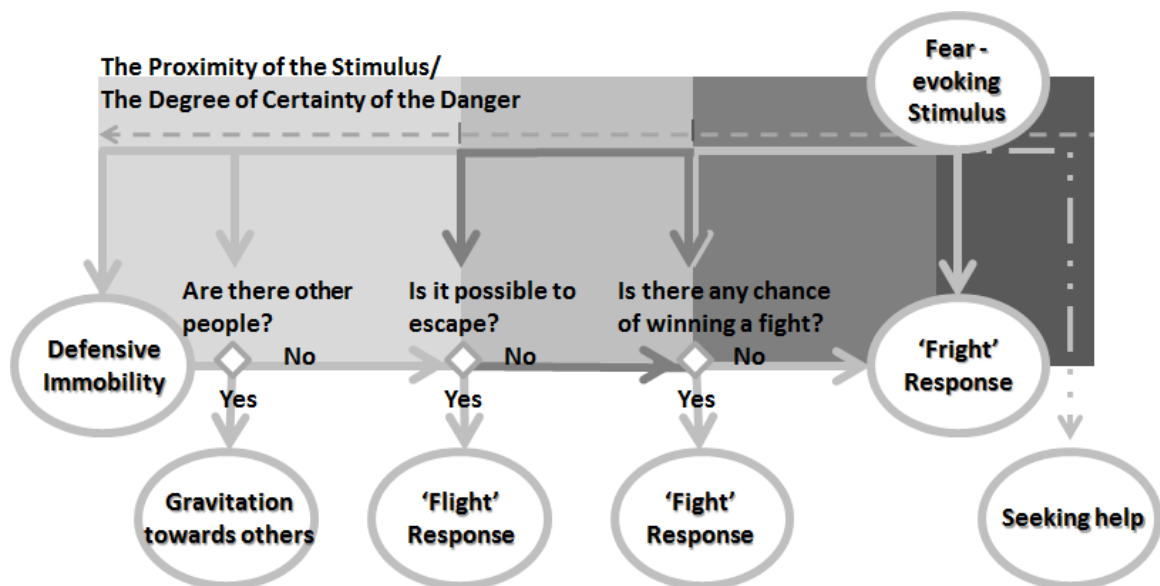


Figure 6.4 fear behavioural responses in the underground

To sum up, female behavioural responses towards perceived immediate danger in the underground are categorized into 1) defensive immobility, 2) 'flight' response, 3) 'fight' response, 4) 'fright response', 5) gravitation towards others and 6) seeking help, as potential behaviour, which is undesirable unless the threat becomes certain. The sequence of these responses is conceptualised in figure 6.4.

6.2.1 Discussion: Female Users' Behavioural Responses and Service Attributes

The interviewees are shown to generate these resultant behaviours as the chain of emotional events, constantly receiving feedback from the service environments in respect of the possibility of escaping from or weakening the perceived potential harm as the chain of emotional events until the emotional arousal is tranquilized. In this section, the female users' fear responses, identified in the previous section, are defined in connection with previous theories on fear responses and based on that, the influence of the underground service on these responses and themes of fear appraisal is deduced and discussed.

Defensive Immobility: Refers to initial freezing response, involving hyper-vigilance or the action tendency of 'stop, look and listen' which is associated with fear (e.g. Bracha, 2004; Gray, 1971; Misslin, 2003). It is also called 'fear bradycardia' or 'freezing'. Defensive immobility is directly proportional to intensity of the stimulus and it is to lessen the chance of being detected by a potential predator (Archer, 1979; Bracha, 2004; Compbell, Wood and McBride, 1997). This response is shown to be motivated by uncertainty before attempting active responses such as fleeing. It appears when the subject senses the negative of the stimuli but they are not certain if it would affect them or not. Female users are also shown to display this response not to be detected by potential danger. In this state, female users are shown to be primed to respond to further stimulation.

Gravitation towards Others: It is female users' behavioural tendency in response to fear evoking stimuli, which is contingent on other users around and service staff. Being alone, separating from other users is shown to be fear evoking stimuli in the underground even when there is no threatening factor as appears in User Study 1. It can be accounted for by the absence of positive valence in the situation as female users

appears to perceive the situation as the absence of a capable companion who could help in the event of attack and therefore, they could be an easy target and vulnerable in such situations. It is in accordance with previous research (e.g. Painter, 1996; Warr, 1985; 1990), one of which interprets the tendency to trust in people's good nature as seen in the Good Samaritan ethic (Warr, 1990). In the user interviews, certain users exhibited their critical point of view based on 'bystander apathy' which refers to the phenomenon of witnesses of emergencies or criminal affairs doing nothing to save the victim (Latane and Darley, 1969) as the users account below exemplifies.

"Nowadays people don't want to get involved and even if I ask for help to get an attention, it can be easily ignored to protect oneself from any cause of trouble. Such a horrible place we are currently living in..."

However, the majority of interviewees including the user above appear to emotionally rely on other users when they are alone in the underground and to tend to be with other users.

'Flight': Refers to active defensive behaviour involving avoidance and escape from fear evoking stimuli (e.g. Archer, 1979). This action tendency typifies the protective and withdrawal aspect of fear since fear itself is described as behavioural or action readiness changes to avoid fearful objects or situations (e.g. Frijda, 1986; the Oxford Medical Dictionary, 2010). It dominantly appears in the users' experiences in the underground. Getting out of the train in which fear-evoking stimuli is situated appears in association with the 'Flight' response. This response is shown to be conditioned by the spatial connectivity of the underground. When escape routes are unsecured and escape from fear evoking stimuli is unpractical, it appears to aggravate fear arousal with uncontrollability over the situation.

'Fight': This action tendency refers to a defensive behavioural response directed towards fear evoking stimuli. In the user interview, females' confrontation with male users who evoke fear was observed in a very few cases. It appears to be displayed when there is spatial restriction such as being in a moving carriage and therefore, the response of 'flight' is impossible.

'Fright': It refers to immobilizing behaviours of female users involving avoiding eye contact, minimizing movements or staying silent when fear evoking stimuli is directed

towards them but when flight and fight response is not realizable. It is also called tonic immobility and this immobilizing behaviour is different from defensive immobility since ‘fright’ is displayed when subjects have been caught by the predator, while freezing occurs to avoid detection (Archer, 1979). It is accompanied by ‘a state of profound but reversible physical immobility’ during direct physical contact with predators and when there is no perceived possibility of escaping or winning a fight (Bracha, 2004; Marx et al., 2008; Misslin, 2003).

Seeking Help: It appears to be a potential behavioural response towards fear evoking stimuli in the user interviews as many interviewees exhibited reluctance to ask for help due to uncertainty of fear evoking people’s responses and other passengers in relation to the ‘bystander apathy’ and due to the absence of staff in the situations.

These sequential responses are shown to be exhibited due to subjects’ sense of uncertainty and uncontrollability over the fear evoking stimuli and the given situational features of the social and physical service conditions appear to affect and shape these behavioural responses. Situational uncertainty affects female users to respond with defensive immobility and gravitation towards others while it is also shown to affect them to be reluctant seeking help. The responses of gravitation towards others and

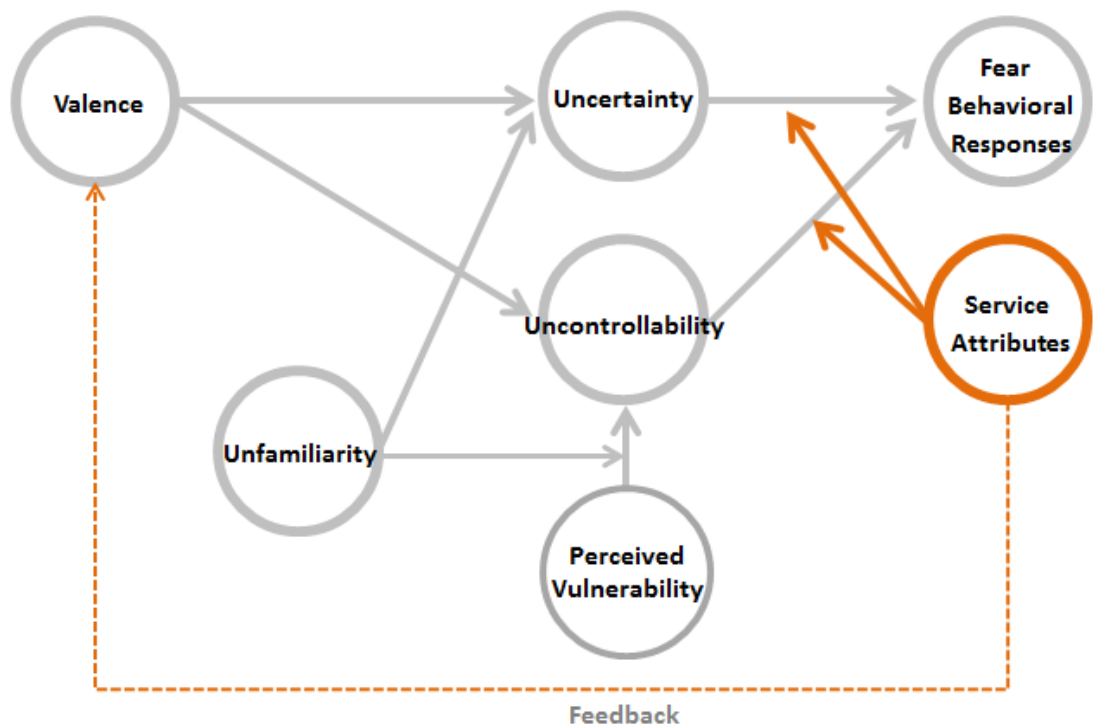


Figure 6. 5 the influence of service attributes of the underground

seeking help are subject to social environmental features such as the presence of other passengers around and staff, which are shown to be positive valence of situations. On the other hand, uncontrollability over fear evoking stimuli is shown to directly affect the 'flight and fight' and 'fright' responses as well as gravitation towards others. Physical environmental features are shown to directly affect the responses of flight and fight by enabling the users to escape from the fear-evoking stimuli or by rendering the users impossible to escape. These physical environmental features are shown to affect or add to the negatives of the situations by making escape from the situation difficult or impossible to stabilize fear of crime. These mechanisms of the service in fear of crime are conceptualised in figure 6.5.

As presented in figure 6.5, the service attributes of the social and physical environments are shown to mediate the users' fear behavioural responses. Moreover, they appear to affect the themes of female users' fear appraisal by giving feedback in respect of the valence and hence, the valence of fear evoking stimuli and situations is evaluated or reevaluated in terms of its certainty and controllability, together with the service attributes in the situations. In the subsequent section, therefore, the influential factors and their attributes of the underground service design on female users' fear of crime are examined in detail.

6.3 Influential factors of the Underground Service on Fear of Crime

The underground appears to interact with the fear evoking stimuli and the fear responses through the social and physical aspects of the service. As it appears in User Study 1, the underground service creates and facilitates fear evoking stimuli and users' unfamiliarity with the service environments also appears to affect fear of crime by impinging on user's sense of uncontrollability and uncertainty. Above and beyond, the service appears to affect female users by configuring social and physical conditions, which are by and large, 1) the existence of other people who could intervene in the situations and 2) physical environmental features which enable them to escape from the fear evoking stimuli. In this section, in connection with the social and physical conditions, the influential factors and their attributes on female users' fear of crime are specifically analysed and identified.

First, social conditions of the service appear to play reassuring roles to users in fearful situations and to mediate fear responses. In association with the social aspects of the service, other passengers, staff and metro police are shown to influence female users' fear of crime and the interaction with other users and staff or metro police appears to be affected by time and geographical variables as in the interviewees' accounts below.

"Once I was on a quiet platform waiting for a train on my own at night... there wasn't anyone... it was around 9o'clock. The people were raising their voices and I guessed they were drunk... so I thought that if something happens, I couldn't get any help from others... so scared." (a user living in outer London, West Drayton)

"When a friend and I caught the very late underground coming back from a show in London. We caught the train at about 11:35 something like that. And we rushed to get in the nearest compartment and found a place to sit down. It was very noisy and after about 5 minutes, we realised we were in the compartment of a stag party and all the chaps were completely drunk. And after about five minutes, we realized that we were two women on our own..." (a user living in outer London)

"...Even at 11:00pm still many people are in the tube... I am always with somebody else even if I do not know them when I am in a carriage. I'll choose a carriage where some people in there. I don't put myself in very lonely situation and not leave myself alone."

... If they want to do something, I am not only one there so... ” (a user living in Central London)

Staff appears to have a significant influence on female users’ feelings of safety as most interviewees stated the underground staff reassures their feelings as interviewees stated:

“The guard is kind of nice and reassuring...”

“And in London, sometimes I can see staff wearing TFL clothes. When I see them for example drivers going home, I feel safer. They are staff working here to take care of things like police men.”

The result is accordant with other relevant research on fear and public transportation (e.g. Crime Concern, 2004; Yavuz and Welch, 2010), which reports on the significant influence of the presence of staff on users’ feelings of safety. ‘Bystander apathy’, which interviewees perceive, is in part, shown to affect the interviewees’ emotional dependency on staff in situations.

“People do not care when it is not their business. And at that moment there was not any metro police or staff. I could not hold him until they finally got there. And I do not like making a fuss over sexual things.”

In a similar manner, metro police also appear to affect users’ feelings of safety being reassuring and a deterrent of potential criminal activities as an interviewee specifically stated that:

“...I mean I would guess their presence makes it being safer... two armed police men on Waterloo station in the middle of the day are not doing much but... I think the police presence even in this day and age is a deterrent. Not as much as it used to be. It makes somebody else think twice.”

Certain users, however, were not aware of their presence in the underground; moreover, some interviewees replied that their presence makes them more fearful since it can be a sign of being in dangerous situations.

“I have to say underground police make me feel more frightened. It shouldn’t be. It is just the fact that makes me think there’s something going on.”

In this manner, female users are in general, shown to emotionally rely on staff and metro police in the presence of the fear evoking stimuli in the underground. However, equally significant as their presence is, the absence of people in authority appears to affect female users' uncertainty and uncontrollability in the presence of fear evoking stimuli as exemplified in the user's account below.

"...Before the other passengers came, I was terrified because no one was there other than me and the group of people ... usually there are guards or staff but there wasn't any... it was around 9 o'clock..."

Even though the presence of service staff or metro police who the subjects perceive as being available is shown to affect female users' feelings of safety and fear of crime as reassuring factors for them, interviewees appear to think there are not sufficient numbers of visible staff and police officers in the underground. Moreover, their lack of visibility due to insufficient staffing, the absence of discerning factors such as uniform or their unpredictable locations which the interviewees appear to think in the underground is shown to negatively affect the subjects' perceived availability of the people in situations.

"...On the platform in that station, I could not find any staff and even when I did top up my oyster card there was no staff there so I used a machine."

"...well again I think to a certain extent, but again a station is such a big place, isn't it? I don't know what the answer is I don't think the guards would make me safer as long as they're obvious they are guards I think they need to have walkie-talkie things to react very quickly and they need the element of surprise to let people see what the behaviour is and it might make it easier to be able to tackle."

"...I can be very cynical about the police force for somebody married to one, you never know where they are or where they're going or what they're doing."

The significance of the availability of visible people in authority is also underpinned by statistics and other research (e.g. Crime Concern, 2004; Yavuz and Welch, 2010), which suggest that the absence of staff affects people's feeling of safety, in particular, female passengers when waiting for a vehicle especially when there are few or no people travelling.

By extension, technical environment which connects user to staff and metro police, involving CCTV and help points, in general, is shown to positively contribute to female users' feeling of safety, to some extent. Compared to present service staff and metro police officers, however, it is shown that female users are sceptical about CCTV due to the unknown distance between them and people in authority such as staff and metro police, who are watching the cameras and CCTV. In this respect, they appear to tend to consider that it would be hard to get help in time and would not be helpful when being in actual immediate danger as in the interviewees' accounts below.

"It's useful if it is evidence but if you are in danger... Whoever monitoring it is too far away to be of any useful help."

"CCTV shows what happened and how the incident happened but cannot protect people at the time. It is better if there are CCTVs than nothing being there."

In this context, CCTVs are shown to tend to be symbolized as 'proof' of crime, after the incident, to many interviewees and not to be effective regarding their uncertainty and uncontrollability in the underground.

"Well again, I've found it useful being there because you have proof of who's done whatever but as a night security thing when you are there on your own it wouldn't make any difference to me because I feel that they can do crime. Hoodies can be such good hidere.. I don't think honestly think that would a lot of difference."

"I find very little comfort in CCTV but it could be helpful in proving crime. I think that's what it is for isn't it"

"CCTV I think that might be helpful afterwards... after the crime. I don't see it's necessarily going to prevent crime happening."

"No. No. I think CCTV is for police to check what happened after something happened."

In the case of help points on the platforms, certain female users are shown to be more positive about them since to them it indicates a direct access to help, contrary to being situated under CCTV in fearful contexts. In the light of the voluntary connection to potential help through help points, one interviewee stated that *"So, that's something that you could actually press the button and speak to a live person? Definitely. Yes, that would be reassuring."* As in the interviewee's account, however, the low recognition of

the existence of help points appears in the user interviews. Regardless of the frequency of their use of the underground, many female users were not aware of the existence of help points. Moreover, many interviewees are shown to be sceptical about the help points in respect of no guaranteed response from the other side and hence, to tend to think they are not reliable in immediate danger.

“They are fine but you’re not gonna get an immediate response.”

“I also think of the help points. I’m always very aware that often they don’t work so it’s not knowing if they work or not”.

“No (laugh) cause no idea who the person is that’s answering you. No, if not sure where they are and there’s no one on the station it’s such a stupid method.”

“I use it sometimes to ask when the train comes. But sometimes you have to wait for long time till someone answers.”

“I did not know there are such things... well.. if it is not broken, it would be helpful. But it is like CCTV. If there is a guarantee someone will come to help me and it is well managed... but even in a lift, when it stops working, you know, they do not always work even when I accidentally push the button. So I cannot trust it. I was not aware that there was that kind of thing. I also hardly recognize whether there are CCTVs.”

In this light, the technical equipment such as CCTV and help points appears to be means to access staff or metro police who are available to provide help in the case of the subjects being involved in dangerous situations. It is shown to be effective to users’ feelings of safety to some extent. However, users’ anticipated responsiveness from the back office which are influenced by the unknown distance between the subjects and available help and no guaranteed immediate responses from the service provider are shown to negatively affect their perceived availability of potential help from staff and metro police as a potential intervention and deterrent for violent crimes and hence, impinge upon uncertainty and uncontrollability over potential danger.

The presence of potential available help, therefore, is shown to operate as a reassuring factor in the underground which mitigates the users’ fear by affecting their uncertainty and uncontrollability over fear evoking stimuli. In fact, in the interviewees’ experiences of fear of crime in the underground, there were no cases of seeking actual help from

others due to the absence of the available help and their reluctance in seeking help from others when the threatening factors were not certain. However, a sense of the certainty that there is potential available help, which is visible and accessible, appears to be significant to fear appraisal in the underground. It is also shown to be closely related to users' sense of controllability over situations. In the user interviews, female users appear to passively react to fear evoking stimuli, avoiding provoking them; however, they appear to want to control the situations by themselves for instance, either by avoiding or escaping from the stimuli and mingling with other passengers and if need be, by asking for help.

“But if I got involved in crime, I don’t think it would be helpful because I want to do something to resolve the situation not rely on someone watching me. I want to do something by myself. Like run away or report it.”

“I mean I would be most secure you know if there are actual people like guards or police, somebody like that somebody I could go to in person rather than standing pushing the button in a help point, possibly not working or have somebody on the other end. You don’t know how far or near they are I think. So you know it’s always the presence of people in authority that makes me feel safer.”

Along those lines, in connection with perceived availability of potential help, visibility and perceived accessibility to service staff and metro police appear to affect female users' themes of fear appraisal and their behavioural responses. Since they operate in relation to potential help in situations, when these service attributes are deficient, it

Perceived Availability of Staff/ Metro Police	Visibility	Insufficient staffing		
		The absence of discerning factors		
		Unpredictable locations of staff and metro police		
	Perceived Accessibility	Recognition of existence of technical devices		
		Anticipated responsiveness	Unknown distance between users and people in authority	
			No guaranteed responses from staff and metro police	

Table 6. 1 influential attributes of the service social and technical conditions

appears to negatively affect users' fear of crime. In this context, insufficient staffing, the absence of discerning factors and unpredictable locations of staff and metro police are shown to negatively influence visibility of people in authority. Perceived accessibility, in addition, appears to be influenced by users' low recognition of existence of technical devices and their anticipated responsiveness from the service providers in terms of the distance between users and people in authority and a sense of certainty regarding response from staff and metro police. These attributes of the perceived availability of staff and metro police are categorised in table 6.1.

In addition to perceived availability of staff and metro police, physical environmental restrictions are also shown to be an influential factor on female users' fear appraisal and their resultant behaviours. As it appears in the fear responses, physical environment features allow access to escape from the fear evoking stimuli, playing a pivotal role in generating the immediate defence behaviour and in stabilizing the subjects' emotional arousal. The spatial configurations, which block the response of 'flight' and affect users' sense of being confined, appear to aggravate the subjects' fear arousal. The interviewees' intense fear of crime in a carriage typifies the influence of the physical environmental restrictions by the spatial configurations and inaccessibility. In this regard, the interviewees are shown to differentiate the underground from other modes of transportation.

“And on the underground, if something happens there is no way to escape. Bus is different because it is on the ground. ... Because if I am on the bus, I can escape if anything happens. And you know, sometimes undergrounds stop between two stops I hate that...”

“When the train came to a halt in the Piccadilly station, we were surrounded by police and the frightening thing was actually not being able to get off. They closed the door and wouldn't let us off.” ...

“At that time I was referring to... that I've just mentioned, I was 7 months pregnant it's not my...wasn't so much a crime police running after criminals through the carriage it was more they wouldn't let us off the train... when I was out of control I suppose.”

As the interviewees described above, once they get in a train, they have limited control over situations; moreover, their movements are constrained in a carriage till the next

stop. In this manner, the temporally blocked or withheld escape by limited spatial accessibility in which users feel being confined is shown to significantly affect female users' sense of uncontrollability and hence to aggravate their fear of crime.

“we were both so frightened... and there is a stretch on the Piccadilly line when they are no stops for ages. And it really seems ages and...”

“ ...until getting to the next stop, I was scared to death. I did not know that the interval between stations is that long. It felt like taking forever.”

Therefore, these physical boundaries in a carriage which do not afford an opportunity for escape from potential threat appear to have substantial impact on fear. Furthermore, due to the openness contrarily to potential threats with the inability to escape, these physical boundaries in a carriage also appear to affect female users' uncertainty and uncontrollability. In this manner, the spatial configurations affecting a sense of being confined, the open spatial accessibility for potential danger and temporal inaccessibility for users, which a carriage and a platform in certain conditions have, in this manner, appears to affect subjects' fear of crime.

“And even when I am all alone, the carriage's doors continue to open and close... so until someone who looks safe gets in the carriage, I would be uneasy. Travelling alone is ok but some dangerous man could get on at any minute. That is scary and I would not feel easy. If I am alone and someone who looks like a bum snooping gets into the carriage I would be scared.”

These physical and spatial restrictions, furthermore, are shown to be affected by time and geographical variables in conjunction with the social conditions of the service. It can be apprehensible by its interrelation with the fluctuation with social conditions of service, more specifically, the number of other passengers, depending on travelling time and service areas. In the user interview, the physical environmental restrictions are shown to greatly affect female users when there is no potential help. It appears to be influenced mainly in remote or outside facilities such as when the subjects are waiting on an outside platform on their own in accordance with statistics (Cozens et al, 2004), which highlights that 93 percent of female users reported being fearful when waiting on a platform at night in the UK. In connection with travelling time and geographical

variables, in addition, spatial visibility of the outside platform also appears as fear evoking stimuli and affects uncertainty regarding potential danger.

“...because everything is exaggerated at night anyway. You can't see as clearly as you can see in the day. And also the lighting in the underground station is very poor. It's not light... it's quite dim. And so you are not sure if you are seeing things clearly because you have feelings of fear, you can imagine things too. I think also the tunnels are also fearful areas on the underground”

“Lighting affects me a lot. The happening I talked about... It was an outside platform. Inside platforms are much better lit... but outside is so dark that it is hard to see where people are.”

“I use the underground only within Central London so... lighting is not a problem. But I have a friend who lives far away from central London. I visit her quite often. I think the station is quite remote... and it is dim at night. When there are no people at night, it is quite scary.”

As it appears in the users' accounts above, Blind spots of the outside platform by dim lighting appears to be operate as a fear evoking stimulus or to aggravate the interviewees' fear.

In this manner, the physical environmental restrictions in the underground appear to influence the users' sense of uncertainty and uncontrollability in conjunction with social conditions of the service which comprise other passengers, staff and metro police. The absence of technical devices such as CCTV or help point on the train and technical restrictions which make personal devices such as a mobile phone unable to use are shown to affect feeling of disconnection from available potential help. The feeling of being disconnected from potential help or reassuring factors in the underground can be exemplified by certain interviewees' accounts regarding using a mobile phone, which is an unrealistic fear response due to the environmental restriction of the underground.

“Because the London underground does not have a signal I mean the signal of mobile phone. I don't like it. If you meet something fearful, you cannot connect to the outside world so this makes me uncomfortable. I do not like it I want .. if I meet something I fear of, I want to directly contact to my friend or somebody..”

Physical Environmental Restrictions	Spatial Accessibility	Blocked Escape
		The Openness to Potential Threat
	Technical Accessibility	
	Spatial Visibility	

Table 6. 2 attributes of physical environmental restrictions

“If they could do something which would allow you to have telephone reception that would be kind of helpful because it is one of the things most frightening, being so alienating. You do feel if something happens you have no way to contact to your family to say... you know... “ you may have seen there’s a bomb down there, I’m fine I’m just down here. I’m just waiting to be allowed to come up” The fact you can’t do it makes it more frightening. I think they are introducing wi-fi now on the tube. If they can find some way of facilitating telephone calls it will be really quite comforting because you feel even on the underground you’re still part of what’s going on above.”

The interviewees above displayed a tendency to seek a sense of emotional stability by connecting to their friends or families during fear arousal, which is unavailable in most cases, in the underground. The disconnection appears to link to the feeling of being isolated from the potential help and outer world as in the users’ narratives above. Technical inaccessibility, therefore, is also shown to affect users’ uncontrollability in the underground associated with the social and physical environmental restrictions.

Therefore, spatial configurations and visibility and spatial and technical accessibility forming physical environmental restrictions of the underground (categorised in table 6.2) appear to affect female users’ themes of fear appraisal in the underground and feeling of disconnection from potential help together with the social conditions of the service.

In conclusion, the perceived availability of staff and metro police as potential help and the physical environmental restrictions of the underground appear to be influential factors of the underground service on female users’ fear of crime. In the fear context, the social and physical environmental features of the service interface are shown to interact according to time, geographical and spatial variables. The underground staff and metro police are shown to be effective in stabilising female users’ fear; however, their lack of availability, which the subjects perceive in situations by their limited visibility and accessibility, is shown to negatively affect their feelings of disconnection

from potential help and the themes of fear appraisal. On the other hand, the attributes of physical environmental restrictions are shown to be related to spatial and technical accessibility and spatial visibility, interacting with the social conditions of the service interface.

6.4 Discussions: Service Design Attributes

In the preceding section, influential factors of the underground service and their attributes on female users' fear of crime are identified. In this section, based on results of User Studies 1 and 2, the factors and their attributes are discussed and defined, linking relevant research. Accordingly, a conceptual model of the influence of the underground service on females' fear of crime is developed.

6.4.1 The Influential Factor of the Service Social and Technical Condition

In User Study 2, female users' dependence on people in authority in the underground appears to be substantial, compared to those on other passengers around as potential help and reassuring factors. In association with the social and technical condition, perceived availability of service staff and metro police are identified as an influential factor on fear of crime with its attributes which are visibility and perceived accessibility to service staff and metro police which the subjects perceived when encountering fear evoking stimuli in the underground. These service attributes are defined below.

- **Perceived Availability of Staff/Metro Police:** This theme refers to users' perception of being able to obtain prompt help from the service personnel or metro police in the presence of fear evoking stimuli. Lexical definition denotes that 'available' is 'able to be used or obtained' (the Oxford Dictionary, 2011). In the user studies, availability of staff and metro police as potential help is shown to be influenced by their visibility and accessibility to them as female users.

Other research also underpins the relation of the themes of fear appraisal and potential help. Dubé and Menon (2000) suggest that situation-attributed negative emotions such as fear will lead to the consumer's expressions and behaviour seeking assistance and reassurance towards the service provider. The availability of help also can be accounted for in relation to vulnerability as Killias (1990) claims the seriousness of consequences depends on available help, which pertains to situational variables even though he

conceptualises it on subjects' perceptual levels. In the context of fear, Ellsworth and Scherer (2009) expound it in relation to one's power and controllability under circumstances since the stimuli are contingently appraised with others' help. In this light, the significance of availability of the service personnel and metro police which the subjects perceive to be usable in the case of the potential threat becoming evident, for users situated in the presence of fear evoking stimuli, can be accounted for.

- **Visibility of Service Staff/ Metro Police:** Refers to the state of being able to see people in authority in the underground service such as service staff and metro police when encountering fear evoking situations. The Oxford Dictionary (2011) defines visibility as a mass noun as 'the state of being able to see or be seen'. In the user study, female users' uncertainty and uncontrollability over fear evoking stimuli are shown to be affected by the presence of staff and metro police. It is in line with the results of other relevant research, which suggests that regardless of their gender, the presence of police affects passengers' feelings of safety (Crime Concern, 2004; Yavuz and Welch, 2009). In the underground, in connection with their visibility, insufficient staffing, the absence of discerning factors such as uniform and their unpredictable locations are shown to affect perceived availability of staff and metro police and hence, female users' fear of crime.
- **Perceived Accessibility to Service Staff:** Refers to approaching service staff for help when users need it but there is no visible service personnel. The lexical definition of 'accessible' signifies the state of being able to enter or reach certain places and friendly and easy to talk to a person in a position of authority (the Oxford Dictionary, 2011). In the context of service, Parasuraman et al. (1985, 1988) suggest that 'access' is one of determinants of service quality, which involves being able to approach and ease of contact to the service. In the underground, technical equipment such as CCTV and help points appears to be means to access potential help from the service providers.
- **Anticipated Responsiveness:** Indicates users' anticipation regarding service providers' responses and the distance between potential help from available staff or metro police and the subjects when trying to reach service providers through the

technical equipment. Responsiveness is also one of determinants of service quality of Parasuraman et al. (1985), which refers to concerns about the willingness or readiness of employees to provide service. In the underground, female users' anticipation regarding the technical devices in terms of the distance between people in authority and the subjects and the service provider's immediate responses are shown to mediate users' perceived accessibility.

6.4.2 The Influential Factor of the Physical Environment

In addition to the social factors, physical environmental restrictions of the underground also appear to affect female users' uncertainty and uncontrollability of situations. Blocked escape and the openness to potential threat which the physical environment creates are shown to affect subjects' uncontrollability by blocking 'flight' response and therefore, to aggravate fear arousal. Moreover, spatial visibility appears to affect users' uncertainty as well as 'the openness to potential threat' which is also shown to affect uncertainty. These attributes of the physical environmental restrictions are defined below.

- **Spatial Accessibility:** Refers to the state of being able to enter or move from one space to another. In this research, this theme involves 1) blocked escape for female users 2) the openness to potential threat for potential wrongdoers due to the physical environmental restrictions of the underground.

Blocked Escape: Refers to the state of being unable to escape from situations via unsecured escape routes caused by physical restrictions of the underground. The physical environmental restriction, which blocks the response of 'flight', appears to aggravate the subjects' fear arousal. It is in accordance with results of previous research on built environments (e.g. Brantingham and Brantingham, 1994; Fisher and Nasar, 1992, 1993; Goffman, 1971; Kirk, 1988), which indicates that a space which does not afford opportunity for escape from potential threat has substantial impacts on fear and when placed with a potential offender in a contained area such as a lift, individuals feel fear.

The Openness to Potential Threat: Indicates the features of the service which the public including potential wrongdoers is given access to, operating with the subjects'

temporal inability to escape due to the physical boundaries or restrictions in the underground. In the user studies, the openness to potential danger, which a carriage and a platform, in certain conditions, have, appears to influence subjects' themes of fear appraisal, in particular, uncertainty, even when there are no threatening factors.

- **Technical Accessibility:** Refers to the state of being able to connect to others and the outer world, using technical equipment or devices. Due to the physical environmental restrictions of the underground, in certain platforms and in moving carriages, using a mobile phone or technical equipment which connects users and service personnel appears to be limited and impractical. In association with uncertainty of potential help and a tendency to seek a sense of emotional stability by connecting to others, it appears to affect users' feelings of disconnection and fear of crime.
- **Spatial Visibility:** In this research, it involves 'blind spots' which indicate uncertain sections of darkness beyond and behind individuals' sight. In the context of fear of crime, Warr (1990) used the term 'blind spot' and Goffman (1971) described this kind of zone as 'lurk line', where there is high concealment for potential offenders and limited prospect for potential victims. Preceding research (e.g. Pinter, 1996) also underpins that darkness encourages a sense of insecurity since it decreases visibility and recognition at a distance. In the underground, the 'Blind spots' of the outside platform due to dim lighting appears to operate as a fear evoking stimulus or to aggravate the interviewees' fear at night by affecting users' sense of uncertainty.

6.4.3 The Influential Factor of the Service Process

Errors during the service delivery process also appear to affect female users' fear of crime in the underground. Service errors are shown to be fear evoking stimuli in the underground, which affects users' uncertainty in User Study 1 and also appear to affect uncertainty and uncontrollability over fear evoking stimuli present by affecting the subjects' fear responses in conjunction with the social and physical restrictions of the service. This error or inaccuracy which occurs during the service operation is defined below, linking service reliability.

- **Reliability of the service:** refers to the dependability of the service which involves the consistency of the service in transacting as scheduled and in providing appropriate information in this research.

The lexical definition of 'reliable' suggests 'consistently good in quality or performance; able to be trusted' (the Oxford Dictionary, 2011). In the service context, reliability involves dependability and consistency of performance such as providing the service on time (Parasuraman et al., 1985, 1990). In the research on passengers' feelings of security in public transportation, service reliability is defined as 'how often service is provided when promised' (Transit Cooperative Research Program, 2003), which involves three service attributes: the frequency and punctuality of services and sufficient information regarding the transit service (Reed et al., 2000; Yavuz and Welch, 2010). The previous research suggests that service reliability affects passengers' fear of crime based on longer waiting times for vehicles negatively affect in particular, male passengers' perception of safety (Reed et al., 2000; Yavuz and Welch, 2010). In a somewhat different manner, it appears to affect female users' fear of crime in the user studies since stopping vehicles during the operations, in particular when there is no proper information, is shown to significantly affect female users' feelings of safety and fear of crime by affecting their sense of uncertainty and uncontrollability. Moreover, when the subjects are situated in fear evoking situations in vehicles, delays between stops appear to aggravate the subjects' fear arousal. In the user studies, therefore, service reliability specifically indicates consistency of the service and supplementary additional information when errors occur during the process.

6.5 Conclusions

In this chapter, the influence of the underground service design on female users' fear of crime is examined and identified by extension of User Study 1. In section 6.1, the procedure of the analysis for the study is overviewed. In section 6.2, female users' behavioural responses towards fear evoking stimuli are analysed and defined; moreover, the influence of the service on the responses is identified, together with results of User Study1. In section 6.3, service design attributes which affect the user groups' themes of fear appraisal and mediate their behavioural responses are analysed. In section 6.4, the influential factors and their attributes are discussed and defined. As a result, 'perceived availability of service staff and metro police', 'physical environmental restrictions' and 'reliability of service' are identified as the influential factors of the underground service design on female users' fear of crime. The result suggests that in order to ameliorate females' fear of crime occurring during the service encounter, these influential factors and their attributes should be taken into account in designing and managing the underground service.

CHAPTER 7
DISCUSSION & CONCLUSION

CHAPTER 7 DISCUSSION AND CONCLUSION

In previous chapters, the results of the user interviews were examined and discussed in terms of female users' fear appraisal in the underground and influences of their gender and the underground service on the process. In this chapter, first, the main findings of the user studies are outlined; and based on these findings, a conceptual model of the influential factors of service design on female users' fear of crime is suggested. Additionally, the theoretical and practical implications are discussed and suggested. In conclusion, the research limitations are presented and, accordingly, further research is recommended.

7.1 Main Findings of the User Studies

According to statistics, in contrast to males, a greater number of females exhibit fear of crime in the London underground and other modes of public transportation. However, how the underground service affects the group's fears and the factors that should be taken into account in service design to ameliorate the emotional phenomenon have not been fully answered to date. In this respect, this research aims to identify the influential factors of service design of the underground on female users' fear of crime. In order to meet the aim of the research, first, literature review is conducted in connection with the research objectives: 1) *'to investigate what emotion is from a cognitive dimension and what fear appraisal is'*, 2) *'to investigate gender effects on females in terms of physical and social aspects in evaluating situations and self in relation to fear'* and 3) *'to investigate what service design and elements of service design are and how they affect users' emotional experience'*.

Based on the findings from the literature on fear from a cognitive perspective, sex and gender, which affect females in evaluating themselves and situations, and constitutional elements of service experience, research questions and a theoretically based framework of the female users' fear process in the underground are conceptualised. Two user studies to research into the London Underground service are designed accordingly and conducted in order to meet objectives 4) *'to analyse how gender or sex affect female groups' fear of crime in the underground during the service encounters'* and 5) *'to identify how service design affects female users' fear of crime when using the underground in conjunction with their gender'*. In User Study 1, the themes of female users' fear appraisal and the relationships between the themes and perceived

vulnerability as a woman in the underground are defined and in User Study 2, the influence of the underground service on the process is identified. The key findings of the user studies are as follows:

1) The fear evoking stimuli in the underground appear to be initially evaluated in terms of negatives and positives (valence) and familiarity with the stimuli, which can be seen as primary appraisals in the pre-conceptualised framework. The negative valences of other users and service environments, the absence of positive valence in terms of safety and unfamiliarity during service encounters subsequently affect female users' sense of uncertainty and uncontrollability over the stimuli and situations in connection with the subjects' coping potential in the secondary appraisal. On the basis of the themes of fear appraisal, which are valence, unfamiliarity, uncertainty and uncontrollability, stimuli and situations appear to be evaluated and fear behaviour response is shown to be generated and mediated by the service attributes in specific situations.

2) In evaluating themselves against the fear evoking stimuli, perceived vulnerability caused by sex or gender appears to affect the theme, of uncontrollability. Female users' gender or sex is shown to induce perceived vulnerability in association with the perceived physical strength and size of women and the perceived risk of sex-related crime in the underground. The female subjects' individual and demographic differences such as personal beliefs, characteristics and unfamiliarity with the service and age, race and, social position appear to mediate between the perceived vulnerability as a woman and uncontrollability over fear evoking stimuli and situations. In addition to the subjects' characteristics, the characteristics of the underground service involving natural and designed surveillances formed within the service environment are also shown to mediate between the perceived vulnerability and uncontrollability of specific situations.

3) The features of the service and their arrangements appear to affect the themes of female users' fear appraisals and their sequential behavioural responses by constantly giving feedback in respect to the valence and by mediating the responses. In the underground, female users appear to respond to stimuli with 'defensive immobility', 'gravitation towards others', 'flight and fight', 'fright' and 'seeking help' according to their fear appraisal. These sequential behavioural responses are shown to be generated according to the proximity of the stimulus and the degree of certainty of the danger. The underground service appears to affect fear of crime by configuring social, technical

and physical conditions in situations in terms of 1) the existence of potential help and 2) physical environmental features which enable users to escape from the fear evoking stimuli and situations.

4) The presence of potential available help, 'Perceived Availability' of staff and metro police is identified as an influential attribute of the service design on female users' fear of crime. 'Perceived Availability' of staff and metro police is configured by the social and technical environments of the service. It appears to operate as a reassuring factor, mitigating users' fear by affecting female users' uncertainty and uncontrollability over fear evoking stimuli in the underground. As the attributes of 'Perceived Availability', 'Visibility' of people in authority and 'Perceived Accessibility' are identified. 'Visibility' is shown to be negatively influenced by insufficient staffing, the absence of discerning factors such as uniforms and unpredictable locations of staff and metro police. On the other hand, 'Perceived Accessibility' to service providers using technical equipment appears to comprise 'recognition of existence of technical devices' and 'anticipated responsiveness'. The 'anticipated responsiveness' is shown to be affected by the subjects' perceived distance between users and people in authority and a sense of certainty of responses from staff and metro police.

5) As physical environmental restrictions which affect female users' fear appraisal and behavioural responses involving 'flight and fight' and 'fright' responses, 'Spatial Accessibility', 'Technical Accessibility' and 'Spatial Visibility' are identified. Spatial configurations affecting a sense of being confined, the open spatial accessibility for potential danger and temporal inaccessibility for users, which a carriage and platform in certain situations have, appear to negatively affect fear of crime. In addition to spatial accessibility, technical inaccessibility is also shown to affect users' uncontrollability in the underground, associated with social and physical environmental restrictions. Moreover, in connection with travelling time and geographical variables, spatial visibility in the outside platform appears as a fear evoking stimulus and affects users' uncertainty regarding potential danger. These physical environmental restrictions appear to affect female users' fear appraisal and to mediate their behavioural responses in conjunction with social elements of the service.

6) 'Reliability of the Service' pertaining to the service transaction process is identified as another influential attribute of service design, which is accompanied by 'accuracy'

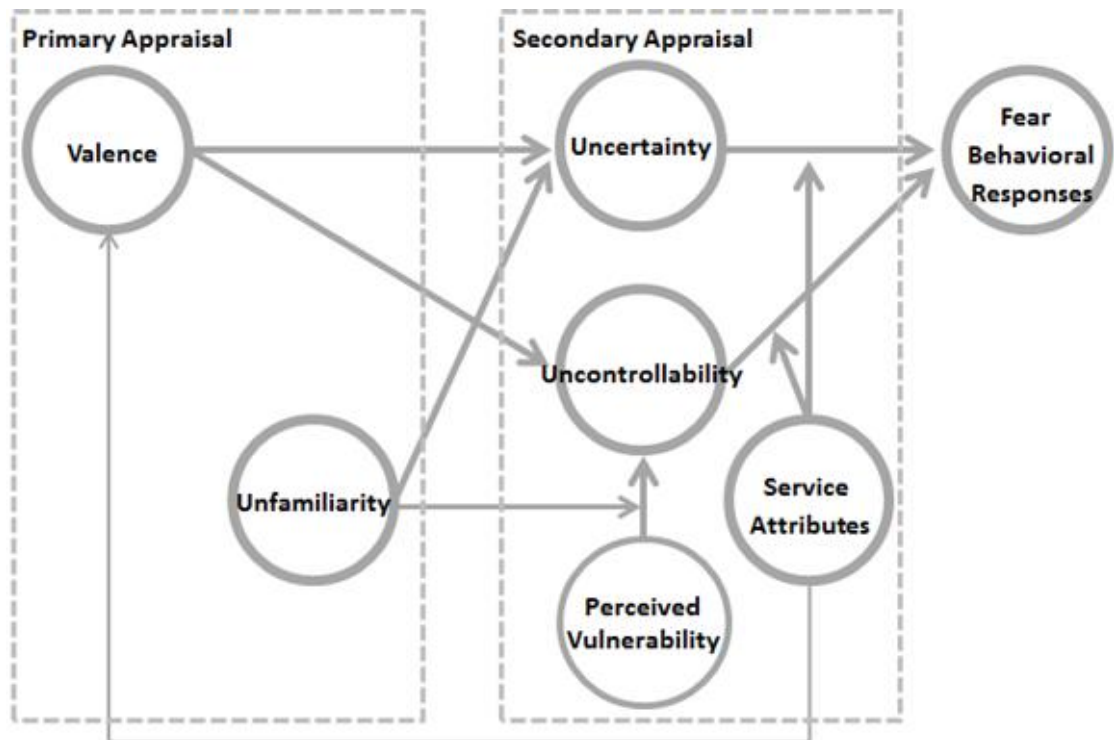


Figure 7. 1 a conceptual model of female users' fear of crime in the underground

and 'sufficient information'. When inaccuracy of the service occurs during the service operation and sufficient information is not provided, it is shown to affect female users' fear of crime, being concerned with the other influential factors of the social, technical and physical elements of the service.

In this section, the key findings of the user studies are delineated. These findings answer research questions 1) *'How does gender affect female users' fear of crime in the underground, in conjunction with other individual and social traits?'* and 2) *'How does the service design affect female users' fear of crime when using the underground?'* by identifying the themes of fear appraisal and the roles of gender and the underground service in females' fear of crime in the underground. The results are presented as a whole in figure 7.1. In the subsequent section, on the axis of 'Service Attributes' presented in the model above, a conceptual model of the influential design factors on fear of crime is suggested, reflecting the findings.

7.2 Conceptual Model of the Influential Factors on Fear of Crime

In this section, a conceptual model of the influential factors of the underground service design on females' fear of crime is formulated and suggested. In addition, the novelty and contributions to knowledge of the conceptual model are discussed in connection with the relevant preceding research from a service design perspective.

On the basis of the research findings of the user studies, a conceptual model of the influential factors of the underground service design on females' fear of crime is formulated in figure 7.2. In the model, 'Fear of Crime' synthetically denotes all the themes of fear appraisal and behavioural responses in a simplified manner. In contrast, 'Service Attributes' in the previously presented model in figure 7.1 are categorised according to the design attributes of social, technical and physical environments of the underground service and the service process and presented as 'Perceived Availability of Service Staff/ Metro Police', 'Physical Environmental Restrictions, and 'Reliability of Service'.

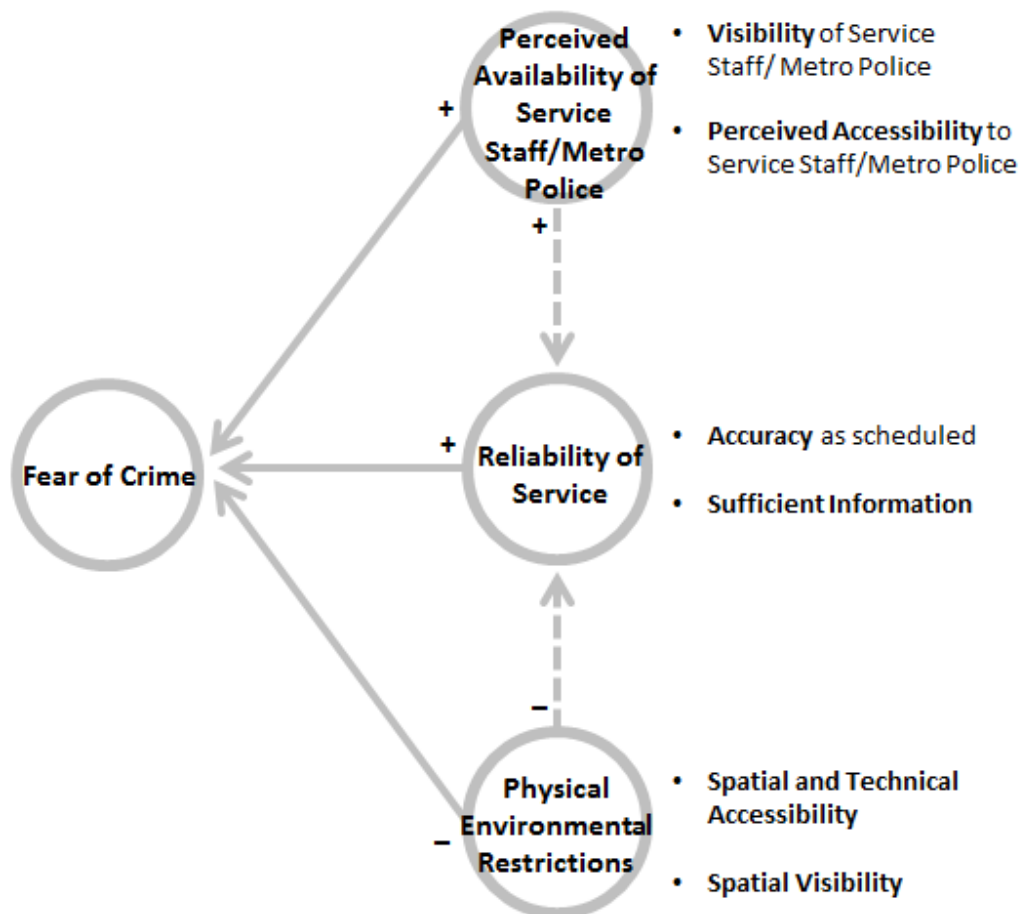


Figure 7. 2 a conceptual model of the influential factors of the underground service design

Identified as the main influential service design attributes of the London Underground on female users' fear of crime, 'Perceived Availability', 'Physical Environmental Restrictions' and 'Reliability of Service' are presented, as being considerable factors of underground service design in the conceptual model. 'Perceived Availability of Service Staff/ Metro Police' comprises 'Visibility' and 'Perceived Accessibility' to service staff and metro police, which is mediated by 'anticipated responsiveness from the service providers', and which positively affects fear of crime. On the other hand, 'Physical Environmental Restrictions' related to 'Spatial and Technical Accessibility' and 'Spatial Visibility' negatively affect fear of crime. In between, 'Reliability of Service' accompanied by 'Accuracy' and 'Sufficient Information' positively affects fear of crime, interacting with the other influential factors of the service attributes.

Whereas the factors, 'Perceived Availability' and 'Physical Environment Restrictions', and their attributes are related to tangible aspects of the service, or service touch-points, 'Reliability of Service' pertains to the service as a process. Service processes are performed on the service interface which is formed by the social, technical and physical resources of the service. Therefore, when error or inaccuracy of the service occurs during the service transaction and insufficient information is provided, it affects female users' fear of crime, interacting with the influence of 'Perceived Availability of Staff/ Metro Police' and 'Physical Environmental Restrictions' by protracting the connection or disconnection between female users and the influential factors of the social, technical and physical conditions of the service interface. In this respect, 'Reliability of Service' is presented in the manner of being concerned with other factors and their attributes.

Previous research on fear of crime in public transportation systems focuses on identifying influential factors on users' feelings of safety, such as antisocial behaviour, CCTV and the presence of staff (e.g. Cater, 2005; Cozen et al., 2004; Yavuz and Welch, 2009). The conceptual model is different from the previous research in that; 1) it comprehensively explains how these factors and additional factors, which are identified in the user studies, operate in female groups' fear in the underground; and, therefore, 2) it systematically expounds the underground service in relation to fear of crime from a design perspective.

CCTV or the presence of service staff or metro police are well known factors which affect users' feelings of safety or fear of crime, and have already been proved by

previous studies and statistics (e.g. Crime Concern, 2004; Yavuz and Welch, 2009). However, the logic behind the mechanism of these elements or safety measures has not been identified in a holistic manner. In this research, in order to build the conceptual model, a theoretically based framework is founded and the influential factors and their relationships are identified, centred on the themes of females' fear appraisal. Based on the identified mechanism of the subject groups' fear appraisal in the underground, the service design attributes are classified. The conceptual model, therefore, suggests the fundamentals of the mechanism of service elements on the users' emotional distress during the service encounters and, hence, suggests a more specific framework in researching into and managing public transportation services and service design.

In terms of service environment and its influence on users, the 'Servicescapes' of Bitner (1992) may be the most influential conceptual framework. As the framework accounts for the influence of the service environment on users' internal response, behaviour and social interaction among or between users and employees, it has some connection with the conceptual model in this research. However, 'Servicescapes' is not appropriate to be applied to users' specific negative emotions in a certain service environment such as fear of crime in the underground as Bitner (1992) states that it is conceptualised to be purposefully general. The framework and the related studies approach the total configuration of environmental dimensions which influence the internal response and external behaviour of both users and employees in an extensive manner.

Furthermore, 'Servicescapes' is conceptualised, excluding social elements of the environment even though the environment consists of contextual, social and physical elements (Tombs and McColl-Kennedy, 2003, 2010). Since it is particular to the physical environment of the service, in the context of service design and management, which involves amalgamating interactions between users and contextual, social as well as the physical elements of the service environment, it only provides partial background information in explaining a certain user group's fear during service encounters. The conceptual model, on the other hand, not only identifies the relevant physical environmental factors but also suggests other factors which can complement the restrictions by identifying the interaction between physical social and technical elements of the service and the operation activities of the underground in the context of fear.

From the perspective of service and the service environment, social elements play a significant role in fear of crime as well as physical environmental elements of the service as in the conceptual model. Social elements such as employees in the back and front offices are significant factors in producing the service for users and one of the components of the service system. In this respect, it is claimed that the design of a service delivery system should encompass the roles of the people as well as technology and the physical environment of the service (e.g. Chase and Bowen, 1991; Ramaswamy, 1996). In this manner, in describing a service from a user's point of view, a theatrical metaphor is used and service design as 'choreographing' a service (Stuart and Tax, 2004).

In the context of fear, the underground has a distinctive service interface and structure, when compared to other modes of public transportation services and other types of services, as indicated by the different levels of females' fear of crime, according to the transportation mode (TFL, 2014). Such frameworks which are conceptualised based on extensive literature on environmental psychology and organisational behaviour, dealing with service environments in a generalised manner, only partially account for the distinctive service structure and interface. Therefore, in that it addresses a specific emotion of a certain group, which has been dealt with as a social problem, from the service design perspective, the conceptual model is differentiated from previous relevant research and contributes to literature on service and service design. By extension, theoretical and practical implications are discussed and suggested in detail in subsequent sections.

7.3 Theoretical Implications

Fear of crime has been researched for decades from various perspectives; however, to the researcher's best knowledge, this research is one of the first efforts to develop a framework which expounds female users' fear of crime from the perspective of the underground service design as discussed in the preceding section. According to the research findings, theoretical implications are as follows:

1) It is one of the first efforts to explain fear of crime as a defensive response comprised of psycho-physiological and behavioural changes towards stimuli in service environments, separated from anxiety or worries. Research on fear of crime has frequently been questioned in terms of its inaccuracy and its lack of dependability in terms of the obscure concept of fear of crime (e.g., Akers, 2009; Ferraro and LaGrange, 1987) in which fear and anxiety are mixed. The problematic approaches are highlighted by Garofalo (1981) who divides fear of crime into 'actual fear' and 'anticipated fear' such as general concerns and worries about crime even. Although Garofalo suggests taking different approaches to each form of fear of crime in order to alleviate it, researching into fear, or according to his term, 'actual fear' has been neglected. As in the user studies, females' fear of crime appears to be a more substantial problem to the users who need to use the underground regardless of their anxiety or fear due to their lack of resources to be able to cope. It also underpins the need for a more specific approach towards the users' fear of crime and anxiety. This research contributes to this one sided research tradition by identifying the influence of service design on female users' fear appraisal and behavioural response, isolating fear from worries and anxiety.

2) It contributes to literature on fear of crime in females as this research identifies the role of gender in fear of crime in the underground in conjunction with other individual and social traits. In the literature on fear of crime in females, the groups' high levels of perceived vulnerability in terms of exposure to non-negligible risk, capabilities for self-protection and the serious consequences have accounted for their greater levels of fear (e.g., Franklin, Franklin, and Fearn, 2008; Killias, 1990; Jackson and Stafford, 2009). Women's vulnerability has been accounted for by their physical vulnerability (e.g., Madriz, 1997; Stafford and Galle, 1984) and 'shadow of sexual assault' (e.g. Ferraro, 1995, 1996; Koskela and Pain, 2000). In addition, this research reveals that the perceived vulnerability of being a woman also affects fear appraisal in situations in the

underground, mediated by the subject's individual and social characteristics, unfamiliarity with the service environments and perception of the underground service.

3) By extension, one of the distinct contributions of this research is to build an integrated framework which comprehensively elucidates the female users' fear of crime in connection with their gender and the underground service. It is one of the first efforts to explain the mechanism of females' fear of crime in the underground as a cohesive whole. The framework is developed from the pre-conceptualised theoretically based framework and developed and verified by user studies. By integrating theories on vulnerability, which has been the dominant backbone of the previous research, into appraisal theories and by identifying the relationship between fear appraisal and vulnerability, the framework fills the research gap in fear of crime research domains. Moreover, it provides a more specific direction for research on fear and anxiety in built environments to gain a better understanding of the influence of environments and subjects' demographical and social characteristics.

4) In addition, the research contributes to the literature on the public transportation service in relation to certain users' emotional distress by revealing the mechanism of the underground service in connection with appraisal theories on emotions. In this research, appraisal theories are used as a cornerstone in interpreting the mechanism of the underground service in female users; as in the appraisal theories, appraisal connects stimulus input and emotional responses (e.g., Arnold, 1960; Smith and Lazarus, 1993). As provisionally hypothesised based on Frijda's (1986) emotion process theory and theories in psychopathology (e.g., Plutchik, 1993, 2001), the underground service and service environments appear to mediate female users' behavioural fear responses such as 'gravitation towards others' or 'flight and fight response', giving feedback in respect of the themes of fear appraisal until fear arousal is stabilised. The themes of fear appraisal, which are identified to be significant in generating fear and to be affected by the service features in situations, signify the need for public transportation to approach users' emotional distress from the perspective of the subjects' appraisals in relation to self and the design of the artificial structure of the service in certain situations.

From the perspective of the artificial structure, the conceptual model of the influential factors of service design elucidates women's statistically high levels of fear to some extent and consequently, contributes to new knowledge. In fact, some of the

components in the model such as visibility of service staff and metro police and spatial visibility are well known factors which appear to affect users' feelings of safety. Reliability of service is also known to affect users' feelings of safety, but in a somewhat different context from this research. However, it has not been discernibly identified that in connection with perceived potential help and secured escape routes, the underground service appears to affect the groups' fear appraisals and their behavioural responses. In this context, the influential factors of service design and their attributes operate to the subjects' sense of uncertainty and uncontrollability. In the model, the influential design attributes are classified under the overarching themes, or factors: 'Perceived Availability of Service Staff', 'Reliability of Service' and 'Physical Environmental Restrictions'. Under these main influential factors, constitutional elements such as perceived accessibility to service staff with its attributes and technical accessibility, are newly defined. Furthermore, the interaction between these factors of the service's social, technical and physical environments and the service transaction process are identified in the context of fear. These influential factors with their attributes and the interaction between factors comprehensively account for female groups' fear.

5) Furthermore, the conceptual model of the influential factors of service design contributes to the literature on service quality in relation to users' emotional responses. The influential factors and their attributes in the conceptual model appear to involve determinant elements of service quality which Parasuraman et al. (1985, 1988) identify and have been used as criteria in researching into service quality and in empirically applying, to date. Among the determinants of service quality in their conceptual model, 'security' which refers to 'the freedom from danger, risk, or doubt', may represent the aspect of the service in relation to fear of crime which occurs during the service transaction. However, in the underground, within the frame of 'security', 'tangible', 'responsiveness' and 'access' of the service in terms of social, technical and physical environments and 'reliability' of the service are shown to pertain to female users' situational uncontrollability and uncertainty, the themes of users' fear appraisal.

6) This research suggests a new standpoint towards public transportation service and service design in the context of fear of crime. The conceptual model of the influential factors of service design contributes to the design literature by identifying the role of service design in the users' emotional distress and considerable factors in service design. Previous design theories and the relevant research on crime related problems focus on

crime prevention based on rational choice theory, focusing on the characteristics of criminal opportunities from potential wrongdoers' points of view (e.g., Clarke, 1997). In fact, in connection with the previous design concept of 'surveillance', natural and designed surveillance of the underground appears to reduce female users' concerns about rape in accordance with Newman (1972) who suggests that natural surveillance functions in reducing fear by making people feel under constant observation by others. In a similar manner, certain research suggests that the use of technical safety measures such as closed-circuit television may diminish fear of crime in passengers (e.g. Transit Cooperative Research Program, 2001; Reed et al., 2000; Cozens et al., 2004). However, female users are shown to perceive technical devices to be for potential offenders and CCTV and help points appear to be limited in easing fear arousal in the presence of fear evoking stimuli, mediated by users' perceived accessibility to service providers. As another example of the discord between the research findings and previous research, spatial visibility also appears to operate differently in the context of fear of crime. While in previous theories, lighting pertains to the concept of surveillance to prevent potential criminal activities, visibility of the spaces is shown to affect users' uncertainty by making even known stimuli uncertain and difficult to recognise. The research findings regarding distinct features of fear of crime in the underground advocate more specified approaches towards the emotion in relation to the underground service from the subjects' points of view. In this respect, the conceptual model suggests a range of research opportunities such as design of the service infrastructure, the interface design on a micro scale, design processes and management of the service in relation to the subject groups' fear of crime.

7.4 Practical Implications

Even though substantial research on service has highlighted the significance of service design, the term ‘service design’ or ‘designing service’ remains dispersed across service marketing, management and design literature, sometimes equivocally (Secomandi and Snelders, 2011). In this research, service design is approached from the perspective of the management of the service elements and touch-points and their flows in such a way to meet human needs and problem solving based on ‘Silent design’ (Gorb and Dumas, 1987), which indicates that the design that is being carried out within organisations is undertaken by people who are not educated in design or do not even realise that what they do is design in many cases. Hence, practical implications are suggested to planners, designers, policy makers, and managers who are somehow involved in the underground service design.

In addition, practical implications are suggested both for the London Underground and developing public transportation systems. First, the conceptual model of the influential factors of service design based on the London Underground service research findings in which a number of female users have appeared to exhibit fear of crime provides diagnostic information on the service interface. It could be used as a frame of reference in developing and managing the service process, the interface and the infrastructure of the London Underground to ameliorate female users’ fear of crime. Furthermore, the diagnostic information of the existing service could be considered and applied to developing public transportation systems as it provides a practical insight for designing the physical environments such as vehicles and platforms, the arrangement of social and technical elements of the service and service transaction process and activities in a complementary manner to address female users’ fear of crime. Along with the research findings regarding social, technical and physical elements of the service and the service operation process, practical and managerial implications are suggested as follows:

- 1) In respect of the London Underground, the influential factors of the physical environmental restrictions on fear of crime and users’ resultant behaviour, such as the spatial configurations affecting users’ sense of being confined and visibility and spatial and technical connectivity, provide points to be duly considered or directions for improving the physical settings and for complementary the service interfaces by engaging with other resources. The service planners and managers of TFL should

consider the physical environmental restrictions in planning and managing the social and technical elements of the service and the service operation process in a way to complement the restrictions by reinforcing users' perceived availability of service staff and metro police. It should also be considered by the policy makers in developing the regulatory body and policies. In addition, in the long term, the physical environment involving the vehicles and platforms gradually need to be enhanced in terms of the spatial and technical accessibility and spatial visibility and, hence, to decrease users' feelings of disconnection from potential help in situations.

2) According to the physical environmental restrictions and geographical and time variables, planners and managers should reinforce the visibility of service staff and metro police in a supplementary way and, therefore, users' perceived availability of service staff and metro police can be increased. Sufficient management of the social environment to deal successfully with the relevant problematic factors in the existing service interface such as insufficient staffing, the absence of discerning factors such as uniforms and unpredictable locations of staff and metro police from female users' point of view will contribute to ameliorate female users' fear of crime in the underground.

3) In relation to the perceived availability of service staff and metro police, the designers and managers should consider the role of perceived accessibility of technical equipment and devices as well as technical accessibility resulting from the physical environmental restrictions of the underground. In designing and applying technical equipment or devices which connect users to service providers, enhancing users' anticipated responsiveness from the service providers should be primarily taken into account to mitigate females' fear of crime. For the effectiveness of such equipment, the distance between users and people in authority on the underground should be designed to be close in proximity from the users' point of view. Responses from staff and metro police, in addition, need to be guaranteed as well as increasing users' recognition of the existence of technical devices, giving consideration to relevant communication design with respect to accessibility.

4) With regard to service operation activities, designers and managers should evaluate the reliability of service with all the influential factors of the service environments in conceptualising and operating the underground service. The service processes are performed on the service interface which is shaped by the social, technical and physical

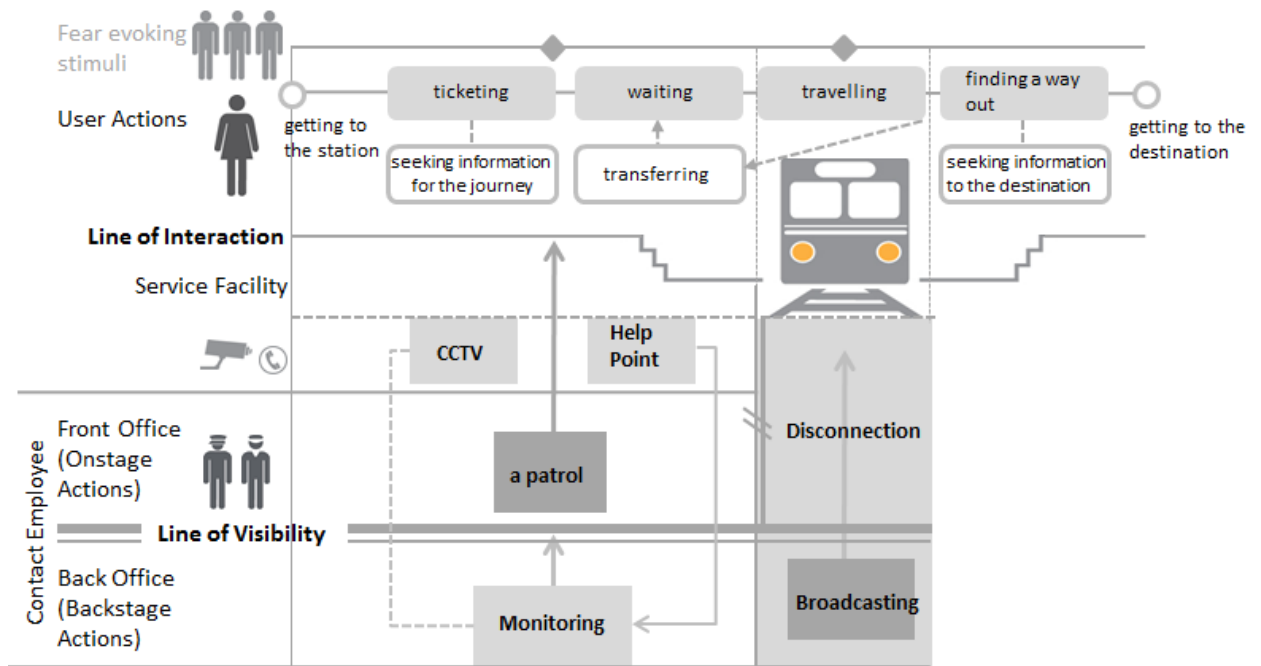


Figure 7.3 the activities of front and back offices

conditions of the service. In this manner, error or inaccuracy of the service affects feelings of disconnection from potential help and, consequently, fear of crime, by protracting the fear evoking situations in the condition of the low-perceived availability of service providers and physical environmental restrictions. Service processes and sub-processes, therefore, should be holistically designed in a predictable way for users, considering the touch-points which are shown to be related to the influential factors of the service's social, technical and physical environments as well as the consistency of the service and supplementary information when errors occur during the process.

To conclude, on the basis of these practical implications, major design considerations for front and back office activities are suggested. From the users' point of view, in the context of fear, the front and back office activities of the London Underground appear to be operated as in figure 7.3. The activities of the front office are shown to be related to the role of reassuring by being in specific positions and by making the subjects regard people in authority to be available and, therefore, their visibility appears to be significant in easing female users' fear. In this respect, their visibility in the service environment should be enhanced by increasing patrols and wearing uniforms to show their role. By its extension, the relevant information such as those regarding surveillance and locations where staff could be positioned should be adequately communicated, through other channels. On the other hand, the role of the activities in

the back office appears mainly to connect users and the front room actions through technical equipment. The back office should promptly react to users through constant monitoring and immediate answering; in addition, the distance between the back office and users should be transparent from the user's point of view. In connection with the back room activities of trains, providing accurate service and appropriate information for situations through broadcasting need to be considered on a preferential basis.

7.5 Research Limitations and Recommendations for Future Research

In this research, the influential design attributes of the underground service on females' fear of crime are identified by examining the features and their configuration within the London underground, which mediate the user groups' fear of crime. In order to accomplish this, a literature review and in-depth semi-structured interviews were conducted, employing narrative and ethnographic interview and free association techniques. In analysing the collected data, coding was used as the main analytical tool in the line with 'grounded in line with 'grounded theory'. According to the scope of the research and the methods chosen for data collection and analysis, however, it comprehends some limitations. In conclusion, therefore, the limitations of the research are delineated and the consequent recommendations for future research are suggested which are as follows:

1) Since this research investigated only female users in the underground as a homogeneous sample, the research findings cannot include male users and the influential factors of the service design and the attributes of the factors may, therefore, affect females and males differently. Although female passengers appear to be more sensitive to fear of crime, in the user studies, some female users appear to think male users are more likely to be seriously injured when involved in crime in the underground. In addition, certain research on males indicates that substantial numbers of males also experience fear of crime but avoid exhibiting their fear due to their gender and gender stereotype (e.g., Goodey, 1997; Sutton and Farrall, 2005).

The males' self-restrained expression of fear due to socially expected male behaviour patterns, which in part, account for their low levels of fear of crime (e.g. Bem, 1981; Goodey, 1997), indicates that gender might affect males and females in the underground in a significantly different way and hence, the underground service may affect them accordingly. Therefore, in order to address the issue of fear of crime, research on male users' fear in the underground and comparative studies of males and females are also required. This research may provide criteria for comparisons between male and female passengers in evaluating the service in the context of fear of crime in order to develop a more specified framework which can be applied for the both genders.

2) The user studies are designed, conducted and analysed in order to identify influential factors of the underground service design in a holistic manner; therefore, specific spatial

and geographical factors such as those which differ from station to station on a micro level are not identified. As appeared in the user studies, the influential factors in the conceptual model are shown to operate, mediated by time, spatial and geographical variables. Thus, it might be difficult to directly apply without taking the variables into consideration and more detailed guidelines in micro level would be beneficial. The influential factors of the underground service design on fear on a macro level could provide a conceptual foundation and criteria in researching into the geographical variables in stations and spatial variables in the underground on a micro level.

3) Due to the nature of the research methods, the results of the research involve limitations in qualitative research. For the user studies, semi-structured interviews were conducted with female users and the coding methods of Corbin and Strauss's version of grounded theory were used in analysing the data. Consequently, a conceptual model, a substantive theory regarding the underground service design, is developed, through abductive reasoning. However, the results of a grounded theory in general, are considered to be dependent on context, fallible and not completely final as in most science (e.g. Thornberg and Charmaz, 2014). In certain literature, furthermore, excluding quantification is considered a limitation regarding the results. Therefore, in order to generalise the results of this study, quantitative testing and verifying the model with more numbers of female samples would be desirable to conduct further research.

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APPENDICES

Appendix 1 Interview Consent Form

Appendix 2 Interview Questions

Interview Consent Form

Participant Information Sheet



Researcher: Hyunjin Kim,

School of Engineering and Design, Brunel University

The Underground Service User Interviews

I would like to thank you for agreeing to participate in this PhD research.

This face to face interview is to explore how users experience the London Underground service. It will take approximately half an hour and you will be asked about your experience in the underground and how you feel, think and behave in the underground.

- Your interviews will be audio recorded and it will be used only for the PhD study and your personal information will be confidential.

Informed consent

Please sign below to confirm that you:

- ✓ Agree to take part in this study
- ✓ Have asked any questions you might have
- ✓ Have received answers to these questions
- ✓ Understand that you can withdraw at any time without having to give a reason
- ✓ Understand your input is being audio recorded for later use in this study.

Your Name: _____

Your signature: _____

Date: 14 February 2013

User Interview Questions

Free association questions- to understand the meaning of fear to the subject

Q1) "Can you think of something that you've read, seen or heard about recently, anything that made you feel afraid?" Could you tell me whatever comes into your mind. (not necessarily about the underground service)

Structural Question (Free association)

Q2) "What do you most fear when using the underground?"

Typical Ground Tour Question (for a description of how things usually are)

Q3) "Could you describe your typical journey using the underground?" "When and where do you regularly use the underground and why?"

Mini-Tour Question (specific)

Q4) "Have you ever felt fear of being involved in crime in the underground?" "How often do you feel that kind of feeling?"

Q5) "Could you describe how that feeling affects your use of the underground?"

Example Question

Q6) "Could you tell me about any fearful situations you can think of to do with using the underground?"

Free association

Q7) "Imagine that you are in a situation, what would you do to resolve the situation? Could you tell me whatever comes into your mind"

Q7-1) "Have you ever hesitated or been passive in dealing with fearful situations? If so, why?"

Experience question (Descriptive Q)

Q8) *“could you recount any experience of fear of crime you have had while travelling on the underground in as much detail as possible? From the moment you decided to use the underground until the feeling went away?”*

Q8-1) *What did you think that you could be a target of the crime? why did you think that you could be in danger?*

Q8-2) *Why did you think that you were not able to protect yourself?*

Q8-3) *What was the worst scenario you experience of being involved in the situation?*

Contrast Question

Q9) *“Do you think you are more vulnerable to crime in the underground compared to a male traveller? What makes the difference? What do you think makes you vulnerable?”*

Q9-1) *Do you think you are more likely to be a target of crimes? Compared to male travellers.*

Q9-2) *Do you think you are not able to protect yourself?*

Q9-3) *Do you think when you are involved in crime or such the trouble you told before the consequence would be more serious than men?*

Q10) *“Females have been shown to be much more exposed to sex-related crime such as sexual harassment and rape. Research shows that fear of rape amplifies females’ fear of crime. Do you think it affects your feelings and behaviour when you travel on the underground?”*

Q11) *“Would you hesitate to report a sexual crime committed against you or ask for help? If so, why?”*

Sub-questions

Included term question

-You said that ____ makes you feel fearful in the underground, I'm interested in finding out about all the different kinds of things that make users fearful, are there any other things that make you fearful or affect your use of the tube service?"

-I have learned from some books and research on fear that ____ also makes females fearful, is that right?

Examples of Fear-evoking stimuli

- Travelling at dark
- Other users –the presence of other passengers (surrounded by more people)
When waiting for vehicles, women have been shown to feel more fear in presence of one other passenger around especially than being alone, if the person is a male.
- Anti-social behaviour (aggressive behaviour or people who are under the influence of alcohol or drugs)
- Aggressive or noisy groups of young people –teenage group

- Unfamiliarity with the service system and places to travel
- Unkempt managed environments
–the presence of litter and graffiti
- Poor design and layout of physical environment

-‘are there any other factors affect you feel fear of crime you can think of?’

-you said that ____ make you feel safe, could you recall any other kinds of things which intervene with your feeling and make you safe when you feel fear in the underground”

Safety measures and attributes

(which can intervene between the passengers and the fear evoking stimuli in the underground)

- Design and layout of physical environment
- Sufficient lighting
- Help point
- CCTV
- the presence of staff and metro police

