Do First Trips Matter?

Exploring Unfamiliar Public Transport Travel

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Abstract

Attracting and retaining public transport passengers is a common policy goal amongst cities worldwide. Understanding new users of services is crucial to achieving this goal. This thesis addresses this challenge by examining unfamiliar public transport travel. The overarching aim of the research is:

To explore unfamiliar public transport trips to better understand their circumstances, experiences and significance to mode choice.

This aim is being addressed through exploration of 'first trips' or 'unfamiliar public transport travel'; that is, the first time using a public transport route never taken before.

There is very limited previous research directly concerning experiences of unfamiliar transit journeys and their impact on subsequent travel behaviour; therefore the Review of Literature draws from a wider, multi-disciplinary pool of research to explore the conceptual framework of unfamiliar public transport travel. For example, studies in psychology have repeatedly shown that first impressions are associated with higher rates of recall and influence on subsequent attitudes, a phenomenon referred to as the 'primacy effect' (Stiff et al. 1989; Forgas 2011; Le-Klähn et al. 2014). This suggests that unfamiliar public transport trips could be particularly important to attitudes and subsequent travel behaviour.

Four research methods were employed to collect and analyse primary data related to the topic. 1) Thirty audio-recorded semi-structured interviews provided rich qualitative data and insights about unfamiliar public transport travel. 2) The Origin-Destination (OD) Survey involved working with the research sponsor, Public Transport Victoria (PTV), to add questions to a very large annual origin-destination survey of transit users to better understand circumstances of unfamiliar transit travel. 3) The University Access Survey employed a web-based survey of Monash University staff and students to learn about their first trips to campus by public transport and compare those experiences with their subsequent transit travel to campus. 4) The PTV Journey Planner Poll & Follow up Survey utilised a popular transit passenger information website to conduct a poll and then recruit respondents to complete a 'post-trip' follow up survey, enabling monitoring of any shifts in attitudes and reporting about unfamiliar travel experiences soon after they occurred. The Discussion and Conclusions draws together the key findings from the research and confers the practical applications and implications of the research, as well as suggesting the direction for further research.
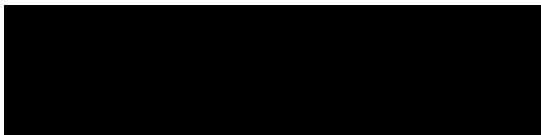
Declaration

This statement is to certify that, to the best of the candidate's knowledge, this thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other institution, and that the thesis contains no material previously published or written by any other person, except where due reference is made in the text of the thesis. The length of this thesis is less than 100,000 words, exclusive of figures, tables, and references.

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List of Publications

The following publications have resulted from the studies undertaken for this degree:

Refereed Journal Papers:

Schmitt, L, G. Currie, and A. Delbosc (2013a). "Measuring the impact of unfamiliar transit travel using a university access survey." Transport Policy no. 30:301-307.

Schmitt, L, G. Currie, and A. Delbosc (2014a). "Lost in transit? Unfamiliar public transport travel explored using a journey planner web survey." Transportation. 1-22.

Schmitt, L, S. Harris and G. Currie (2014c). "Adapting an online transit journey planner into a low-cost travel survey tool." Transportation Research Record: Journal of the Transportation Research Board 2405(-1): 8-15.

Refereed Conference Papers:

Schmitt, L., G. Currie, and A. Delbosc (IN PRESS). A Network Wide Study of the Distribution of Unfamiliar Transit Travel Using a Major Origin-Destination Survey. Transportation Research Board 2015, Washington DC.

Schmitt, L., S. Harris, and G. Currie (Schmitt, 2014b). Integrating an Online Travel Survey into a Transit Website Journey Planner – Approach and Lessons. Presented at Transportation Research Board 93rd Annual Meeting.

Schmitt, L. and S. Harris (2013d). Understanding Market Segments Captured through Data Collection using a Transit Passenger Information Website. Presented at Australasian Transport Research Forum 2013 Brisbane, Australia, The Planning and Transport Research Centre (PATREC).

Schmitt, L., G. Currie and A. Delbosc (2013b). Exploring Unfamiliar Public Transport Travel using a Journey Planner Web Survey. Presented at Australasian Transport Research Forum 2013, Brisbane, Australia.

Schmitt, L., G. Currie, and A. Delbosc (2013c). Exploring the Impact of Unfamiliar Transit Travel on Attitudes and Behavior. Presented at Transportation Research Board 92nd Annual Meeting.

Schmitt, L., G. Currie, and A. Delbosc (2012). Exploring First Impressions of Public Transport Services through a University Access Survey. Presented at Australasian Transport Research Forum (ATRF), 35th, 2012, Perth, Western Australia, Australia

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List of Abbreviations

ANOVA   Analysis of Variance

CBD   Central Business District

JP   Journey Planner

PhD   Doctor of Philosophy

PT   Public Transport

PTV   Public Transport Victoria

RQ   Research Question

TPB   Theory of Planned Behaviour

1   Introduction

This thesis explores 'unfamiliar public transport travel', a topic with the potential to facilitate growth of public transport markets. In the context of this research, 'unfamiliar travel' generally refers to the first time one uses a particular public transport service. The data collected is primarily concerned with transit in Melbourne, Australia; however there is some reference to other cities' public transport and the findings are likely to be transferable to other cities.

This Introduction begins by providing the context and background to the thesis topic. This is then followed by outlining the aim of the research along with the research questions that frame the thesis. The structure of the thesis is then outlined.

1.1   Background

Growing public transport markets is a common goal of city planners and decision-makers worldwide who seek to revitalise their cities, accommodate population growth, and reduce automobile dependence associated with a host of negative economic, environmental, and social effects. Economic ramifications of automobile dependence include congestion, operating cost recovery in transit travel times, and missed benefits of agglomeration (Kenworthy and Laube 1999; Chatman and Noland 2014). For instance the Australian Bureau of Infrastructure, Transport and Regional Economics (2007; 2014) describes how road congestion in capital cities is expected to rise from $14.2 billion in 2012 to $20.4billion by 2020. Environmental externalities include greenhouse gas emissions and other pollutants, oil dependency, and high energy consumption (Liddle 2013). Social implications include effects on personal health such as obesity, reduced social interactions, and transport disadvantage (Loader and Stanley 2009; Hasunuma et al. 2014). Many of these externalities are interdependent; for example, the transport disadvantage experienced by lower socioeconomic groups also has economic ramifications.

It is generally accepted that in order for cities to reduce such negative impacts, they need to reduce dependence on automobiles which can be partly achieved by shifting trips onto public transport (Newman and Kenworthy 1999). Public transport has the capacity to move large quantities of people distances which are further than can be achieved efficiently by walking and

cycling alone and is thus seen to be a crucial component to the efficient functioning of cities. However in many Australian and international cities travel mode share is dominated by private vehicle (Mees et al. 2008). Thus much research is devoted to increasing the share of travel undertaken by public transport. In order to grow the public transport market, individuals must be encouraged to undertake new and unfamiliar transit travel, including attracting entirely new users, and for occasional users, increasing the frequency of use and widening the spectrum of journey purposes for which transit is used. Retaining existing users is also essential though not the focus of this thesis, but measures intended to benefit new public transport users would likely benefit existing users.

Despite the need to attract and retain new market segments little is known about unfamiliar public transport use. In particular, it would be beneficial to better understand opportunities to attract new users, characteristics and needs of unfamiliar transit travel and the impact of first trip experiences on attitudes and subsequent patronage. This thesis attempts to inform this gap in knowledge by exploring 'unfamiliar public transport travel'.

By the end of thesis PhD thesis it will become apparent that the research not only fulfils a major gap in exiting research, but also offers useful insights to improve the planning of transport systems particularly for new and infrequent users. Ideally this will assist in growing public transport markets which will contribute to addressing the numerous social, environmental and economic challenges discussed previously.

1.2   Research aim and research questions

Thus, the over-arching aim of the research is:

To explore unfamiliar public transport trips to better understand their circumstances, experiences and significance to mode choice.

As previously noted, in the context of this PhD research, 'unfamiliar travel' generally refers to the 'first time using a public transport service'. While the above definition was maintained where possible, the thesis contains some exploration of what unfamiliarity and familiarity mean in real terms to people. It is also worth noting that 'unfamiliar' public transport travel is primarily examined in the context of 'first trips', and thus both terminologies are used often throughout the thesis and somewhat interchangeably. The research may also have some relevance to

'infrequent' public transport trips, but for the sake of simplicity, the research scope concerns first trips only.

From the over-arching aim of the research, three primary research questions were developed including:

- Research Question 1: "Under what circumstances do first trips occur?"
- Research Question 2: "What experiences are associated with first trips?"
- Research Question 3: "To what extent do first trips impact attitudes and behaviour related to mode choice?"

Research Question 1 is broad and examines a variety of circumstances potentially surrounding unfamiliar public transport travel such as life events, trip and demographic characteristics, and even the prevalence of first trips. One focus of the research is ascertaining under which circumstances unfamiliar transit travel occurs. This focus is not limited to those entirely new to using public transport but also of those committed to transit but trying an unfamiliar service. These are both strategic market segments on which to focus. As part of this research question, the prevalence of unfamiliar travel is investigated along with prompts for unfamiliar travel (such as life events) and more general circumstances of unfamiliar transit travel (such as trip purpose, time of day and so on).

Research Question 2 seeks to understand first trip experiences ranging from service attributes (such as ticketing), to personal experiences like navigation and emotions. Understanding users' capabilities and perceptions in terms unfamiliar travel experiences has been touted as ensuring the success of transport policy measures (Gehlert et al. 2013). While existing research documents various aspects of travel experience, only limited research specifically examines unfamiliar public transport travel experiences, though some studies discuss aspects of unfamiliar travel experiences. For example, in one of the most relevant studies, Dziekan and Dicke-Ogenia (2010) due to discuss how public transport travel in unknown environments can be challenging and stressful due to lacking information, updating one's cognitive map and perceptions of lacking control. Other authors describe vulnerability of unfamiliar travel and wayfinding on transit (Stradling 2002; Zhang 2002; Woyciechowicz and Shliselberg 2005; Hutchinson 2009). Meanwhile new behaviours are generally acknowledged to require increased cognitive effort for information searching and decision-making (Aarts et al. 1997; Van Exel and Rietveld 2001; Klockner and Matthies 2004; Chorus et al. 2007; Klöckner and Friedrichsmeier 2011).

Research Question 3 aims to ascertain whether first trips impact attitudes about: public transport as well as whether unfamiliar travel experiences impact subsequent travel behaviour choices. Behaviour change campaigns and marketing tend to assume that use of public transport will result in more favourable attitudes about the mode (Thøgersen 2009), however little research has actually investigated this. This research tries to fill this gap by examining new public transport travel behaviour as a facilitator of long-term behaviour change. Because almost no research currently exists about first impressions of public transport, the background research reviewed as part of this thesis research has drawn from diverse fields including transport planning, social and environmental psychology, urban planning, marketing, and civil engineering. As will become increasingly evident in the next chapter, existing research from these fields suggest that understanding unfamiliar travel may be an important step toward attracting and retaining new service users.

One particularly unique aspect of this research topic is that it addresses three general phases of new behaviours:

1. Circumstances prompting the behaviour
2. The travel experience
3. The impact on attitudes and behaviour.

Thus under the model of dynamic wellbeing posed by Dolan and White (2006) which is captured in Figure 1-1, the research captures the 'anticipation' and 'planning' stages in the examination of circumstances by Research Question 1. Meanwhile the 'behaviour', 'outcome', 'experience' and 'evaluation' stages are addressed by Research Questions 2 and 3 (Dolan and White 2006; Abou-Zeid et al. 2012). It is also apparent that the outcome of the 'evaluation' phase results with a repeat of the cycle as new or repeated behaviours are undertaken.

Anticipation Stage

"How will it feel?/satisfy?"

Well-being indicator: *anticipated affect/satisfaction*

Planning Stage

"What do you want & how are you going to get it?"

Goals

Evaluation Stage

"All things considered...?"

Satisfaction

Behaviour Stage

"What do you do?"

Choices

Experience Stage

"How does it feel?"

Physiological reactions

Affect

Outcome Stage

"What do you get?"

(Changes in) resources

Figure 1-1: Stages in dynamic well-being (reproduced from Dolan and White 2006)

In addition to these broad research questions a number of subsidiary research questions were also developed to guide the research investigation. These are identified in Chapter 3, Methodology.

1.3   Thesis structure

In order to address these research questions diverse research methodologies have been employed. As depicted in Figure 1–2, a Review of Literature has been conducted and four

practical research methods have been applied utilising both quantitative analysis and qualitative inquiry. This combination has provided a diverse and relatively comprehensive set of research findings as will be presented throughout this thesis. Figure 1-2 also highlights the publications that have been written from the research collected in this thesis.

This Introduction chapter has provided a review of the background context and documented the aim and research questions associated with the research. In Chapter 2, Review of Literature, a full review of literature is provided drawing from a diverse range of disciplines including transportation planning, social and environmental psychology, and engineering. The Review of literature concludes with a summary of the gaps in existing research. Chapter 3, Methodology, outlines the research methods developed to addresses these emergent research questions. This is followed by Chapters 4-7, which describe the four individual research methods. Each of these chapters provides a more detailed description of the research method, presentation of the results and a discussion of the associated implications. Chapter 4, Interviews, describes the most qualitative research method which involved conducting a number of one-on-one semi-structured interviews. Chapter 5 describes the Origin-destination survey analysis which provided a number of useful insights about unfamiliar travel characteristics such as spatial distribution, prevalence, and trip and demographic characteristics. The University access survey is described in Chapter 6, which used a web-based survey about participants' first time using public transport to travel to a university compared with their subsequent trip experiences. In Chapter 7, the Journey planner poll and follow-up Survey research method is described. This method utilised a popular public transport information website in Melbourne survey to survey public transport users before and after their trip. Finally Chapter 8, the Discussion, provides a number of useful insights from all of the research conducted, discusses the implications from the findings, suggests a number of implications arising from the research and provides some direction for future research.

Chapter 1. Introduction

Overview of the research including background context, aim of the research and thesis structure

Chapter 2. Review of Literature

Review of existing research of relevance

Chapter 3. Methodology

Overview of the four research methods

Chapter 4. Interviews

In-depth interviews enabling rich descriptions of unfamiliar travel *experiences*

Chapter 5. Rail Origin – Destination Survey

Large on-platform survey of train users. Emphasis on *circumstances* of unfamiliar travel

1 conference paper (Schmitt et al. IN PRESS)

Chapter 6. University Access Survey

Survey about unfamiliar public transport travel to campus, to examine *experience* and *impact* of unfamiliar travel on attitudes and behaviour.

1 journal article (Schmitt et al. 2013a) and 2 conference papers (Schmitt et al. 2012; Schmitt et al. 2013c)

Chapter 7. Journey Planner Poll and Follow-up Survey

Poll + follow-up survey using trip-planning website to collect pre-and post-journey info, examines *circumstances*, *experiences* and *impact*.

2 journal articles (Schmitt et al. 2014a; Schmitt et al. 2014c) and 3 conference papers (Schmitt et al. 2013b; Schmitt and Harris 2013d; Schmitt et al. 2014b)

Research methods & associated publications

Chapter 8. Discussion & Conclusions

Summarises key findings, critically analyses research design, identifies direction for future research and practical implications of the research.

Figure 1-2: Outline of thesis structure

2 Review of Literature

The previous chapter, the Introduction (Chapter 1), explained the rationale for studying unfamiliar public transport travel. It also identified the overarching aim and research questions of the research and outlined the structure of the thesis. This chapter, the Review of Literature, further explores the context of the research topic by reviewing existing research relevant to unfamiliar public transport travel.

Attracting and retaining public transport ridership is a common policy goal amongst cities worldwide. There are varying reasons why people choose different travel modes or for different origins and destinations. Factors such as available infrastructure, relative travel time, cost and attitudes have been argued as key drivers of mode choice and route choice. Many of these aspects are relatively well understood. However many authors argue that further research into travel decision making is needed for more effective transportation planning (Bovy and Stern 1990).

Travel habits have long been recognized as playing a fundamental role in travel mode choice (e.g. Verplanken and Aarts 1999; Thøgersen 2009), particularly for commuting (Kuhnimhof et al. 2006; Klöckner and Friedrichsmeier 2011). Habits can be defined as automated sequences of behaviour that happen in response to certain cues (Verplanken and Orbell 2003). They result from repetition of behaviour which is usually partnered with favourable outcomes (Thøgersen 2009). For this reason, habits are often touted as a key barrier to increasing public transport patronage and a strong predictor of behaviour (Klockner and Matthies 2004). Habits reduce cognitive effort by decreasing the decision making process; however this also means that additional information about transport alternatives is not sought (Aarts et al. 1997; Verplanken et al. 1997; Klockner and Matthies 2004; Klöckner and Friedrichsmeier 2011) and thus travellers may not be well-informed about transport options, and this may prevent travellers changing mode choices (Fujii et al. 2001; Thøgersen 2009).

For a new travel choice to be made, an old travel habit must be broken. Although there is a wealth of existing literature related to travel habits, there is little research focusing specifically on the experience of non-habitual and unfamiliar travel. A number of authors acknowledge that different market segments may have different needs and that it is important to better understand users, non-users, and barriers (e.g. see Beirão and Sarsfield Cabral 2007) and in order to grow

transit markets travellers must try new services. Very little research specifically looks at these new and in many cases unfamiliar, trips. The research contained in this thesis tries to fulfil this gap.

In this chapter, it will become apparent that while there is limited research directly about unfamiliar public transport travel, other research indirectly suggests new trip experiences are a critical period when individuals decide whether to continue transit services or not. First trips provide transit operators with a window of opportunity to potentially turn a new user into a habitual user. Despite this potentially critical role surprisingly little research has focused specifically on unfamiliar transit travel.

As discussed in the previous chapter, in the context of this research, unfamiliar public transport travel refers to use of a service one has not used before. This definition is largely adopted throughout this chapter, though there are also wider discussions of the concept of familiarity. Also throughout the chapter, the term 'affect', a commonly used term in psychology, is used to refer to 'emotional experiences'.

The chapter has begun with an introduction re-emphasising the importance of the research topic. In the next section, 2.1, Research Question 1 is addressed, beginning with a more extensive review of barriers to new public transport travel with an emphasis on travel habits. This is followed by consideration of the prevalence of unfamiliar public transport travel (section2.1.2). Next a fairly extensive sub-section 2.1.3 reviews the existing research documenting prompts of unfamiliar transit travel. Finally, section 2.1 is concluded with research about the circumstances of unfamiliar trips.

In the next major section of the Literature Review, section 2.2, existing literature regarding the experience of unfamiliar transit travel is documented. The section begins with a review of affective experiences (2.2.1). Wayfinding is discussed in sections 2.2.2 and 2.2.3, followed by an overview of perceptions of time (2.2.4). The section on experiences concludes with a review of literature related to expectations and preconceptions (2.2.5) and a discussion of the interpersonal variability of experiences (2.2.6).

Following the review of unfamiliar travel experiences, Research Question 3 is addressed in section 2.3, which draws from a vast array of psychology and transport research to attempt to understand the impact of first trips on subsequent attitudes and behaviours. The section begins by presenting a framework to understand how first trips can impact behaviour, primarily

focusing on the Theory of Planned Behaviour (TPB), which explains the relationship between attitudes and behaviour, and a review of how first trips fits into this context (2.3.1). This is followed with an examination of how first trips may shape attitudes (2.3.2), and a closer examination of potentially relevant biases 2.3.2.1) and a discussion of first impressions of environments 2.3.2.2). Finally, travel behaviour is examined from a more longitudinal perspective in section 2.3.3. The chapter concludes with a summary of the key findings from the literature review (2.4), with key gaps in knowledge identified.

2.1 Circumstances surrounding unfamiliar journeys

This section examines the existing literature around circumstances of first public transport trips. It begins by identifying barriers to unfamiliar transit travel, including habits. This is followed by a review of first trip prevalence and prompts for unfamiliar transit travel.

2.1.1 Habits and other barriers to unfamiliar travel

The introduction of this chapter outlined how habits are an obstacle to travel behaviour change. This section provides more details about this subject. There are three particularly noteworthy characteristics of habit formation and persistence. Firstly habits grow in strength the longer they exist (Van Exel and Rietveld 2001; Davidov 2007). They also become stronger the more often that an action is performed (Klockner and Matthies 2004; Davidov 2007). And finally they serve to preserve cognitive resources by decreasing the complexity of decision making which decreases the power of intention. By not having to carefully deliberate each day how to travel, people are able to more fully consider other choices like what to cook for dinner. In contrast, Aarts et al (1997) describes how weak habits are associated with more complex cognitive demand. All of this suggests that the longer one has been performing a behaviour the less cognition is required. This implies that a first trip, in contrast, would require significant cognition. This has important implications to the topic, suggesting that habits may be a barrier to unfamiliar travel occurring and that trip experiences would be associated with more cognitive effort.

Individuals generally seek to minimise cognitive costs such as the information-seeking required to consider new ways to travel. There are also additional barriers that may inhibit public transport uptake. Tertoolen *et al* (1998) argue that reducing car use is associated with psychological resistance due to perceived individual disadvantages such as loss of independence.

Autonomy and predictable travel times have also been found to be attributes that other mode users wish to protect (Thomas et al. 2014). Thus Thomas et al (2014, p.79) suggests the implementation of public transport infrastructure that reduces perceptions of uncertainty such as real-time information and potentially even dedicated bus lanes.

Authors also argue that changing travel modes to public transport has a high cognitive cost. For example, Stradling (2002, p.23) argues that, "current car commuters see a public transport alternative involving interchange as requiring unwelcome additional expenditure of physical and emotional resource". On this basis, a possible key to initiating first trips is to initiate circumstances which make the execution of the habitual behaviour impossible or unappealing to automatically complete (Thøgersen 2009). In such circumstances the traveller will execute a more rigorous decision-making process which may induce a shift to a different and potentially more rational behaviour (Van Exel and Rietveld 2001). Such circumstances will be explored in section 2.1.3.

Research suggests that marketing alone does not necessarily induce travel behaviour change. For example a study was conducted which involved the dissemination of marketing materials to random participants partnered with a follow-up survey aimed to assess any subsequent shifts in attitudes or behaviours, and included both treatment and control groups (Beale and Bonsall 2007). Marketing material aimed at overcoming perceived barriers to local bus use and 'correcting' common misperceptions about the services was found to support increased bus use among habitual bus users but significantly *decreased* bus use among infrequent users.

Habits are well recognised to influence behaviours and thus have been incorporated into discrete choices models such as the Triandis theory of interpersonal behaviour (e.g. refer Galdames et al. 2011) and the Theory of Planned Behaviour (refer Verplanken et al. 1994; Bamberg et al. 2003). The latter is discussed further in section 2.3.1.

2.1.2 Prevalence of unfamiliar travel

One aspect of Research Question 1 is investigating the prevalence of unfamiliar public transport travel. Previous research indirectly suggests that first trips on public transport may be somewhat infrequent. As previously discussed, there is some inherent psychological resistance to breaking habits and a number of characteristics about public transport that inhibit its attractiveness to new users, which may be inhibiting unfamiliar use of transit services. Verplanken and Orbell (2003) argue that new behaviours are uncommon with repetition being much more common. Likewise

Van Exel and Reitveld (2001) suggest that deliberation about how to travel somewhere is only likely to occur infrequently, usually as a result of a great change in travel-related circumstances. However there does not appear to be any existing studies that specifically measure the prevalence of unfamiliar travel.

2.1.3 Circumstances that prompt unfamiliar travel

It is important to understand when first trips may occur in order to target the provision of measures to support unfamiliar trips and ensure passenger retention. The remainder of this section explores circumstances that might prompt first trips to occur.

2.1.3.1 Life events / transitions

A major prompt for people to reconsider their travel patterns is a life event (also known as 'life shocks', 'life transitions', or 'turning points'). Life events tend to involve a change in home origin, travel destination, or other circumstances that cause a change in routine (Sharples 2009). Some major life events that may be associated with altered travel patterns include moving houses, moving cities, starting university, starting a new job, obtaining a driver's license, switching schools, changed personal mobility, workplace relocation and having children (Davidov 2007; Sharples 2009; Van Exel and Rietveld 2009; Engel et al. 2014). A significant reduction in income could potentially also be considered a life event as someone struggles to reorganise their finances in a way to live within their means, potentially causing a reassessment of travel behaviour.

Because life events typically involve great changes they do not happen very frequently but rather are uncommon events (Sharples 2009). Beige and Axhausen (2014) undertook longitudinal analysis for a 20 year period in Switzerland and found that personal and familial events such as moving out of parents' houses, births and marriages only occur for 0-2% of people a year and are more frequent in younger stages of lives; in contrast changes in employment, residence and education occur much more frequently with approximately 15% of respondents changing at least one of these within each year. The authors also note that life events often occur simultaneously, such as for example, when one has a child and moves to a different location (Engel et al. 2014). Goodwin (2004) found that most people will have at least one life event within a five year period.

Because of the role of life events in promoting travel behaviour shifts, Thøgersen (2009, p.343) suggests targeting public transport trials and promotions to "consumer segments whose lives are

undergoing changes that make them more open to reconsider their travel options". Some life events may be generally associated with increased or decreased likelihood of trying public transport based on characteristics of typical public transport users. For example, Venezia (2009, p.89) postulates that studying and working often prompt use of public transport: "these motivations are three times more important than reasons related to shopping and one and a half times more important than reasons related to leisure activities. Moreover employees and students are four times keener on using buses than housewives". Scheiner (2014) also found that childbirth results in the mothers walking considerably more often but decreasing travel by most other modes (car passenger, public transport, and bicycle). However what constitutes a life event may differ between people (Sharples 2009). So, for example, whereas one person may think that starting university is a big life event which causes them to reassess how they travel, another person may not consider it as such, particularly if they continue to live at home and their university is located near to their high school.

Moving residences is one life event that research suggests is particularly likely to upset commuting habits. Indeed Dziekan and Dicke-Ogenia (2010) has examined unfamiliar transit travel related to being a newcomer to a city. Newcomers have also been found to value public transport information provision and reliability more than traditionally favoured service aspects such as quality and safety (Kinsella and Caufield 2011) Mackett and Sutcliffe (2003) argue that new public transport services are likely to be more successful if they are introduced to growth areas. It seems likely that this could be at least partly attributed to the fact that growth areas would likely be associated with higher levels of people moving home, hence supporting the notion that life events like these may be associated with reassessing travel habits. In fact Bristow et al (2008, p.416) advise that if new developments are not supported by public transport services from the outset, car dependence will be maintained due to the life event induced re-evaluation of commuter habits happening without the availability of viable alternatives:

Individuals are more likely to change their travel behaviour when changing home or job locations. New developments give easy access to people who are by definition changing their journey origins and/or destinations. Commercial operators are unlikely to enter such markets until a critical mass of population is attained at which stage it is likely to be too late as car dependent patterns will have emerged.

Thence the authors argue for implementation of programmes to support the facilitation of new or marginal bus services.

In a study of university staff, Verplanken et al (2008) found that those who were characterised as environmentally concerned and who had moved recently used the car less frequently for work than those who had not moved recently. In another study, people moving to a new town who received information about local transit service used public transport more often than those who were not given this information (Davidov 2007). This result contrasts the previously discussed study by Beale and Bonsall (2007) which found that marketing materials alone were not enough to induce travel behaviour change. Therefore it seems that habits are more likely to be broken if information is provided when habits are forced to change (through life events). Interestingly, however, Davidov (2007) found that the amount of independent information search about services by the individuals prior to the move was not correlated with higher rates of patronage. Despite the documented influence of moving houses to reassess travel habits, some research suggests that travel considerations play a negligible role in the location decision making process (Benjamin and Paaswell 1981).

2.1.3.2 Tourism

Tourists often undertake unfamiliar public transport travel in cities (Le-Klähn et al. 2014). Thus, tourists make up a share of 'new users' of services and may offer the potential to provide insights about first trip experience, though possibly differing to that of locals undertaking unfamiliar travel in their own city. These authors add that "the target customers for PT in an urban area are younger tourists on their first visit to the city. These tourists often travel on holiday and stay in the city for more than one day" (Le-Klähn et al. 2014, p.159). In addition, an indirect effect of first trips for tourism may occur: it seems plausible that travel to another place could prompt reassessment of their travel at home. For instance, if a car user tried public transport travel whilst overseas this experience may cause them to reconsider using their local city's public transport system for some activities.

2.1.3.3 New systems

New public transport systems are by definition associated with a high number of unfamiliar travellers. Authorities are typically eager to better understand just how many new users services will generate and within what timeframe they can expect patronage to grow (Chatterjee and Ma 2009). This is usually an important measure of success for a new system, particularly if new users are former car drivers, as one of the most common justifications for new systems is reducing traffic congestion (Mackett and Sutcliffe 2003). Chatterjee and Ma (2009) argue that responses are not always instantaneous, but rather evolve over time.

Evidence suggests that most new service uptake happens within the first year of the service being introduced, with the first week of service introduction attracting the largest number of new users (Chatterjee and Ma 2009). For example, Figure 2-1 depicts the number of new users for each week, along with the number cumulative new users, after a modern fast bus service was introduced to Gatwick airport in England.
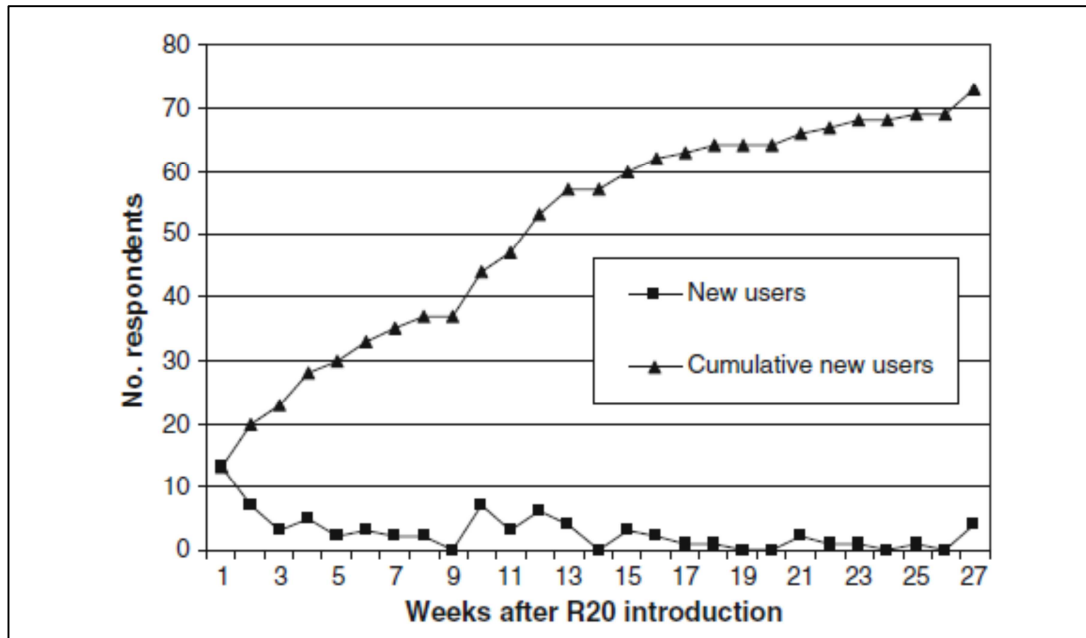
Figure 2-1: New users of Gatwick (UK) bus service by week (Chatterjee and Ma 2009)

For the above service, it was found that younger residents and residents without driving licenses comprised a larger proportion of the new users than other groups (Chatterjee and Ma 2009). This age profile was also found by Nordlund and Westin (2013) in a study of a new rail line in Sweden.

2.1.3.4 Change in generalised cost of travel

Changes on the generalised cost of travel can sometimes prompt re-evaluation of travel behaviour and prompt new public transport trips to occur. Changes in generalised costs can occur in relation to a number of scenarios some of which are outlined below.

Promotion of public transport services, often in the form of vouchers for free public transport use, offers another circumstance when a number of first trips might take place. Travel vouchers can provide the motivation not to commute by car but can be expensive to administer, so are not very common (Root 2001; Gould and Zhou 2010). Such trials are often justified by the

prospect of drivers' adjusting their attitudes towards public transport and continuing to use it, with some authors (e.g. Thøgersen 2009) even arguing that the trial may lead to the development of a public transport habit that prompts the individual to change structural conditions like car ownership in the long run, further supporting continued use of public transport. However, provision of travel vouchers in the USA, at least, has shown to mostly effect existing users of public transport who simply increase their ridership while the vouchers are on offer (Root 2001). Impacts of such trials on attitudes behaviour is examined further in section 2.3.

Bamberg and Schmidt (1999) researched the impact of provision of a 'semester ticket' in Germany which enabled free public transport for any student ID card holder and found that bus use increased significantly form 15.3% to 30.8%. Thus a number of first trips would have been associated with this intervention. The authors explain that, "in the case of the Giessen semester ticket, the drastic price reduction seems to have had the primary effect of raising motivation especially of car-using students to re-evaluate their travel mode choice consciously" (Bamberg and Schmidt 1999, p.506).

Lane (2010) has argued that the rapid rise in gasoline prices in the spring and summer of 2008 encouraged a reappraisal of commuting habits that led to some people adjusting their travel behaviour, as evidenced in increased transit ridership during this period in the USA. Likewise in a public transport trial experiment undertaken by Gould and Zhou (2010, p.95), "the price of gas was the primary reason commuters sought out the experiment." This suggests that, particularly in combination with other circumstances which may question habitual processes, fuel prices can serve to prompt a change in travel habits.

Road closures which may either remove or diminish private vehicle accessibility may also be associated with prompting people to try using public transport for the first time. Fujii *et al* (2001) examined how a temporary freeway closure affected drivers. Statistical analysis indicated that frequency of public transport use was significantly greater during the road closure period than beforehand. Similarly Chatterjee and Ma (2009) argue that delays on roads due to large events, road works or other factors may encourage some to consider public transport.

There are other circumstances that might induce mode shift to public transport. For example, implementing road pricing on a temporary basis may prompt some people to try public transport (Fujii et al. 2001). Special events like concerts or sports games may attract some individuals to use public transport due to a desire to consume alcohol or concerns about event traffic (Chatterjee and Ma 2009). Ongoing adverse impacts of car use such as difficulty finding parking,

congestion or costs could combine to the point where someone reconsiders their travel. Hebel (2009) describes a study of Polish travellers which revealed that difficulty in finding a place to park at a destination was the biggest reason why car users opted to use public transport. However, even with a number of these circumstances a new trip will not definitively occur, particularly if transit options are limited, non-existent, or are not competitive with car travel times. For example in the study of a public transport trial by Gould and Zhou (2010), 34% of participants investigating the public transport trial chose not to actually take public transport. This sub-group lived farther from their work than the other groups who tried public transport, so probably had reduced convenience in public transport services.

2.1.3.5 Temporary Loss of Access to Driving/Car

Another prompt for unfamiliar public transport journeys to occur include loss of access to a car or legal permit to drive a private vehicle. Kunimhof (2006, p.45) describes how, "some multimodal travellers might choose public transport exclusively in situations when no car is available to them, for example, because the only car in the household is in use by other household members," which shows the importance of car availability to mode choice. Access to a car could be removed either temporarily or permanently due to mechanical failure, theft or another person using the car. Drivers' licenses can be revoked for a number of reasons including too many driving infringements or a single severe infringement (e.g. driving under the influences of drugs and alcohol) or failure to renew a license.

2.2   Experience of unfamiliar travel compared to familiar travel

The previous section examined circumstances prompting unfamiliar public transport travel. This section addresses Research Question 3 by reviewing research related to the experience of undertaking unfamiliar public transport travel. There is no extensive, well-collated previous research about experiences of unfamiliar public transport travel so this section reviews research pertinent to unfamiliar transit travel and identifies some of the key emergent features of unfamiliar travel experiences based on the literature.

A fundamental challenge for public transport operators to meet is that their perceptions of the usability of a system are not always aligned with the perspectives of existing and potential passengers (Rochefort 1981; Hutchinson 2009). In particular, the experience of someone who is unfamiliar with a system, having never used it previously, is likely fairly different to that of a

service operator, who knows the system inside and out (Lai and Chen 2011). This disparity is a fundamental challenge for public transport operators to overcome to ensure positive customer experiences. This section reviews research related to unfamiliar travel experiences more specifically.

Some research about variability of trip experiences between different passenger and trip types may offer insights about unfamiliar public transport travel experiences. Within the general research about public transport travel experience, some studies touch upon the role of familiarity in affecting experience. For example Lyons et al. (2007) looked at activities undertaken during travel and found that more people gazed out of windows for leisure trips than for business trips and that perceived value of travel time varied by passenger types. Bissell (2010 p.271) looked at transit experience in terms of the interpersonal experience between passengers and noted the "sense of familiarity that might develop between passengers who commute by the same bus, tube or train on a daily basis". Earlier work by Bissell (2009) noted that repetition of public transport journeys might aide development of skills and techniques for moving with large objects through railway stations and that "inexperienced travelers who have not had the chance to develop such strategies…might experience relatively greater degrees of encumbrance" (Bissell 2009, p.191).

One particularly relevant study (Echeverri 2005) included eight public transport users with disabilities of various kinds and 12 passengers without disabilities; six of these were infrequent travelers and six were frequent travelers. Customers were given microphones to document emotions, thoughts and behaviour while they travelled from home to a selected destination. The study captured 33 trips including "well-known" journeys and "unknown" journeys. The recordings captured particular problems encountered in transferring between modes and for the final trip ends (from the transit service to the final destination). Echeverri (2005, p.205) specifically identifies inadequacy in information provision as contributing to these issues, especially for disabled and unfamiliar travelers, "able-bodied travellers, especially in the "infrequent traveller" group, showed similar perceptions [of difficulty]. People who are not used to the environment find it difficult to navigate the transit environment". In addition to the study's findings regarding obstacles for those with disabilities, it is interesting that this quote identifies 'able-bodied' travellers who travel infrequently to have similarly negative perceptions.

Some of the major themes of unfamiliar transit travel experiences will now be explored in the next section.

2.2.1 Affective experiences of unfamiliar transit travel

Affective (emotional) experiences such as pleasure, freedom, powerlessness, security and anticipated regret, it has been argued, have impacts on intention and travel choice behaviour that are *greater than* those associated with utility assessments (Mann and Abraham 2006). In fact, Reman et al. argue that (2013, p.119) "attributes most effective in attracting car users are largely affective and connected to individual perceptions, motivations and contexts." It is, however, acknowledged in the present research and by other authors (e.g. Mann and Abraham 2006) that utility is important and that it is more important to some individuals or circumstances than others.

Louise Jensen (2012) examines public transport travel from a phenomenological perspective and describes how travelling can affect emotions and emotions can affect travel. She identifies public transport as "an important everyday space – an ever-changing space where the practices of commuting with all their variations fill and add to lives on board and outside of the train" (Louise Jensen 2012, p.206). She also highlights how commuting can become a routine which is contrasted by atypical events, "while the everyday routinized commuting and the disruptions in it are characterised by different degrees of habitual social interaction and practices, the extraordinary events represent situations in which it is difficult to fall back on prior patterns of behaviour" (2012, p.205). Thus her phenomenological description captures the seeming contrast between familiar and unfamiliar transit travel.

Numerous studies suggest that public transport is generally associated with more negative affect than private car use, primarily due to a number of psychological stressors that often accompany public transport use (Ellaway et al. 2003; Mann and Abraham 2006; Gatersleben and Uzzell 2007). Some of the major stressors include crowding, unpredictability, longer travel times, trip planning and a lack of perceived control (Hutchinson 2009).

It seems likely that unfamiliarity with transit services may exacerbate some of these negative stressors. Because first trips are not habitual, it seems likely that they would require more cognitive effort. Travelling in an unknown environment by public transport is discussed by Dziekan and Dicke-Ogenia (2010) as being challenging and stressful due to a perceived lack of control, a lack of information and a process of updating one's 'cognitive map'. Indeed, Davidov (2007, p.319) describes how "the price of using the bus, for example, is not only the price of purchasing the ticket but also includes the cost of looking for information" including the timetable, the location of bus stops and which route to take.

Moreover, Stradling (2002, p.26-27) describes the potential for embarrassment, frustration and regret on a first trip, "waiting in the wrong place at an interchange makes you vulnerable to ridicule as well as to the possibility of missing the right bus or catching the wrong one". The worry associated with the unfamiliar is also articulated by Zhang (2002) who suggests that people would be less anxious and impatient on unfamiliar trips if they knew how long it would take to reach a destination. Journey time estimates on public transport information websites have probably aided in abating some of this worry but until people have undertaken the trip, and probably a few times, they might not 'trust' the time estimates offered by computer. Increasing perceived control has been posed as one way to mediate stress related to public transport use (Evans and Carrère 1991).

Interestingly, much of the research about transport worry, in general, has been concerned with uncommon fatal or safety risks rather than lesser but more likely risks, such as, for example, being late to work (Backer-Grøndahl et al. 2009). This is worth noting because research indicates that worry in relation to public transport is associated more with unpleasant incidents than accidents, whereas private vehicle travel is associated with the opposite characteristics of worry (Backer-Grøndahl et al. 2009). This would suggest that worry associated with public transport may be under-researched due to the perception that such worries tend to be 'trivial' in nature.

2.2.2 Overview of wayfinding

One area of environmental cognition related to novel environments which has been extensively explored is wayfinding. Wayfinding can be defined as "the process of collecting information from our built environment, to know where we are relative to where we want to go and how to get there" (Woyciechowicz and Shliselberg 2005, p.36). Wayfinding is a large component of the psychological processing of a novel environment, and fundamental for unfamiliar travellers to reach their destinations.

Prestopnik and Roskos-Ewoldsen (2000) argue that wayfinding involves complex cognitive processes. These of processes include remembering street names, locations of streets and landmarks, how streets lay in relation to one another, and how the locations of these are all related to the location of the traveller. In addition, as someone moves, they must continually update this information. Rochefort (1981, p.76) argues that this can be particularly challenging as people "don't know their own town to the degree a cartographer would expect. They know

the major points of reference (church, hospital, shopping centre, rail station) and they relate them to one another with no connection to actual scaling."

There is variability in personal willingness to try new routes vs. sticking with known routes (Bovy and Stern 1990). However, in general research suggests that people tend to prefer familiar routes, in fact it is not uncommon for people to travel by a familiar means even if there is a potentially shorter but unfamiliar way (Bovy and Stern 1990). Even with navigational aids people may prefer familiar environments to the unfamiliar due to unknowns associated with the unfamiliar route. For example, maps do not show traffic lights or speed cameras, and may not show the level of detail required. Prestopnik and Roskos-Ewoldsen (2000) postulate that one of the reasons that people prefer familiar to unfamiliar environments has to do with varying wayfinding abilities and navigational techniques.

In addition to individual differentiation in wayfinding abilities, there are a number of external factors that may affect wayfinding. These include characteristics of one's situation, information available, density of buildings in area, landmark availability, and street patterns (Bovy and Stern 1990; Prestopnik and Roskos-Ewoldsen 2000). Old city networks are regarded as being more complicated to the unfamiliar traveller (Bovy and Stern 1990) and thus would greatly benefit from design components that could improve wayfinding (Woyciechowicz and Shliselberg 2005). Farr et al (2012) contend that there are particular wayfinding challenges in transport hubs. While their research focuses on airport terminals, the aspects identified as challenging seem likely to be similar for public transport hubs: "passengers can be nervous, time-constrained, come from different cultural backgrounds, are unfamiliar with the language used, are inexperienced in the travel process and are in an unfamiliar environment" (Farr et al. 2012, p.23). Thus the authors emphasise the importance of wayfinding information to reduce stress and to improve passenger satisfaction and support positive experiences.

2.2.3 Wayfinding on public transport and supporting tools

Woyciechowicz and Shliselberg (2005) state that although there is much research related to wayfinding in general, research pertaining to its application on public transport is limited. A great challenge for transport professionals and infrastructure providers in general is to understand the mind-set of unfamiliar travellers. Woyciechowicz and Shliselberg (2005, p.35) articulate this obstacle well: "constraints imposed by the road network and local geography often create patterns that, however obvious to the professional transportation planner, are not at all obvious to the average user examining a map".

Wayfinding on public transport systems is characterised by trying to address the following types of questions:

How does one navigate a public transport system? Which bus will go most quickly where a passenger wants to go? Where will the needed stop be found? How will a passenger recognize where to get off? How does a person find a way through the transit network? (Woyciechowicz and Shliselberg 2005, p.35).

Public transport systems are not always intuitive to use. Transferring between public transport services can be particularly challenging for wayfinding. Interchanges can be difficult to navigate due to multitudes of services coming together in one location with sometimes complex passages and stairs to venture around (Zhang 2002). Multiple, grade separated levels and multiple directional changes can make transit centres more complex and thus difficult for a new user. Woyciechowicz and Shliselberg (2005, p.35) describe the confusing bus network in metropolitan Tel Aviv, "there are many lines with asymmetrical routes over a course of hundreds of meters, and in some cases far more than a kilometer. Only the most veteran user can possibly find the stop for the return journey [sic]", which of course does not sound promising or inviting to a first time user. Difficulties with wayfinding likely contribute to the large transfer penalty imposed when travellers must change services.

Thus wayfinding is associated with an intensified need for clear, understandable, and easily accessible information (Hutchinson 2009). Woyciechowicz and Shliselberg (2005) describe the importance of accessible information (though their term used is 'legibility') on public transport. Examining the benefits of good information highlights the risks of sub-standard information. Non-legible public transport signs may increase the amount of time passengers spend finding a route and may result in non-optimal route selection which may take more time and decrease perceptions of public transport's real travel time potential. This also implies the experience of an unfamiliar public transport user; they are always at risk of making a wrong and potentially costly (time-wise) decision. A first trip may require more physical effort if it is not performed exactly as it should be due to a lack of information. For example, one may walk in the wrong direction to find a bus stop and then have to double back which has utility implications as well as 'costing' extra time.

Common tools to avoid such risks for unfamiliar public transport users include color-coded maps, fliers and signs which "provide essential information to the veteran rider and especially to the first time or infrequent ride" (Woyciechowicz and Shliselberg 2005, p.35). Hutchinson

(2009) cautions though that information provision is often fragmented. In particular, in terms of trip planning, the maps in street directories are typically designed to be useful to car and truck drivers, not public transport users. This issue could potentially result in negative experiences for new users. In their research about visitors and non-users of public transport, Le-Klähn et al (2014, p.152) advise "the study highlights the importance of public transport information and accessible and conveniently located train stations and bus stops for visitors and locals alike."

Ample wayfinding information is essential for reducing the uncertainty associated with wayfinding. Dziekan and Dicke-Ogenia (2010, p.87) discuss the differentiated needs of unfamiliar transit travellers compared with familiar users:

The inexperienced traveller needs more and different information compared with those travellers who already have some previous knowledge of the public transport system in general or within a specific metropolitan area. To focus on the first user group means to define some minimal requirements for the system. Meeting these requirements will also satisfy the more experienced travellers, because they are able to select the information they need. It is better to provide redundant information than leave out important details. The experienced traveller, who does not need specific information, will automatically skip this information….Applying this user-centred approach to the provision of travel information about public transport options in an unknown environment, could result in a more optimised use of public transport. Travellers and potential travellers may experience travel chains including public transport as less stressful. Thus, the image of buses, trams and trains may improve and in the long-run, increasing usage of these services could result.

The importance of adequate information is also iterated by research about advanced traveller information systems. For example, Farag and Lyons (2012, p.91) argue that:

Access to PT information could in certain circumstances increase the use of public transport. Persons who occasionally use public transport might extend this use to more trips once they have gained familiarity with both the public transport system and consulting PT information. Also, if PT information services would be advertised on trains and buses, public transport users might be reminded to use these information services and consequently might travel again by public transport.

Thus the authors see transit information access as fundamental to growing public transport markets by supporting unfamiliar transit users.

2.2.4 Perceptions of time

Wayfinding literature posits that unfamiliar travellers are likely to be spending their travel time actively observing their environment as they attempt to navigate to their destination. Some authors argue that people are more cognizant in unknown environments (Nahemow 1971; Oliver 2002). This suggests that first trips may be characterised by more observational behaviour than other trips and due to the heightened environmental cognition, may 'feel longer'. In contrast, it is likely that habitual travellers will be more likely to spend their travel time undertaking other activities. For example Lyons (2007) looked at how travellers use travel time productively, providing positive utility. Li (2003) describes how 'polychronic' use of time (e.g. like reviewing journal articles on a train trip) passes quicker. Meanwhile Fujii et al (2001) found that car users' negative preconceptions of long public transport travel times were "corrected" by trying public transport during a freeway closure.

Together these studies suggest that unfamiliar public transport travel may 'feel longer' due to elevated cognition associated with the unfamiliarity whereas familiar travel may feel shorter due to polychromic activities which also serve to provide positive utility. Meanwhile the unfamiliar travel itself may help to "correct" car travellers' and infrequent transit users' negative temporal expectations.

2.2.5 Expectations & preconceptions

Some people may not opt to try public transport even when offered free travel due to negative subjective preconceptions of the services (Gould and Zhou 2010). This suggests that even if such individuals were cajoled into using public transport for another reason, such as, for example, if their car has mechanical failure, they may bring negative expectations of the service. This could result in them either being pleasantly surprised if the service is generally good or, consistent with social psychology's well-documented "confirmatory bias", interpreting every detail negatively. Indeed, Pedersen et al (2011) found that car users underestimate future satisfaction of services, whereas their actual experienced satisfaction is much higher than they predict. Similarly Beirão and Sarsfield Cabral (2007) argue that, consistent with previous studies (e.g. Beale and Bonsall 2007), frequent bus users have more positive beliefs of bus services than non-users and also do not identify as many barriers to using buses as non-users. More specifically, they add:

People who never use buses or have only used them many years ago have a very negative image of the bus service. This may be due to their lack of actual knowledge about bus service and how much they have improved since they have last used them. Also, they may have based their beliefs on opinions given by others, and on observing, as car users, long queues of people waiting at the bus stop in the rain (Beirão and Sarsfield Cabral 2007, p.486)

Thus the authors imply that non-users may be negatively biased even if they do try public transport.

2.2.6 Interpersonal variability of experiences with circumstances

Considering the diversity of circumstances prompting first trips, as discussed in section 2.1, it is worth exploring how first trip experiences might vary among different users or with differing circumstances of travel.

In a study by Nahemow (1971) examining experience of a novel environment, the researchers were fascinated by the variation in the way people responded to the environment. Individuals may also experience first public transport trips differently to one another due to different background experiences, different preferences and varying expectations of the services. Indeed some suggest that in order for public transport marketing to be successful it may be important to vary it, according to different populations (Hutchinson 2009). Van Exel and Rietveld (2009, p.375) suggest "identifying distributions of differences among individuals and addressing significant subgroups in different ways. In other words, policy interventions need to be more responsive to the different motivations and constraints of different travel behaviour segments".

Higher incomes have been shown to be associated with greater preferences for convenience (Vredin Johansson et al. 2006), which implies that someone with a higher income may experience a first public transport trip differently to someone of a lower socioeconomic class even if they are using the same service. According to this finding, one would expect the higher income individual to be more frustrated by inconveniences on unfamiliar transit travel.

Stradling (2002) notes that there is variability in the kind of psychological benefits associated with different modes. It is recognised that there is general variation in what factors are more important to different people in either trying public transport or factors which affect satisfaction. Ellaway *et al* (2003) suggest that there are significant differences between gender and the social significance of cars and public transport. For example men find cars more intrinsically interesting and use them more than women. Davidov (2007) argues that respondents with a

higher education have a lower preference to use public transport. This could be, he surmises, partly due to the role of the car as a status symbol with perhaps more educated respondents also more interested in status seeking activities. It seems reasonable to assume that someone who values their car as a status symbol may have a different attitude on a first trip than someone who does not care as much about modal status identity.

Age differences may lead to different experiences on a first trip. Robin *et al* (2007) found that older respondents were particularly sensitive to incivilities in public places. Meanwhile, participants in the under-25 year-old age group were less concerned about incivilities but were more concerned about automobiles, public transportation, and environmental annoyances.

Familiarity with areas or transit use can also be associated with different public transport experiences. Rochefort (1981) found differences in perceptions about the quality of service offered by local bus system differed greatly between regular users, non-users and occasional users. Mackett and Edwards (1998) maintain that for first trips associated with new services, many of the new users will have undertaken the same journey previously on another service or by another mode, so will be somewhat familiar with the surrounding area. New users on other services could be from the local area or other states or countries (Zhang 2002). It seems fair to assume that the experience of a migrant would likely differ to someone who has lived in at least the same metropolitan area for their entire life. A new migrant or tourist may be spending time using the public transport service to evaluate the system in comparison to where he or she is from and examine the surroundings. Navigational ability will also vary between new and long-time residents, partly because they have different bearings to use (Woyciechowicz and Shliselberg 2005).

Overall there are a number of challenges to ensuring positive public transport experiences, but there are also some aspects of public transport use that can be positive. It has been argued that some of the sensations associated with public transport, particularly affective experiences, are not necessarily obvious, nor well researched (Coxon et al. 2008). It is hoped that the present research helps to fill this gap, at least with regard to first trip experiences.

In the next section the impact of these unfamiliar journey experiences is discussed.

2.3 Impact of unfamiliar travel on attitudes and subsequent behaviour

This section reviews literature related to determining the impact of unfamiliar public transport journeys on attitudes and subsequent travel behaviour. It begins by presenting a framework of how first trips can impact behaviour, notably under the popular and well-known Theory of Planned Behaviour (TPB), which is often used to explain behavioural trends and predictors of behaviour. It then explains how first trips can impact key predictors of travel behaviour, particularly attitudes. This is followed with an examination of how first trips may shape attitudes (2.3.2), and a closer examination of potentially relevant biases 2.3.2.1) and a discussion of first impressions of environments 2.3.2.2). Finally, in 2.3.3 the role of unfamiliar travel in impacting future travel behaviour and habituation is explored more deeply.

2.3.1 A framework of how first trips can impact behaviour

One of the central theories used to explain travel behaviour is the Theory of Planned Behaviour. The Theory of Planned Behaviour (TPB) is a decision-making model, or framework, posed by Ajzen (e.g. 1991) that is commonly cited and discussed in research about travel behaviour choices (Thøgersen 2009). The framework is comprised of core psychological constructs and contends that behaviour is predicted by intention which is predicted by attitudes and beliefs regarding the behaviour (Collins and Chambers 2005). This process is depicted in Figure 2-2.
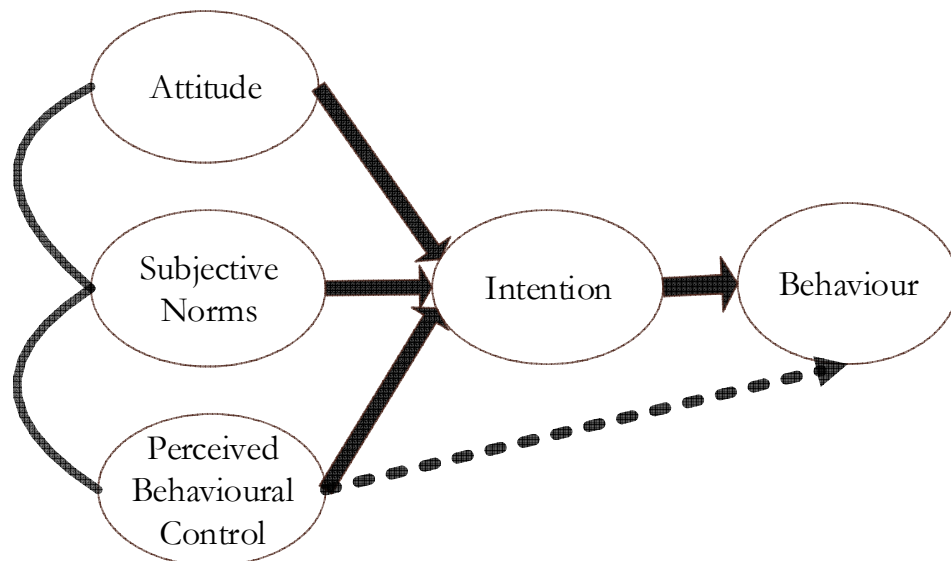
Figure 2-2: The Theory of Planned Behaviour (Ajzen 1991)

In this model, attitudes "represent a general evaluation of each behavioural alternative based on beliefs about possible outcomes of selecting the respective alternative" (Klöckner and Friedrichsmeier 2011, p.262). Beliefs about behaviour include subjective norms and perceived behavioural control. Subjective norms can be defined as the perceived social expectation associated with each alternative (Klöckner and Friedrichsmeier 2011). Perceived behavioural control refers to people's assessments of their capability to perform a particular behaviour (Mann and Abraham 2006). Klöckner and Friedrichsmeir (2011, p.262) explain that intentions "are generated in a maximum utility calculation, integrating the three components: attitudes (ATT) towards the different behavioural alternatives, subjective norms (SN) regarding the alternatives, and perceived behavioural control." In other words, intention, which precedes behaviour, is determined by people's attitudes, perceived social pressure, and perceived behavioural control (Mann and Abraham 2006).

Evidence suggests that variations in intentions to use different modes can be explained by variations in these three factors, though much of the research focuses particularly on attitudes and perceived behavioural control. When travel habits are disrupted or someone's context is somehow shifted, individuals go through a task of information processing, which involves rethinking costs and benefits. The result is that they usually choose the most rational choice in behaviour, which differs from habitual travel as it is not always the most rational choice (Van Exel and Rietveld 2001). Going through a rational information processing exercise does not always result in a change in mode; the individual must be (or become) aware of alternative ways to travel (Davidov 2007). In addition, from the deliberation, public transport must be deemed the superior option for the individual to use it and to continue using it (Thøgersen 2009). Thus for long term changes in habit to occur, the new travel behaviour must be perceived as better than the former travel pattern (Thøgersen 2009). Research undertaken by Kuhnimof et al (2006, p.47) in Germany indicated that half of all car drivers also use public transport for some trips indicating, the researchers argue, that "multimodals today choose public transport because it is the better option compared with the car in specific situations". The fact that these patrons continually use public transport alongside private car use seems to suggest that a rational decision making process is taking place where they have found it to be suitable for some purposes but not others. In other words, the experience has validated the mode's superiority for some trips. The impact of first trip experiences in affecting perceptions and attitudes is discussed more thoroughly in the next section.

As explored earlier in this chapter, habits play an important role in travel choices, however much less is known about the importance of 'intervention' behaviours like first trips in the context of the TPB. Bamberg et al (2003, p.176) frame the role of 'interventions' like first trips in the concept of the TPB articulately: "according to the theory [TPB], it should be possible to influence intentions and behaviour by designing an intervention that has significant effects on one or more of the antecedent factors, that is, on attitudes toward the behaviour, subjective norms, and perceptions of behavioural control". The authors also highlight that the predicting antecedents identified in the TPB are only "accessed" and "consciously formulated…in the early stages when behaviour is newly enacted. Once the behaviour has been performed many times, it is usually no longer necessary to go through a consideration of accessible beliefs" (Bamberg et al. 2003, p.185). Thus the authors are arguing that the TPB is particularly relevant for new travel behaviours like first trips, before the behaviours become semi-automated, at which stage the TPB becomes less relevant. Similarly other authors also argue that the TPB is particularly relevant for novel or unfamiliar situations or weak habits (Aarts and Dijksterhuis 2000; Gardner 2009).

The TPB is well-regarded for explaining much of the variance associated with travel mode choice, and attitudes have been observed to be one of the central predictors of behavioural intention. Attitudes are important to transport decision making because they allow people to make decisions relatively quickly, providing for efficient cognitive processing and thus reducing the 'cognitive cost' of behaviours (Sanbonmatsu and Fazio 1990). For example, in a study sample of Swedish commuters, Vredin Johansson et al (2006) found attitudes towards flexibility and comfort as well as personality traits like being pro-environmentally inclined, to be important in mode choice decisions. The authors note that modal time and cost (more reflective of traditional transport planning metrics and perceived behavioural control) are still important but that these attributes offer an alternative means to attract individuals to use public transport. Some authors even suggest that attitudinal data may be an even more important predictor of mode choice than traditional measures such as travel time and cost (Venezia 2009). Despite the advantages that have been observed in research using attitudinal determinants to model travel behaviour, widespread integration of such factors has been limited into transport planning practice (Ashok et al. 2002; Deutsch and Goulias 2010). In the next part of this section, the role of first trips in shaping attitudes is explored.

2.3.2 How first trips shape attitudes

One of the major theories about how we develop attitudes is that they are learned. More specifically, learning theory suggests that people acquire information and feelings by the process of association (Taylor et al. 1997). For example, learning can occur through reinforcement and punishment. In the public transport context, it may be that a bad experience (such as a train being delayed for multiple hours) 'punishes' someone by 'teaching' them that public transport is unreliable. A pleasant experience, like getting work done on a public transport trip, might serve to reinforce its attractiveness. Learning can also occur through 'transfer of affect' which happens when people transfer an emotion from one object to another that is associated with it (Taylor et al. 1997). This effect could take place in the context of public transport; for example, if someone was reading a book that made them feel happy, this feeling would likely reflect positively on public transport itself. According to Taylor, et al (1997), 'transfer of affect' appears to be more pronounced for unfamiliar than familiar objects. This suggests that one's first trip on public transport could be more important to attitude development because of 'transfer of affect' than subsequent, more familiar, trips. More exploration of potentially relevant memory biases is offered in section 2.3.2.1.

Lin (2004) studied public 'servicescapes'; that is, physical environments in which services are offered like hotel lobbies and hospitals. Servicescapes, he argues, guide customers' positive or negative beliefs, attitudes and expectations of service providers through impression formation. This happens through a process of evaluation arising from interactions between the person and the environment. The personal perspective may differ between individuals in accordance with biological differences, personality attributes, culture, experiences, goal and expectations. He contends that servicescapes provide a lasting "first impression, before customers have a chance to interact with service employee" that affects their overall perception of the services offered (Lin 2004, p.176). In theory one could see public transport stops, stations, and vehicles, as being a servicescape, generating an evaluation of the service.

Numerous authors discuss the importance of experience in affecting attitudes and behaviour of travel options within the framework of the Theory of Planned Behaviour (Aarts et al. 1997). Van Exel and Rietvald (2001, p.245) explain that, "travellers' positive experiences with a consumption good increases the likelihood that that same good will be consumed in the future." Recker and Golob (1976) describe how past travel experiences and current individual circumstance affect attitudes. They also maintain that attitudes are therefore also based on one's

current choice of alternative. Thus behaviour (through experience) can change and sometimes control attitudes (Collins and Chambers 2005). In the context of present research, an example of this may be a regular public transport user trying a new bus route and having his or her previous transit experiences impacting the new bus trip, but also the experience of the new bus trip impacting the person's overall attitude about public transport.

Positive experiences with public transportation, or customer satisfaction, are thought to contribute to overall satisfaction and thus favourable behavioural intentions, as found in studies based on the TPB. Lai and Chen (2011, p.318) explain that, "travellers who perceive good quality of public transit service are…more likely to have a higher level of perceived value and satisfaction, and so continue to use this service". Indeed Friman et al (2013), in her discussion about her research examining differing satisfaction between travel modes, argues that people will not maintain new sustainable travel behaviours if they do not experience satisfaction with the new behaviour. In addition, positive experiences are thought to contribute to other customer loyalty practices such as word-of-mouth interactions, purchase intentions, and price insensitivity. Thus, positive customer experiences that encourage loyalty are seen to be a long-term determinant of financial performance for public transport operators and a major source of competitive advantage (Ashok et al. 2002; Lai and Chen 2011). Although the importance of positive public transport experiences is well understood under TPB, little research explicitly mentions about the importance of first trips or unfamiliar trips as a subset of experiences. Psychology does however suggest that they may be of particular importance.

Given the difficulty in attracting new public transport users, it seems important to encourage re-patronage. Hutchinson (2009) explains the chain reaction of how a good or bad experience on public transport can lead to subsequent attitudes and thence behaviour with regards to public transport. His description has been captured in Figure 2-3.

```
┌─────────────────────────────────┐
│  Action by a member of staff of a │
│  public transport system leads to... │
└─────────────────────────────────┘
                 ▼
┌─────────────────────────────────┐
│  A positive or negative reaction by a │
│  passenger that in turn may result in... │
└─────────────────────────────────┘
                 ▼
┌─────────────────────────────────┐
│  The establishment of a long-lasting │
│  attitude towards public transport, │
│          which finally... │
└─────────────────────────────────┘
                 ▼
┌─────────────────────────────────┐
│  Influences actual future selection or │
│  avoidance of public tranpsort │
└─────────────────────────────────┘
```
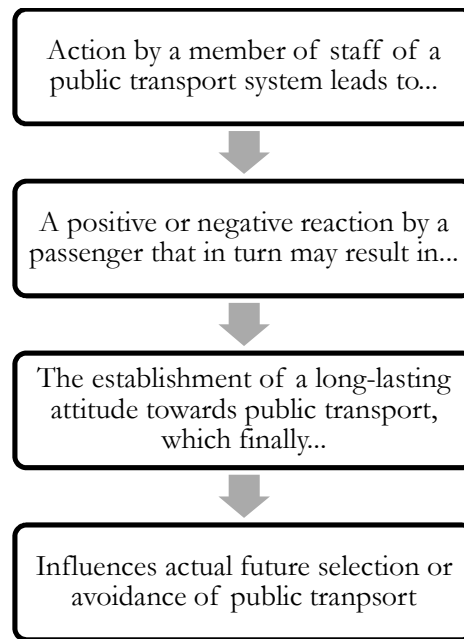
Figure 2-3: From server action, via attitude, to future customer behaviour (based on Hutchinson 2009)

This process model depicts the influence of experiences in impacting attitudes and thus future travel behaviours.

Determining which characteristics of travel are most important to the indoctrination of attitudes towards travel options is a subject of much debate. As previously noted, attitudes derive from affective, behavioural and cognitive components. While it is acknowledged that there are a number of factors that affect attitudes about public transport and mode choice, the differentiator of interest to the present research is familiarity (or lack of familiarity) with a public transport service. More specifically, in relation to Research Question 3, this research seeks to explore first impressions of public transport and gauge their relevance to the development of attitudes about public transport. Existing literature suggests this topic is worthy of further study.

Research suggests overall that they offer an opportunity:

- to validate perceptions of usability of public transport
- for misperceptions about public transport to be 'corrected'
- to learn about characteristics of the public transport service, the knowledge of which may enable the individual to use the service with more ease in the future.

These potential impacts will be examined in greater detail momentarily but it is worth noting that these impacts have the potential to affect all three predictive components of the TPB: attitudes, social norms, and perceived behavioural control. If changes are in a positive direction, this may encourage repeated behaviours and as such first trips may help to establish a new habit. These points will now be examined in more detail.

Numerous authors suggest that 'trials' (first trips) of public transport services offer an opportunity to re-evaluate perceptions of usability of public transport services. Thørgersen (2009, p.336) postulates the justification for public transport trials: "trial based experience resulting from the promotion period would result in more favourable attitudes towards using public transport". Thørgersen (2009) undertook a study in which car owners were provided with one free month of public transport. Some recipients also received customised travel planning assistance. A control group received no intervention. Attitudinal variables, car habits and travel behaviour were measured before and immediately after intervention and again six months later. Results indicated that the trial experience led to a positive change in beliefs about public transport that resulted in continued public transport use six months after the intervention. Similarly, during a period of high fuel prices, Gould and Zhou (2010) offered three months of free public transport to drivers who traded in commuter parking permits. Following the three-month trial a 50% discount was given for public transport passes, and 70% of those who tried using public transport continued using it.

First trips may also be useful for correcting misinformation, increasing quality of knowledge and reducing the gap between public perceptions of public transport and reality (Taylor 2007; Thøgersen 2009; Gould and Zhou 2010). For example, Fujii et al (2001) took advantage of a freeway closure and found that car drivers' experience of using public transport 'corrected' their perceptions of travel times on public transport. Interestingly, for participants whose time estimates were corrected, there was more continued use of commuting by public transport following the freeway re-opening than for those whose time perceptions were not corrected. Fujii et al (2001, p.805) even substantiate the importance of the first trip specifically, "these findings then suggest that if high-frequency drivers use public transport at least once, their overestimates of public transport commute time are corrected, leading to an increase in the frequency of public transport use". Thus the information gained through 'trying' public transport supported continued use of public transport services.

First trips offer an opportunity for patrons to learn about that public transport service, which may make the service easier for them to use or affect how they use it. Knowledge gained from

unfamiliar travel may affect subsequent travel through the formation of adaptations and optimisation, and can potentially reduce the amount of cognitive effort required for subsequent trips by increasing familiarity of the associated system and environment (Stradling 2002). It may also reduce the psychological barriers by reducing uncertainty.

Perhaps the most relevant research related to this thesis topic, and particularly with regard to reducing cognitive cost and the process of familiarisation is by Dziekan (2008). This research documents three studies which all focus on overseas exchange students. From the research, the author poses a 3-stage phase of learning process for unfamiliar transit travel, as captured in Table 2-1. The research by Dziekan (2008) indicates that there is a learning process associated with unfamiliar public transport travel and that the information and competence gained during the process of familiarisation provides assurances to the traveller. Once journeys or transit systems are more familiar, individuals generally reduce their process of information gathering.

One of the key findings from this work by Dziekan (2008) is that good maps are essential for newcomers to a city. The research also explains that newcomers first learn frequently-used routes, and then develop survey knowledge of new transit systems, and that prior experience with public transport systems supports use of transit in unfamiliar cities. The author's in-depth study revealed that "taking one route by transit once is enough to remember it", but it is worth highlighting that this study only examined one subject (Dziekan 2008, p.10).

Table 2-1: The three phases of learning when using an unfamiliar transit system in an unfamiliar urban area (posed by Dziekan 2008, edited)

Cognitive Approach	Phase 1 (1st week)	Phase 2 (2nd to 6th week)	Phase 3 (7th week and after)
Cognitive Map	- Alert phase – everything is new, all routes and places are unknown, - Cautious: requires information for all trips - Begins to fix reference points in the city (declarative knowledge) and, later, routes between frequently-visited places (procedural knowledge)	- Differentiation between familiar and unfamiliar routes - Has background or reference knowledge on which to base decisions and orientation tasks - Feels more confident in the system	- Increasingly more familiar with routes and places - All places with a meaning become reference points - Even for unfamiliar routes, many more reference points in the urban area are now available and the growing cognitive map enables faster and easier route discovery
Information Gathering	- Grasps for all available information (preferably from various sources) - Use a combination of information sources because no single medium presents all information	- For known routes, a metro map is no longer necessary - Begins to use the bus map more frequently, although still difficult	- For unfamiliar routes the procedure applied during the first days is still used - Ceases to carry maps - Process of pre-trip planning more relaxed
System Use	- Learns to detect and interpret the signs and symbols in the system, often by trial and error - Avoids the bus because this can be stressful and orientation inside the buses is not possible	- Checks metro signs only to confirm - Tries to increase bus use, but still avoidant, trips by metro have become "normal" - Begins to optimize the daily route after 3-4 weeks and reports habituation	- Realizes that there is a logic in the network - Bus rides are still complicated - Routes with many transfers are still complicated due to the lack of a system overview and little reliable travel time information
Feeling	- Everything is exhausting and requires special cognitive effort	- Still unsure and makes mistakes	- Feels competent to gather information and trust information access

Reflecting the findings by Dziekan (2008) that increased use of transit services can impact feelings of competency, Chorus et al (2007, p.61) found travellers to "feel more resourceful when they engage in trips toward frequently visited destinations, compared to destinations they never have visited before" with highly significant differences found for both car-drivers and transit-users. Interestingly, car users considered themselves to be 'more resourceful' with their own mode than frequent transit users were for their own mode for areas frequently visited, which the authors attribute to an increased number of route choices available. No significant differences in 'resourcefulness' were found between the car-user and transit-user groups for destinations that they had not visited previously: "for those trips, route availability plays a less important role than does route knowledge: both car-drivers and transit users perceive themselves as less knowledgeable for trips towards new destinations" (Chorus et al. 2007, p.65). The study also examined perceptions of resourcefulness for other modes and found that for frequently visited destinations, public transport travellers perceived themselves to be more resourceful in undertaking car travel than vice-versa.

The authors then go on to make a number of conclusions of high relevance to this thesis research:

> A number of conclusions may be drawn concerning (the determinants of) travelers' need for information. A first set of conclusions concerns the role of knowledge; it was found that there is a strong positive relationship between destination familiarity and perceived resourcefulness (operationalized as one's perceived awareness of alternative routes for a given mode and destination). Level of experience with a given mode is found to be of far lesser importance. Concerning perceived reliability of estimates for all sorts of trip characteristics (such as travel times and costs), destination familiarity also appeared to play an important role. Concerning travel time estimates, the occurrence of nonnormal trip circumstances was a crucial factor: incidental circumstances such as the occurrence of deviations or accidents appeared to induce a more negative influence than does the occurrence of more "recurrent" circumstances such as peak hour conditions. This signals the important role of "learning by doing" among travellers (Chorus et al. 2007, p.65).

While these conclusions are certainly pertinent to this thesis research in highlighting the role of knowledge gained in supporting increased transport patronage, it is worth highlighting that the study only looked at new destinations, not unfamiliar services more broadly. It is unclear if this trend would be the same for travel to a familiar destination that the user had not previously visited by public transport.

Research by Kuhnimof *et al* (2006) found that of the group of people who predominantly drive but use public transport for commuting, 30% also use public transport for other purposes. In contrast, of drivers who do not use public transport for commuting, only 10% use public

transport for other purposes. Kuhnimof *et al* (2006, p.47) explains this finding: "public transport commuters have experience with using transit, which makes it easier for them to use it for other purposes." This is consistent with theory behind habits – less information searching is required. Thus any experience makes it easier to use public transport. The first trip is the window of learning which can improve perceptions of the viability of services because it is the first stage of the learning process required for a behaviour to perhaps become habitual (Davidov 2007).

In section 2.2.1 the affective experience of unfamiliar transit travel was discussed and highlighted that unfamiliar transit travel may increase negative affect, primarily affect associated with anxiety. Worry is very important, because behavioural adaptation to avoid it is common (Backer-Grøndahl et al. 2009). For example, it is common for people to adapt behaviour in an effort to avoid worry by travelling by a different mode or travelling at a different time. It has even been argued that worry can serve as a predicator of behavioural adaptations for public transport (Backer-Grøndahl et al. 2009). Backer-Grøndahl, et al. (2009) asked participants to use Likert scales to describe how often they think about incidents when travelling by private vehicle or public transport and whether or not this influences travel behaviour. The results indicated that for public transport, past experiences with unpleasant incidents were correlated with worry about similar incidents happening in the future. This finding is important as it suggests that first experience may strongly affect one's future worry about public transport. Their research found that much variance remained unexplained, suggesting a need for further research to find what variables predict worry in the transport domain.

Another important point is that many of these studies examining public transport attitudes noted the differences in attitudes between various sub-groups. One study is particularly relevant to this thesis research. Rochefort (1981) undertook a study interviewing participants about planned improvements to a bus system. He found that regular users found the system so poor that they could not imagine any improvements; nonusers of the system had a positive opinion of the existing system, though they would never consider using it; and occasional users had a very poor opinion of the system. This research thus suggests that higher frequency of use may contribute to a negative attitude about transit services.

2.3.2.1 First trips as a special case of the primacy effect

An important characteristic about first public transport trips is that they appear to be somewhat atypical (Verplanken and Aarts 1999; 2003; Thøgersen 2009) and can therefore be associated with memory biases such as better recall (Morewedge et al. 2005). In the psychology discipline it

has repeatedly been observed that the first item or event occurring in a sequence (e.g. the first time meeting someone) has a tendency to affect evaluations of the subsequent items or events in the sequence and to be remembered better than subsequent stimuli. This is known as the 'primacy effect' (Asch 1946; Stiff et al. 1989; Forgas 2011; Le-Klähn et al. 2014). Given that this thesis research attempts to explore first impressions of public transport through unfamiliar journeys this research seems likely relevant.

Research on the primacy effect within the psychology discipline has been primarily concerned with impressions of other people, objects and sequential items (like lists). First impressions are important as they have been demonstrated to impact subsequent processing of information and development of attitudes (Taylor et al. 1997). Forgas (2011) argues that first impressions are one of the most robust and reliable factors which distort judgements. There is a strong tendency for attributions, once made, to continue to be maintained (Mower-White 1982; Tetlock 1983). This is referred to as 'belief perseverance' and it has been show that there is a tendency for causal attributions to persist, even when the evidence from which they were initially based is discredited. This is due to difficulty in reversing the cognitive assimilation process.

Much of the research exploring the primacy effect looks at the phenomenon in terms of its role in social situations (called "social primacy"). Asch (1946) published a classic paper which revealed that reversing the order in which positive or negative personality traits were presented to participants had large impacts on participants' impressions of people. Studies have also shown appearances to be important to first impression formation (Kimble 1990).

In order to consider the relevance of the primacy effect to this research, it is worth considering how the phenomenon occurs. The overall driver for the primacy effect is the simplification of information. Mower-White (1982) suggests that it may be more economical in terms of 'cognitive effort' to use pre-existing categories and to distort evidence as required than to adopt new categories in response to contradictory information. There are three primary explanations for why the primacy effect occurs: attention decrement, discounting and biased assimilation (Mower-White 1982; Tetlock 1983). In simple terms, attention decrement means early information is processed with more care and attention than later information (Forgas 2011). Positron emission tomography (PET) has even shown that novel stimuli are processed in the brain differently to familiar (Tulving et al. 1994; DiGirolamo and Hintzman 1997; Miller et al. 2004). Applied to the context of public transport, this could mean that different areas of the brain may be active on one's first trip on a public transport service than on subsequent trips. This will not be researched specifically in the present study, but it is interesting to consider.

Discounting is offered as a further explanation for the primacy effect and can accompany attention decrement. If discounting is occurring, then subjects are assuming that information provided later is less reliable or valid than information presented earlier (Tetlock 1983). Alternatively, discounting may occur from ignoring subsequent, contrasting information presented (Mower-White 1982). Kruglanski and Freund (1983) surmise that discounting is more likely to occur in high time pressure-situations, increasing the primacy effect. This may mean that unfamiliar journeys undertaken under high time-pressure scenarios may be associated with stronger primacy effects.

Biased assimilation, another explanation for the primacy effect, occurs when subjects, after forming first impressions, interpret later evidence in a way to be consistent with the initial impressions (Mower-White, 1982; Kimble, 1990). For example, if someone has a positive first impression of a person, they may interpret information presented later that is 'neutral' as positive. In the context of unfamiliar transit journeys this may mean that first trip experiences impact subsequent travel experiences through pre-conceived notions.

Some researchers who study the primacy effect caution that it may not be as ubiquitous and irrepressible as once thought (Miller et al. 2004). In the absence of the primacy effect (such as, perhaps, when one is in a negative mood), remembering and using information which one has been exposed to most recently is the default pattern; this is called the recency effect (Forgas 2011). Thus, primacy effects can be reduced or reversed by manipulations that direct equal attention to later information (Forgas 2011).

Not only do general psychological constructs like the aforementioned primacy effect suggest the importance of first trips on public transport due to being somewhat atypical events that can therefore be associated with memory biases, but also some research suggests that public transport memories may be negatively biased. More specifically, Pedersen et al (2011) found that recollection of satisfaction with public transport services is negatively biased, which likely affects subsequent travel choices. Some research suggests that negative judgements are made more quickly than positive judgements (Carney et al. 2007). Interestingly, in their research about first impressions of unfamiliar faces, Willis and Todorov (2006) found that longer time exposure to faces was correlated with more negative judgements, decreased response times for judgements and increased confidence of the judgements. This finding does not bode well for public transport, as first trips would likely be associated with longer time exposures leading to potentially negative-biased judgments of the services.

The study of primacy has historically concentrated on interactions with people and objects rather than upon the relation between an individual and their environment (Nahemow 1971). This is worth noting because public transport constitutes an environment. One of the key differentiators between an object and an environment is that the environment surrounds a person. This means that there is always peripheral and central information present: more information than an individual can process. What one perceives depends upon what aspects of the complex environmental surroundings attract his or her attention.

Perhaps the complexity of the cognitive process in a novel environment can partially explain why primacy research has primarily been focused on more simplistic stimuli. Yet, novel experiences in the environment have a strong psychological affect that is yet to be thoroughly researched. Though the emotional experience may be familiar for some, for example, most people would agree that when we find ourselves in a new environment, such as a foreign country, we pay much greater attention to our surroundings (Nahemow 1971; Kimble 1990).

Some environmental psychologists make reference to aspects of first impressions or experiences in discussions about environmental cognition, though not necessarily with the use of the term 'primacy effect'. For example, Oliver (2002) describes the impact of familiarity on people's perceptions of areas. She provides the example of one's first day at a university and notes that at first it would likely seem quite large and confusing, but after a couple of weeks would seem smaller. This is because familiarity influences estimates of distance. Oliver (2002) also provides the example that often one's outward journey seems much longer than the return journey. This, she argues, can be attributed to a lower inclination to process information with as much intensity as with first exposure to stimuli. This in turn means that one would be less likely to remember information from the return journey, therefore making it seem shorter. Likewise, Nahemow (1971) contends that one usually devotes more attention to an unusual or unknown environment.

Helstrup and Magnussen (2001) examined the memory of a familiar long-distance journey in comparison to that of a previous day's events by asking participants' to rate memory clarity. Results showed primacy and recency effects on the spatial distance task. However, these effects were observed for the trip itself (e.g. the beginnings and ends of trips were associated with more pronounced memories) rather than being in reference to the first time a trip was taken versus subsequent trips. And of course the latter is the focus of the present research.

Thus, it seems that methods that have examined primacy have primarily focused on simple controlled stimuli in laboratory settings, with few studies examining holistic experiences of environments. That's not to say that cognition of environmental settings have never been studied, but rather, the examination of the primacy effect on environmental stimuli in terms of being associated with disproportionately strong recall and memory biases is very limited. That said, there has been research related to unfamiliar cognition of environments, notably related to special cognition like wayfinding, as explored in section 2.2.2, and in terms of environmental psychology more broadly.

The lack of research related to the primacy effect in environmental contexts is acknowledged by Forgas (2011, p.428) who states that, "it would be desirable to demonstrate the effects of positive and negative moods on the power of first impression in a wider variety of naturalistic situations". Though this advice was written with regard to impressions of people, and while the present research will not be focusing on positive and negative moods strictly, it does seek to learn more about the applicability of the primacy effect in the naturalistic setting of public transport. Fulfilling this research gap would provide useful information about what is important to new users' first trips on public transport services. And this would have the potential to inform policies and management to better attract and retain new users.

2.3.2.2 First impressions of environments

While primacy has not been investigated extensively for environmental stimuli, there is some fairly extensive research from the environmental psychology discipline that offers insights into some of the psychological processes associated with new environments. Perceptions and experiences of environments can differ between individuals. Lin (2004, p.164) explains this concept eloquently: "perception is a function of multiple sources of input from the environment and from one's own predisposition, expectations, motives, and knowledge gleaned from past learning experiences". Numerous senses are used to perceive an environment including: smell, sound, sight, and touch. But environments are large and interactive, so people can experience them by moving around in them in different ways, inspecting them from various heights, examining maps or listening to a verbal descriptions (Pazzaglia and Meneghetti 2010). How an environment is experienced can influence its spatial representation and, thus, spatial performance in interacting with that environment. People who are present in an environment for different purposes may have a different experience of it. Tying this concept back to the research at hand, trip purpose could greatly impact on people's experiences of public transport, and hence, potentially their attitudes about services. Bechtel and Churchman (2002) discuss how one's

experience of an environment may differ depending on the context of their health and body. For example, someone who has food poisoning and urgently requires a toilet may experience a city street differently than a healthy tourist. Likewise a very overweight person may find the experience of a confined space like an airplane or crowded bus much different (and likely uncomfortable) to a child or petite person.

Lawrence and Leather (1999) argue that processing of environmental information helps people to generate consistent and consensual expectations of the social behavioural norms of places. The researchers found that the environmental context of a pub affected participants' impressions of the pub owners (Lawrence and Leather 1999). In a study of unfamiliar neighbourhoods, maintenance of physical infrastructure impacted overall judgements of the neighbourhoods and impacted perceptions of the associated social environment (O'Brien and Wilson 2011). Lawrence and Leather (1999, p.392) explain, "individuals….have clear expectations about the 'type of person' they think is appropriate for the environment, in terms of that person's beliefs, values and behavioural intentions" and thus individuals form category-based impressions.

Applying this finding to the public transport context, it would seem likely that the condition and urban design of public transport infrastructure, such as train stations, might affect users' opinions of other public transport users and/or services. And the appearance of public transport vehicles or infrastructure (like a smashed bus shelter) might affect people's perceptions about the type of person that would be using public transport and therefore whether or not he or she would want to use it as well. A phenomenon referred to as the 'broken window effect' supports this premise. The 'broken window effect' is a theory that explains how observing others partaking in disorderly behaviour increases the likelihood of the observer also partaking in disorderly behaviour (Keizer et al. 2008). Keizer *et al* (2008) undertook a series of experiments illustrating correlations between the obvious presence of background antisocial behaviours like littering and graffiti and found that they increased the frequency of other antisocial behaviours. For example, people were more likely to steal money from a post-box surrounded by litter or graffiti, and thus propose that early intervention is necessary to prevent widespread anti-social chaos. Applying this finding to the present research, it could be inferred that the presence of anti-social indicators like graffiti might instil in new public transport users the fear that further anti-social behaviours are likely to be present also.

Public transport consists of public environments. These environments bring together a variety of individuals, some of whom may partake in anti-social behaviours within the environment. Anti-social behaviours may include littering, 'tagging', swearing, being intoxicated, spitting, or even

more serious criminal activities like theft or assault. Evidence of anti-social behaviour (or the allusion to it) may create feelings of anxiety about safety or general discomfort for users. A study by Engel et al (2012, p.134) examined first impressions of neighbourhoods in terms of the broken window effect and found a "strong effect of first impressions on cooperation in a linear public good" and provided the analogy of someone new to the neighbourhood perceiving a neat environment, then expecting to be treated well if she behaves, and being willing to help maintain order. Interestingly, Gatersleben et al (2013) have found that the mode of travel can influence judgements of neighbourhoods, with those travelling by car (and therefore potentially being exposed to less information) judging less affluent areas more negatively than pedestrians. However, this trend applied only to those not living in the neighbourhoods. The authors argue that such superficial, modally-biased judgements adversely affect poorer communities in particular.

2.3.3 The role of first trips in affecting future travel behaviour and habituation

The previous sections discussed the TPB, and described the different ways that unfamiliar journeys may affect attitudes about public transport, and provided some research noting the implications for behaviour. This final segment of the section examines behaviour in a longer-term sense, in terms of habituation and factors that can undermine TPB.

Policy makers who wish to reduce congestion and pollution would likely deem habituation of public transport use following a first trip desirable. In terms of first trips using a public transport service, there is potential for the new behaviour to lead to a more educated perception of that behaviour and therefore aide the formation of a new habit which replaces the old habit (Fujii et al. 2001). This point is well-illustrated in research by Van Exel and Rietveld (2001) related to public transport strikes which showed that the strike resulted in a loss of patronage of between 2.1% - 2.6% depending on commute purpose. In this instance, the strike caused habituation away from public transport (and onto other modes like car and possibly some trip suppression), however the finding is still informative. Likewise, Klöckner and Friedrichsmeir (2011, p.264) contend that, "disruptions of the public transportation network like delays, cancelled trains or strikes hitting the system have been also shown to impact travel mode choice".

Verplanken and Orbell (2003, p.1314) describe how a new behaviour follows from conscious decision making, but that "the formation of a habit implies the delegation of control over the behaviour to the environment." These researchers also argue that despite the abundance of intervention campaigns seeking to form new behaviours, interventions tend not to allocate

enough attention to the habituation of the new behaviour. This thesis research may provide some assistance in informing this gap in knowledge

One public transport trial that does measure habituation is by Abou-Zeid et al (2012) who document a public transport trial in Switzerland where habitual car commuters completed a satisfaction with travel questionnaire prior to being given a free public transport pass. Participants completed travel diaries assessing travel satisfaction during the 'intervention', and then reported their travel behaviour following the intervention. A number of participants had positively changed attitudinal ratings toward public transport, particularly in relation to perceptions about overall service, reliability, convenience and ability to conduct activities en-route, which the authors suggest reflects a change in reference points. However, many had unfavourable perceptions of the flexibility offered and travel time, and none of the participants switched completely to commuting by public transport, though some continued to use it occasionally, particularly those with higher levels of reported satisfaction. Thus, while satisfaction was associated with some continued travel by public transport, none of the participants became dedicated transit users following the intervention. This study highlights the difficulty in encouraging actual changes in behaviour, though it does call attention to how 'trying' public transport services can encourage some positive shifts in attitudes. This indicates the importance of first trips in establishing public transport habits.

Some further insights about subsequent travel behaviour following first trips are offered by research focused on the introduction of new systems. Knowles (1996) describes an instance of a light rail system being installed to replace two train lines. This project involved the closure of each train line, one for six months and the other for eight months while the new infrastructure was installed. This was associated with more than 4 million of the 7.6 million rail users not transferring to the light rail line, when a 100% retention rate was forecast. This shows just how fragile public transport attitudes can be: people's habits were broken and their travel behaviour was reconsidered, only to have a large proportion decide that public transport (or light rail at least) was no longer appealing. However, in this instance the transit managers were lucky to have a much higher than predicted number of people switch from car to public transport (3.3 million) which made up for the loss of former users.

Not all travellers who try using a public transport service for the first time will continue using the service, and so to better understand these users Chatterjee and Ma (2009) recommend widespread use of smartcards. Smartcards enable monitoring when first uses of a service take place and analysis of their subsequent patterns of usage. Another tactic to learn about the

impact of first trips relating to the introduction of a new service, they advise, is to provide a free or discounted introductory pass with a requirement that recipients submit a form with their contact details upon first use of the service. Offering another discounted pass upon receipt of the completed form could enhance this approach. Administering this within a controlled population would allow one to "not only obtain data for those people that eventually use the service, but also those people that do not use the service" (Chatterjee and Ma 2009, p.22).

While attitudes to public transport consistent with the TPB serve an important role in predicting behaviour, attitudes do not always lead to behaviours consistent with the attitudes (Taylor et al. 1997; Tertoolen et al. 1998; Collins and Chambers 2005). The discrepancy between attitude and behaviour has been observed in relation to discord between environmental awareness and car use (Tertoolen et al. 1998). There are a number of instances that can be associated with a reduced impact of attitudes on behaviour, such as the aforementioned Swiss public transport trial highlighted by Abou-Zeid et al (2012) in which the transit travel time and lack of flexibility inhibited car users from adopting habitual public transport behaviours. Two other noteworthy factors that can inhibit consistent attitudes and behaviour will now be reviewed.

One explanation for the difference between attitudes and actual behaviour is that when a behaviour has been performed repeatedly to the point of becoming habitual, behavioural choices are enacted without a thoroughly weighted decision making process (Aarts et al. 1997). Therefore it could be argued that as habits increase in strength, attitudes become less and less predictive of behaviours. In the context of this research an example could be if someone drives to work every day, but then uses public transport once for the first time while their car is being repaired, has a good experience that changes their attitude positively, but continues to drive upon getting their car back due to the strength of the prior habit.

Another factor that can lead to conflicting attitudes and behaviour is 'captivity', in which individuals find themselves tied to one mode of transport due to situational factors beyond their control. This is related to the 'perceived behavioural control' aspect of TPB. When travel choices are limited (or are perceived to be limited), then one is considered 'captive' to a particular way of travelling; for example, someone who does not have a driving license would be considered a 'captive' public transport user. Captivity is typically referred to in reference to travel mode, but could, in theory, also refer to the routes one can take. Thøgersen (2006) provides an illustration of the role of habits and captivity in moderating the impacts of attitudes on mode choice. He used a panel survey of 1,300 Danish residents who were interviewed up to three times to analyse the TPB while incorporating access to automobiles and focusing on

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examining habits as explanatory variables. He found that public transport use could be accounted for by: attitudes about using it, perceptions that public transport can meet travel needs, and ownership of a car. However the influence of these variables was found to be reduced when past behaviour was included in the model. Moreover, car ownership reduced the impact of attitudes, whereas attitudes and behaviour were found to be more consistent for those without automobile access. Thøgersen (2006) argues that a key implication from this work is that information and encouragement of new public transport trips is only rational to enact in situations where transit services are really viable and attractive alternatives to car-based travel. He warns that "if this is not the case, should one succeed in persuading car drivers to try public transport, the experience will only confirm the individual's prior conviction that car transport is better" (Thøgersen 2006, p. 634). He adds that when individuals try public transport their experience must be reinforced in order to re-patronise services until the behaviour becomes habitual. An interesting implication from this study is one of the final conclusions proposed by Thøgersen (2006, p.365), the:

> Study showed that attitudes towards using public transport and perceptions about its ability to fulfill one's transport needs are influenced positively by the use of public transport, and that the more people use public transport the more likely it is that they will sell their car…it also illustrates the importance of getting people to try public transport. Not only is experience an effective way to correct unfavourable misconceptions. People may also change their evaluations of known attributes in a favourable direction due to practical experience. If, for example, a person experiences that the time spent in public transport can be used for valued purposes (e.g., working, reading, and sleeping), the belief that the travel time by public transport is longer may carry less negative weight than before.

Thus Thøgersen (2006) argues that 'trying' public transport is imperative to correct misconceptions and to re-evaluate the importance of service aspects, or the weighting of perceptions. This reaffirms the potential benefit of the present research for facilitating new transit travel to recur.

Consistent with the TPB, some researchers contend that trialling public transport may help to change individuals' attitudes about the services offered, which may result in a lasting behaviour change, consistent with the theory of planned behaviour (Fujii et al. 2001). Thøgersen (2009, p.336) maintains that public transport trials can cause some drivers to "realise that for them, using public transport is actually preferable to using the car, at least for some purposes". In a longitudinal study of the introduction of free public transport travel with a student identification card, Bamberg and Schmidt (1999) found an increase of public transport use but they also

measured changes in ratings of a number of attitudinal, behavioural control and norm variables before and after the introduction of the ticket to test the TPB. They found that:

The perceived knowledge of the time-table increased significantly, whereas the perceived existence of good bus connections decreased significantly. One may conclude that through their direct experience with the bus system, more students came to be familiar with the departure times of the buses in 1995 than in 1994, but that this direct experience led to an even more critical evaluation of the actual bus service…the huge increase in perceived behavioural control over the use of the bus is astonishing…Perceived consequences may not only determine the attitude but may also "colour" the perceived behavioural control.

Thus this research suggests that experiences of services increase knowledge, which can impact perceived behavioural control.

2.4 Conclusions

In summary, if cities wish to encourage people to take up public transport it is important to understand the process and experience of being an unfamiliar traveller. Although there is very little research looking directly at unfamiliar travel, a range of studies do examine the issue indirectly.

First trips seem most likely to occur when a structural change takes place in the users' lives, such as moving house, beginning study, introduction of a new public transport system, or a usual mode of commuting is not offered or becomes less convenient for some time. First trips related to transit trials are fairly well documented and evaluated.

Much research suggests that unfamiliar trip experiences are quite different to familiar journeys and that unfamiliar travellers have an increased need for information. Unfamiliar trip experiences seem to be associated with elevated uncertainty, negative affect and an active process of wayfinding. Thus they are likely to be characterised by heightened cognitive processes that would be atypical in comparison to familiar trips, and may result in perceptions of public transport having a higher cognitive cost. In addition, prior to undertaking a first trip, the user may have strong preconceptions and expectations of the journey and the system which may greatly influence the users' perceived experience of the trip. Finally first trips are likely

experienced differently for various groups of people and depending upon the context in which the trip was taken.

Existing research related to attitudes and behaviours suggests that the experience of unfamiliar travel may have a significant impact on attitudes and mode choice behaviour. Consistent with the TPB, attitudes are important predictors of behavioural intention and thus likely behaviour. While research suggests attitudes are important, it also acknowledges that they are not completely reliable predictors of behaviour, primarily due to habits and mode 'captivity'. Psychology research offers an abundance of information about attitude development. In particular, research related to the primacy effect and first impressions more generally suggests that first impressions have a disproportionate effect on attitude development.

Overall, there is much existing research that has helped to inform the thesis topic. However there are also significant opportunities to contribute to gaps in the existing literature. In particular, gaps in research have been identified for:

- The prevalence of unfamiliar transit service use
- Experiences of unfamiliar travel, particularly in relation to further documenting affective experiences, and wayfinding on public transport
- The application and investigation of the primacy effect in environmental contexts generally, and specifically in terms of first trips
- The role of travel histories on future travel behaviour (Recker and Golob 1976), which will be investigated for first trips
- The role of first trips in habituation of public transport use
- Adaptations in behaviour resulting from first public transport trips

While some existing research is suggestive in terms of these research gaps, further, more focussed, research related to addressing these research gaps would be useful. Moreover, in relation to circumstances prompting unfamiliar transit travel, this literature review has helped to bring together a number of sources and the research methods will further examine this aspect of unfamiliar transit travel.

The strategies for addressing the research questions are discussed in the next chapter (Chapter 3, the Methodology).

3 Methodology

The last chapter (Chapter 2) provided an overview of existing research related to unfamiliar public transport. While much can be learned from this existing information, it also became apparent that there are still a number of gaps in knowledge necessitating further research. Moreover, existing research suggests that unfamiliar public transport travel may have an important influence on attitudes and potentially subsequent travel behaviour further justifying more research enquiry.

This chapter provides a general overview of the research design utilised to achieve the research aim and associated research questions. The research methods were developed following the Review of Literature to inform their design. This Methodology chapter begins with a review of the overarching aim of the research and associated research questions (3.1) which is followed by an overview of the context of the research in 3.2. This is followed by a description of the overall research design, 3.3, including an overview of how unfamiliarity was defined in each research method 3.3.1). Note that more detailed descriptions of each of the research methods are provided along with the associated results in Chapters 4-7. Finally the present chapter concludes with a description the strategies of data analysis employed (3.4).

3.1 Research aims

Again, to reiterate, the overarching aim of the PhD research is:

To explore unfamiliar public transport trips to better understand their circumstances, experiences and significance to mode choice.

As noted previously in this thesis, 'unfamiliar public transport trips' are defined as the first time using a public transport route never taken before. That said, some exploration of what 'unfamiliarity' is, how it may differ by context, and the implications of such differences was explored also. This is discussed in more detail in 3.3.1.

In order to better understand the aim of this research and how to address this aim, three main research questions were developed:

- Research Question 1: Under what circumstances do first trips occur?
- Research Question 2: What experiences are associated with first trips?
- Research Question 3: To what extent do first trips on public transport impact attitudes and behaviour related to mode choice?

3.2   Research context

All of the data in this thesis was collected in Melbourne and primarily dealt with public transport travel in the Melbourne area, although one of the research methods, the Interviews, asked about travel in other cities and overseas. Melbourne has a population of approximately four million people. In terms of land use, the city centre, or Central Business District (CBD), has a fairly high density of employment and residence which is surrounded in closer proximity by medium density development, which then gives way to low density suburbs further from the CBD. The city has a river, the Yarra River, running through it and is next to a large harbour called Port Phillip Bay.

In terms of public transport, there is a large radial system of trains going to the city (Figure 3-1), which is supplanted by a tram network in the inner areas while buses primarily provide access between suburbs further out from the CBD. There are trains that serve the metropolitan area, currently operated by 'Metro', while trains servicing areas further away, or 'regional' are run by 'V/Line', who also have a fleet of coaches that help to service further away regional districts.

The thesis research primarily examined public transport in the metropolitan area (metropolitan trains, trams, and buses), though in some instances participants discuss experiences on public transport in regional areas, other Australian cities or other countries.

3.3   Research design

The research questions were addressed through a variety of methods aimed to collect both quantitative and qualitative information. Utilising diverse research methods that produce both of these types of data is referred to as triangulation. Triangulation is thought to provide more robust and reliable research findings than relying solely on quantitative or qualitative information (e.g. Egan et al. 1995).
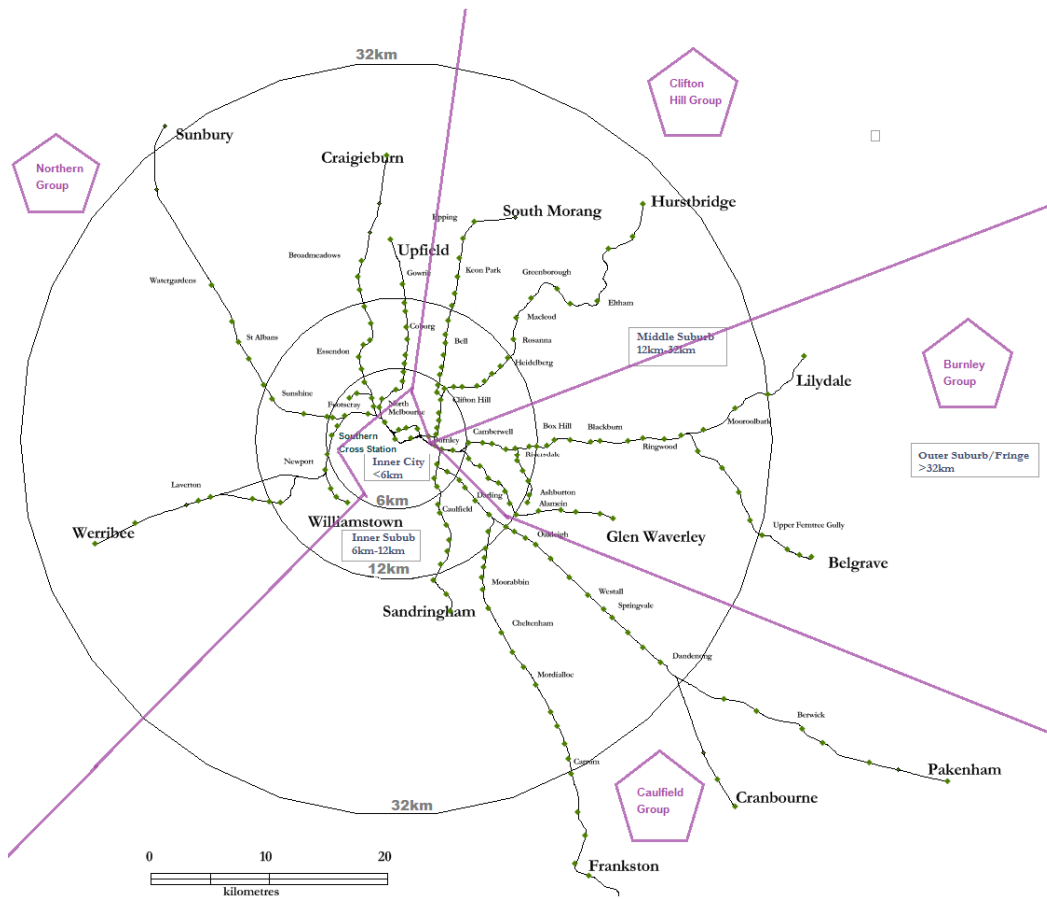
Figure 3-1: Melbourne's rail map

Wherever possible the research approach focuses on exploring recent instances of unfamiliar public transport travel. However, as the Review of Literature (Chapter 2) has revealed, existing research suggests that unfamiliar public transport travel may not be common. Thus some creativity has been applied in developing the research methods to identify and explore examples of unfamiliar public transport travel. As will soon become apparent, some of the research methods hence rely on recall of past unfamiliar journeys. However, effort has also made to explore unfamiliar journeys closer to when they are undertaken and even before being undertaken.

Each of the four primary research methods is depicted concisely in

Figure 3-2 and then described briefly in the following paragraphs. Then section 3.3.1 offers an explicit description of how unfamiliarity is examined in each research method.   .

Interviews

- Qualitative
- Exploratory
- Addresses:
  - RQ1: Circumstances
  - RQ2: Experience
  - RQ3: Attitudes and behaviour

- Method: one-on-one semi-structured interviews

Chapter 4

Rail Origin-Destination Survey

- Quantitative
- Addresses:
  - RQ1: Circumstances
  - RQ2: Experience (slightly)

- Method: on-platform survey of train users

Chapter 5

University Access Survey

- Largely quantitative
- Addresses:
  - RQ2: Experience
  - RQ3: Attitudes and behaviour

- Method: web survey of university personnel about first and subsequent transit travel to campus

Chapter 6

Journey Planner Poll & follow-up Survey

- Quantitive and qualitative
- Addresses:
  - RQ1: Circumstances
  - RQ2: Experience
  - RQ3: Attitudes and behaviour

- Method: transit information website poll and (post-travel) follow-up survey

Chapter 7

Figure 3-2: Research methods - at a glance

The *Interviews* (Chapter 4) involve the collection of rich exploratory, qualitative data addressing all three of the research questions through conducting thirty-one interviews. In these semi-structured interviews, participants were first asked to describe a public transport journey that they undertake regularly (or have undertaken regularly in the past) and then to describe their first time undertaking that journey. If they could not recall their first time taking that trip, they were asked to describe another unfamiliar public transport journey that they could remember then they were requested to describe further unfamiliar journeys. "Grounded Theory", a commonly used research method for qualitative research (Morse 2009), was used both during interviews and between interviews. Grounded Theory relies on adapting research methods during the process of data collection in accordance with emergent themes by a process of analysis and hypothesis formation while collecting data and then adapting further data collection on the basis of the findings. Note that although conducted after the University Access Survey the Interviews chapter is presented first.

The *Rail Origin-Destination Survey* (O-D survey) (Chapter 5) is a large, on-platform rail survey of approximately 23,000 transit users. The O-D Survey is conducted annually by Public Transport Victoria (PTV), every year targeting a different mode of public transport. Travellers are approached while waiting for their transit services. The survey asks participants to describe aspects of their journey, such as origin, access, modes, transfers, trip legs, and final destinations. For the 2012 O-D survey of train users, the PhD student was able to work with PTV to amend one question about frequency of travel and to add another question about satisfaction in order to address Research Questions 1 and 2 about circumstances and experience of unfamiliar public transport travel. This research method primarily explores Research Question 1, circumstances of unfamiliar public transport travel with the data collected particularly suited to spatial analysis. The method relies on between-subjects analysis, that is, two distinct groups of participants are compared: those undertaking unfamiliar travel and another group of people undertaking familiar journeys. One publication resulting from this research method has been accepted for publication (Schmitt et al. IN PRESS).

The *University Access Survey,* (Chapter 6) is a web-hosted survey of Monash University staff and students which aimed to address Research Questions 2 and 3. Participants were primarily recruited using an electronic newsletter which was sent to all university staff and postgraduate students. They completed a web-hosted survey asking them about their use of transit to and from Monash University, current travel behaviour habits, and other background variables. Participants were first asked to rate their overall experience of travelling to Monash University by

transit which provided a sense of their overall attitudes toward using public transport to travel to the campus. Participants were then asked to rate their experience of their first transit trip to the university. Experiences were rated using eleven experiential factors (e.g. ease of navigation, sense of security etc.) on a five-point rating scale where low numbers indicated negative experiences. In addition, participants were asked about a number of other factors that may have affected the first trip experience. This is a 'within-subjects' design because rating of familiar and unfamiliar travel are compared across the same group of participants. Three publications have resulted from this research method (Schmitt et al. 2012; Schmitt et al. 2013a; Schmitt et al. 2013c)

The *Journey Planner Poll and Follow-up Survey* (Chapter 7) aimed to address aspects of all three research questions through an innovative research method which allowed for pre-trip and post-trip data collection. This research method utilised PTV's popular Journey Planner website, when visitors searched for a trip itinerary a random sample of users was asked two questions: whether it would be their first time taking the searched-for trip and whether their experiences of public transport meet their expectations of the services. Respondents were then invited to provide an email address to complete a follow up survey after undertaking their travel. The follow-up survey asked about respondents' recent travel experience, whether they will use public transport for that journey again and asked about their travel habits. The research was a 'between-subjects' design, comparing the responses of those taking an unfamiliar journey with familiar journey responses. This research method was fairly innovative and hence resulted in publications about the research method itself (Schmitt and Harris 2013d; Schmitt et al. 2014b; Schmitt et al. 2014c) in addition to publications about unfamiliar travel (Schmitt et al. 2013b; Schmitt et al. 2014a).

In order to reduce bias and support objective responses, the research methods were carefully designed to conceal the intent of the studies. For the within-subjects designs (the Interviews and University Access Survey) this was done by first asking about familiar public transport travel and then asking about unfamiliar transit travel.

Table 3-1 shows which research questions are answered by each of the research methods. Also included in the table are a number of subsidiary questions which guided the research. From this table, it should be apparent that all of the research questions and associated subsidiary questions were addressed, at least to a degree, by at least two of the research methods.

Table 3-1: The relationship between research questions and research methods

Research Questions	Sub-questions	Research Method				
		Review of Literature (Chapter 2)	Interviews (Chapter 4)	O-D Survey (Chapter 5)	University Access Survey (Chapter 6)	JP Poll & Follow-Up Survey (Chapter 7)
RQ1: Under what circumstances do first trips occur?	**RQ1a:** How prevalent are first trips?	✓	✗	✓	✗	✗
	RQ1b: Are life events associated with first trips?	✓	✓	✗	✗	✓
	RQ1c: Which life events in particular are associated with first trips?	✗	✓	✗	✗	✓
	RQ1d: Do first trips require more assistance than familiar travel?	✓	✓	✗	✗	✓
	RQ1e: What personal and trip characteristics are associated with higher prevalence of first trips?	✓	✓	✓	✗	✓
RQ2: What experiences are associated with first trips?	**RQ2a:** How are first trips different to other trips?	✓	✓	✓	✓	✓
	RQ2b: How do unfamiliar travel experiences vary with circumstances?	✓	✓	✗	✗	✓
	RQ2c: Are different modes of public transport associated with different first trip experiences?	✓	✓	✗	✗	✓
RQ3: To what extent do first trips impact attitudes and behaviour related to mode choice?	**RQ3a:** Are first trips more memorable than other trips?	✗	✓	✗	✓	✗
	RQ3b: Does a first trip create an impression that affects attitudes about public transport in a similar way to the way that primacy effect has been shown to create biased impressions with more simplistic stimuli/meeting people?	✓	✓	✗	✓	✓
	RQ3c: Do first trips provide information acquisition with the potential to impact future behaviour?	✓	✓	✗	✗	✗
	RQ3d: Are first impressions of public transport more or less important for different people? What are the trends?	✗	✓	✗	✓	✓
	RQ3e: Are there any behavioural trends related to first trip experiences?	✗	✓	✗	✓	✓

3.3.1 The definition of unfamiliarity

As noted previously, unfamiliarity of public transport services is predominantly defined in this thesis as the first time using a public transport route or service never taken before. However, the definition varied slightly between methods, as described below.

- In the Interviews, the 'concept' of unfamiliarity was explored more than in the other research methods because of the exploratory nature of the method. Generally unfamiliarity was defined as one's first time using a particular service (generally in one's hometown) but this research method also included some examination of unfamiliar transit use overseas. Because the Interviews were only semi-structured, participants had some freedom in their responses and some participants described unfamiliar transit travel in different ways such as using an unfamiliar ticketing system or an unfamiliar transit mode.

- In the O-D survey unfamiliar travel referred to the following responses to the question, 'on average, how often would you use this [train] service?':
    - ➢ 'first time (Victorian resident)'
    - ➢ 'first time (Visitor to Victoria)
These groups were then disaggregated into whether they were about to undertake their first trip or had used the service earlier in the day.

- In the University Access Survey unfamiliar travel was examined as one's first time travelling to the university by public transport. This means that in a few instances people had used the subject services before to travel elsewhere or travelled to the campus previously by another mode.

- In the Journey Planner Follow-up Survey unfamiliar public transport referred to the first time using at least one of the services in their journeys (even if they were also using a familiar service for a 'leg' of their journeys). The definition for the poll was not as explicitly defined due to a desire to limit wording on the initial interface, as will be discussed in more detail in the Journey Planner chapter (Chapter 7).

3.4   Data analysis

A number of methods have been employed to analyse the data.

Qualitative data analysis methods employed include Grounded Theory methods such as line-by-line coding, sorting, memo-writing and final write ups. These methods are particularly prevalent for the Interviews. Some qualitative responses have also been captured through the University Access Survey and the Journey Planner Poll and Follow-up Survey through open-ended responses to survey questions. For the latter methods, Grounded Theory is less appropriate, given there would not be opportunity for intervention within the research method. Thus in these two research methods, two other methods are used to interpret the qualitative comments. One method of analysis involves manually categorising the comments to identify recurrent themes. Another method is developing 'Word Clouds' which involves copying all of the comments into a (usually internet-based) application which indicates recurrent associated with the subject matter by making recurrent words bigger on the basis of the frequency of the word. This latter method provides a 'snapshot' illustration to key descriptive words.

The quantitative data analysis primarily relies on using the statistical package SPSS. Descriptive analyses first provide initial insights into the quantitative data. A variety of statistical tests and models are also employed to further explore and analyse the datasets, each being selected on the basis of the type of data collected and the objectives for each analysis. Some of the statistical models used include Chi-Square tests, Paired-Sample and Independent-Sample t-tests, Analysis of Variance (ANOVA) tests, Pearson Correlation analysis, and Regression (linear and multivariate). T-tests are used for analyses comparing only two groups whereas ANOVAs are used for comparisons of three or more groups. Some tools for analysis, such as factor analysis, have been used in exploring the data but are not included in the final results presented in this thesis.

Now that an overview of the Methodology has been provided, the next four chapters (4-7) will examine each of these research methods in more detail including more information about the research design, presentation of the findings and a discussion of the implications of the findings in each research method. This begins with Chapter 4 which presents the Interviews.

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4 Interviews

This chapter documents the 'Interviews' research approach and results which uses a qualitative method to explore all three research questions about unfamiliar travel. The three other research methods contained in this thesis rely on questionnaire-based data collection. While those survey-based research methods are quantitatively robust and serve to address number of research questions, undertaking one-on-one interviews permitted people to describe their unfamiliar travel in a more personalised and in-depth way, allowing them to highlight which characteristics were particularly important to them. Many authors argue that because travel behaviour is complex qualitative research methods are an important tool to allow individuals to provides their own explanations of their perceptions and behaviours (Clifton and Handy 2001; Beirão and Sarsfield Cabral 2007). This research approach provides for a rich exploration of unfamiliar public transport travel enabling the identification of important aspects that may not emerge though sole reliance on survey questions.

The chapter begins with an overview of the research context which includes identification of the research objectives and a review of 'Grounded theory' which was integral to the research design. Then a review of the research method is provided including a description of how participants were recruited, how the interviews were structured, and how the data was analysed. The results section describes the key findings that emerged from the data. Finally the discussion and conclusions section discusses these findings in light of existing research and the other research methods.

4.1 Research context

In understanding the context of this research method, it is important to firstly understand that the qualitative research tool, 'Grounded theory', guided the research design. Grounded theory research often begins with no research objectives or very broad research objectives. This is because grounded theory research involves an adaptive process whereby the researcher refines the research objectives from prominent and/or interesting themes as they emerge from the initial data (Charmaz 1995; Corbin 2009; Morse 2009; Charmaz 2011).

Thus at the outset of implementing the interviews, the research objectives were somewhat broad and included three main, broad research questions:

1. to explore circumstances under which unfamiliar trips occur, particularly whether or not life events emerged as a frequent prompt for unfamiliar travel
2. to explore the experience of unfamiliar travel compared to familiar travel in general, exploring any experiential interpersonal variability, and any inter-modal variability.
3. to explore the impact that unfamiliar travel has on attitudes and subsequent behaviour.

Thus, the focus of this research method was really on *exploring* unfamiliar travel, and it was surmised that the approach would be particularly advantageous in highlighting subtle but important components of unfamiliar public transport travel. In line with grounded theory principles, it was expected that as the research method progressed some elements of the research topic might emerge as particularly worthwhile to explore further during the interviews. Thus some aspects of unfamiliar travel that emerged during the first phase of interviews were then explored in more depth during later interviews.

4.1.1 Grounded theory

As already noted, in order to achieve the broad research objectives and explore aspects of unfamiliar travel that might not have emerged via the other research methods, grounded theory was deemed a useful tool to achieve this. Grounded theory research methods assist in conducting rigorous qualitative research (Charmaz 1995). A short review of grounded theory will now be provided.

Grounded theory emerged during the 1960's from sociologists Glaser and Strauss (Charmaz 1995). Corbin (2009, p.52), who worked with Strauss during her doctorate and later published several books with the grounded theory co-founder, explains that Strauss "wanted to provide researchers with a methodology that would enable them to capture some of the complexity and variation in this world, qualities that add so much richness to life, as we experience and live it as well as to our research findings." The method is particularly useful for research which seeks to identify and describe attributes of phenomena, core social psychological processes, and interactions of the two (Morse 2009). Well-known grounded theory researcher Charmaz (1995, p.30) explains, "grounded theory offers systematic approaches for discovering significant aspects of human experience that remain inaccessible with traditional verification methods."

4.1.1.1 Application of grounded theory

Grounded theory aims to "develop useful theory that is grounded in data" (Corbin, p.52). Morse (2009) argues that grounded theory methods are not formulaic but rather grounded theory is a means of thinking about data and includes several tools which can be used for data collection and analysis. Thus, grounded theory research may be performed differently each time that it is used based on the requirements and nature of the research as well as on the basis of the researcher (Corbin 2009; Morse 2009). This non-prescriptive approach allows researchers to adapt their data collection to the specific context and challenges of their research (Corbin 2009). Because of the diversity of grounded theory approaches, some question whether or not it should even be referred to as a method itself. Corbin (2009, p.41) states, "perhaps it would be better to think of grounded theory as a compendium of different methods that have as their purpose the construction of theory from data, with each version of grounded method having its own philosophical foundation and approach to data gathering and analysis, while sharing some common procedures."

However despite the methods not being formulaic, Charmaz (1995) argues that they are systematic and range from interpretive to structured positivist. Interpretive analyses involve examining the lived experiences of people to gain knowledge from the point of view of the experiencing person by allowing them to describe their situations, thoughts, feelings, actions and intentions by relying on portraying the research participants' lives and voices. Charmaz (1995, p.36), who tends to practice interpretive grounded theory explains that she generates data "by investigating aspects of life that the research participant takes for granted". By contrast, structured positivist studies tend to rely more on the researcher's structure of enquiry and rely on the world as predictable. The present research method is more interpretive than structured positivist in nature.

In practicing grounded theory, analysis tends to begin with individual cases or experiences and develop towards abstract conceptual categories which can help to explain and synthesize the data (Charmaz 1995). Some of the main characteristics described by prominent grounded theorists (Charmaz 1995; Corbin 2009; Morse 2009; Charmaz 2011) include:

- Concurrent involvement in both data collection and analysis
- No preconceived hypotheses – categories and analytic codes developed from data
- Middle range theories to explain practices

- Memo writing as an imperative intermediate step between coding and writing first drafts of the paper.

- Theoretical sampling (i.e. sampling to check and refine emerging categories) rather than attempting to represent an entire population

- Delaying the literature review

- Rich detailed data (e.g. extensive accounts of personal experiences such as transcribed tapes)

Data collection typically concludes with saturation; that is once there are no new major emerging concepts (Corbin 2009). Charmaz (1995) also suggests noting a description of the situation under which an interview takes places, what the interaction is like, and the interviewee's affect.

The present research method adopted all of the above grounded theory principles, though some review of literature and a prior research method had taken place. However the review of literature primarily had suggested that there was actually very little known about unfamiliar public transport travel. The researcher made a concerted effort not to integrate any of the findings from the previous research method into this method, but rather allow interviewees a platform to provide open-ended descriptions about their public transport travel.

4.2 Method

The method of data collection involved undertaking audio-recorded interviews with participants followed by completion of a short questionnaire capturing demographic attributes. This particular research method allowed participants to describe their public transport travel in their own words and in the detail that they could recall, highlighting features that stood out to them.

4.2.1 Data collection

4.2.1.1 Recruitment

As part of the university access survey, participants were invited to provide their contact information if they were willing to participate in follow up related research. Of the sample, 121 respondents provided an affirmative response and contact information.

The 121 contacts were randomly ordered (initially) in a database and then contacted by e-mail. A copy of the research invitation that was sent is provided in Appendix 1 and included a

description of the study, the financial incentive to participate and asked potential participants to reply advising whether or not they would be willing to participate in the study and if willing which interview timeframes/locations they preferred. In order minimise bias, the title of the invitational email was generic, "Public Transport User Survey Follow-up Interviews" and the purpose of the interview was simply identified as "to undertake a 45 minute semi-structured interview about your experiences using public transport". Thus the focus on unfamiliarity was not clearly identified and the interviews themselves began with a discussion of familiar travel prior to unfamiliar travel so as to not reveal the intent of the study. This enabled a user-based initiation of any issues associate with unfamiliarity and avoided self-selection response bias.

A full explanatory statement was attached to the invitation email (refer Appendix 2). All respondents who expressed an interest in participating in the research were then sent a follow up email-based calendar invitation within a few days of their reply which advised of their allocated time and location for their interview (the template for this is provided in Appendix 3). During the beginning of the research, contacts who did not respond to the initial email within one week were then sent one follow up email, giving them a second chance to register to participate (refer Appendix 4). However because the response rates were generally satisfactory, follow-ups were not sent to all potential participants.

Thirty interviews were conducted overall. Aside from a number of the email addresses being defunct by the time the interviews were being organised, the response rate was generally satisfactory with 88 invitation emails sent, 32 responses received, eight email addresses did not work and the remainder did not respond or had automated messages returned saying they were away/on leave. Halfway through conducting the interviews it became apparent that the random selection of the 121 participants was yielding a large share of participants who were regular public transport users. In order to achieve a better range of responses covering low frequency public transport users, midway through the data collection stage, non-random sampling was employed whereby the initial dataset was again accessed and people's percentage of travel by public transport, (assessed during the university access survey) were examined alongside their contact details[1]. Participants who used public transport for less than 40% of travel were then

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[1] initially the contact details were separated out from all of the other responses to protect individuals' privacy and minimise the potential for researcher bias

prioritised for invitations to participate. Thus the second half of interviews included a larger share of car-dependent interviewees in order to stratify the sample.

In line with grounded theory, once it appeared that no new themes were emerging in the interviews (in grounded theory this is referred to as reaching 'saturation') no further interviews were scheduled.

4.2.1.2 The interviews

The first set of interviews were undertaken over six weeks (August 2012 – September 2012) which allowed for some interim analysis between interviews and adaptation of interview styles consistent with 'grounded theory' principles of qualitative research. A second set of interviews, utilising an updated set of research questions, was then performed (April 2013 – June 2013) to allow for additional data collection.

The interviews were primarily held at public libraries around the Melbourne area, in a public section of the libraries where talking was permitted. Before the interviews began, participants were given a hard copy of the explanatory statement and asked to review and sign a consent form if they were satisfied with the explanatory statement, which all participants were (refer to Appendix 5 for a copy of the Consent Form template).

Following the completion of the consent forms, the audio recorder was switched on and the interviews began. Interviews tended to be approximately 20 minutes in length though some were longer or slightly shorter. The interviews were semi-structured, so that as concepts emerged during the interview they could be explored in greater detail. The over-arching questions which guided the interviews are provided are Appendix 6. Participants were first asked to describe a familiar public transport journey and then asked to describe either the first time that they undertook that journey or another unfamiliar journey. They were asked to describe the journeys in as much detail as possible including details like origin, destination, trip purpose, what activities they were engaged in while travelling, and other attributes of the experience. They were then asked about other unfamiliar journeys in Melbourne, interstate, or overseas.

Following the semi-structured interview each participant was asked to complete a short, two-minute survey which included questions about demography, travel habits and residential locations. A copy of this short survey is offered in Appendix 7 of this document. Finally each participant was provided with $30 cash in compensation for their time and asked to sign an accounting sheet stating that they had been paid.

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4.2.2 Data management

Each participant was given an alias in order to keep their information and interview data anonymous. Following each interview each participant's survey responses were recorded in a database and the audio-recording of each interview was uploaded to the secure file folder.

4.2.3 Data analysis – stage 1

All of the interviews performed during Stage 1 were full transcribed and line-by-line data analysis was undertaken. This involved identifying the dominant process being described in each sentence the interviewee said. Memos and notes synthesising the emergent themes were then prepared to identify the key themes emerging from the interviews. Some additional interview questions were then added to the list of semi-structured interview questions.

4.2.4 Data analysis – stage 2

Initially many of the interviews from Stage 2 were transcribed. However given this is a lengthy process, it was eventually deemed to be more efficient and equally effective to create an outline of the key themes emerging from the data and review each interview, selecting out interesting quotes and integrating these under the key themes. On occasion, additional themes needed to be added to the outline also. Overall, the interviews provided rich, informative and new concepts to the research, but did require an extensive stage of data analysis to process all of the rich information objectively.

4.3 Results

Overall 30 interviews were conducted. Appendix 8 provides a summary of all of the interviewees' aliases, basic socio-demographic information, reported satisfaction with Melbourne's public transport, and typical weekly modal split of travel behaviour.

The interview results which follow are presented primarily by the over-arching research questions, but also include some other key emergent themes. The results begin with an exploration of what unfamiliar travel is, which is followed by a section examining the circumstances surrounding unfamiliar travel. Then the experience of unfamiliar travel is examined, and is followed by a section about the impacts on attitudes and behaviour. While the results are structured in a series of categorised headings and sub-headings, such categorisation of

the data was not a simple task: many of the variables overlapped quite a bit. Throughout the results, the aspects of unfamiliar travel are compared with familiar travel as much as practicable.

4.3.1 What is unfamiliar travel

A recurring issue encountered in examining unfamiliar travel is defining exactly what unfamiliar travel is. This issue has been encountered throughout the thesis research both disseminating the results of the research and also while collecting data. Despite careful wording being used during the interviews, the issue was still apparent at times. For example an excerpt from one conversation follows:

> Interviewer: Now, I would like you to take a moment and think, can you remember your first time taking the above trip by public transport?
>
> Interview D: Sorry? (asking for question to be repeated)
>
> Interviewer: Taking that bus trip by public transport. Can you remember?
>
> Interview D: First time I got this particular bus or first time catching the bus?
>
> (The respondent could not recall his first time using that bus service so was then asked about another unfamiliar journey.)
>
> Interviewer: ….Can you think of a time, the first time taking another trip by public transport? So, like on a service that was unfamiliar to you?
>
> Interview D: first time ever taking a trip on public transport?
>
> Interviewer: Yeah, well, for example like – I don't know if there was maybe a first time going to Yarraville by train or you know, something, something like that?
>
> Interviewee D: I have been using – I don't actually – I have, I haven't owned a car for 15 years or so I'm sorry I couldn't remember.
>
> Interviewer: No, that's all right, that's all right. So, you can't think of any sort of public transport trips where you went to use a service that you have never used before?
>
> Interviewee D: I've certainly done that many times…

Thus this interviewee was confused about what first time taking a journey and unfamiliar travel meant. Once he eventually understood what was being asked, he could not remember a specific trip, attributing this to his long-term dedication to using public transport. He ultimately noted that he had undertaken unfamiliar public transport journeys many times, but could not recall one specifically. Most respondents could at least remember a few particular instances of unfamiliar journey, but in some instances, particularly in interviews like this, participants were instead asked

about unfamiliar travel in general or about unfamiliar travel overseas (which they seemed better able to recall).

In a similar vein, for some, unfamiliarity was often experienced on a bit of a continuum with some trips *more* unfamiliar and others *less* unfamiliar:

> Um, I can't remember where it was, but I had to, I think it was even on my train line. But, I had to get off at a stop that I hadn't gotten off at before. And I wasn't sure like which side of the road I was supposed to head down. So, I did a bit of a walk up this way. "I'm not sure it's this way", a walk back. "I don't think it's this way either". And I had gone with my dad a couple of times and finally was like, "it's definitely this way" (Interview C).

> hmmm…um I remember the early days I don't know if I remember the first time…I had [also] used the service [before] similarly, I used to work in the city a couple of years prior…and I'd used the same service but got off at a station or two earlier (Interview BB).

> And that was so unfamiliar and I was a bit lost there. Because the roads were such – they stopped on a main road and then you had to go looking sideways for the place and things like that. So, it was unfamiliar territory but it was nothing to do with the tram, the tram, I mean took you on the main road and dropped you there (Interview G).

> It is quite new because in my hometown of Penang of Malaysia, there is still no train services of public transport…so during, in the year of 2004 when I first came to Australia, taking a train within the metropolitan area is a new experience for me (Interview AA).

> I guess pretty much any time I've been to a new city, you know, it's always new (Interview P).

In these examples unfamiliar travel referred to using a service that had been used before but alighting at a different stop or station (Interview C, BB), remembering 'early days' (Interview BB), and an unfamiliar area once alighting from a tram (a trip end, Interview G). For Interview AA, the fact that he was in an entirely new city and using a mode that was entirely new to him seemed to be a very unfamiliar experience.

One life-time user of Melbourne's public transport (Interview A) when asked about his first time using a particular service, instead described his first time using a service by himself as a boy (he had used the service before with his parents). Thus his 'unfamiliar' trip was not actually unfamiliar but it was still an important milestone for him due to the significantly changed circumstances of his travel. Similarly another participant (Interview C) described her first time travelling alone when asked to describe an unfamiliar journey.

Thus, during the interviews it also became apparent some people think of unfamiliarity with public transport services differently than the researchers had defined it: they thought of *aspects* of travel that were unfamiliar. Another example of this was one participant describing how when she moved back to Melbourne from overseas, ticketing was:

> an absolute nightmare. When I'd been away I think they'd introduced Metcard, which was fine, okay. But on this particular day, I could not buy a Metcard. First I tried the machine at the station and it was not working. Then I tried, there were supposed to be for sale at a newsagent, so I tried to go across the road to a newsagent and they'd run out. There was a little kiosk (Interview X).

Similarly another participant described issues with the 'unfamiliar ticketing' of Myki[2]:

> I found the switch to myki harder I thought when I got used to the tickets and stuff because it's in my hand ya know with myki its money you can't see….we just went through it so much quicker, I didn't pay attention to how much funds we had on the card and stuff (Interview Z)

Thus for some respondents, familiarity changed with new system rules like the structure of ticketing.

Despite these examples, the unfamiliar journeys described in the remainder of this section are predominantly about unfamiliar journeys as defined in the rest of this thesis, that is, the first time using a service. It is simply interesting to note that, to a degree, unfamiliarity is not dichotomous but rather is experienced as a sort of spectrum; for some people unfamiliar may mean 'first time travelling alone' or 'less familiar'.

4.3.2 Circumstances surrounding unfamiliar journeys

In this section the circumstances of unfamiliar travel are explored, and when practicable, contrasted with circumstances of familiar travel. These circumstances are important for understanding when unfamiliar travel occurs, and also the context of unfamiliar journeys, which in some cases, may impact trip experience.

4.3.2.1 Circumstances that prompt unfamiliar travel

Prevalence of unfamiliar travel was not directly examined in the interviews but many comments provided useful insights about the prevalence of unfamiliar travel. Some Interviewees stated that

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[2] Myki is the name for the Smart Card ticketing in Melbourne.

unfamiliar journeys were relatively rare, "tend to stick to the same route near home" (Interview U) or that they had not *recently* undertaken unfamiliar travel. Meanwhile other interviewees could readily recall a number of instances of unfamiliar travel, often recently undertaken. Some interviewees also described barriers preventing them from undertaking more unfamiliar travel, such as for example, the availability of late night services. In contrast, the interviewees seemed readily able to identify a number of familiar journeys, suggesting that familiar journeys are relatively common and/or that the repeated occurrence of travel behaviour increases the memorability. Recall and memory of travel is explored further in section 4.3.4.1: Attitudes.

One major prompt for unfamiliar travel was life events, major milestones, causing a disruption to usual travel patterns, such as, for example, beginning a new job, a new study course, moving houses or other big life events. Other prompts of unfamiliar travel included travelling, visiting friends and family, events, shopping and a handful of other purposes. In contrast, familiar travel tended to be for regular commuting for work or study. Life events as prompt for unfamiliar travel will now be examined.

A number of the unfamiliar journeys interviewees described were related to 'life events', particularly unfamiliar journeys which were the participants' first of their then-regular, or familiar, journeys described at the beginning of the interviews. For example, one participant described her daily commute to the university by bus and then described her first time taking that bus journey to university and how she was excited (Interview C). A few examples of quotes about unfamiliar journeys related to life events follow:

> When I started a job in Hawthorn and I was living in Cheltenham I thought, 'oh I'll drive the first day and there really was nowhere to park, I had to keep moving the car so I worked out I could get a train to Richmond and then a tram out so I did that instead of driving because I mean it's not good to drive when there's nowhere to park and I mean driving through peak hour traffic and everything and I prefer to get public transport if I can but it really was a very long trip (Interview W).

> It would probably have been my very first day I actually moved over here [to Melbourne, from Perth] and having to use public transport and that was quite a challenge (Interview Q).

> For the job interview that I had in September last year (Interview I).

In these examples, unfamiliar travel related to life events were for starting new jobs, interviewing for jobs and moving cities. There were a number of unfamiliar journeys related to life events. It was interesting that Interview W's life event (starting a new job) prompted her unfamiliar travel but only because her initial experience of driving was negative, prompting her to try using public

transport. Similarly, one participant described using a new train service to get from Geelong to Monash University Clayton, a two hour trip; this was to evaluate the travel for his next year of studies:

> Yes, I can, it was – it was the first time I went to Monash to see if the trip was even feasible from Geelong (Interview N).

This is an interesting example because it shows that for this participant at least, unfamiliar travel undertaken in relation to a life event was used, quite consciously, to gather information which would impact future travel habits. This provides insights to address Research Question 3.

In some instances, interviewees described unfamiliar journeys undertaken *after* life events, but also as a consequence of them. For example, Interview Q described the unfamiliar journey she took to explore Melbourne after moving from Perth:

> It would have been a weekend and I would have just gone in the city just for curiosity reasons and going to the markets and I'm still sort of doing a bit of touristy things because I'm still sort of relatively new to Melbourne (Interview Q).

This example suggests that some life events may elicit *a series* of new trips. Interview Q stated that she also continues to use the same train line (now familiarly) to explore Melbourne (a subsequent travel behaviour).

Another interesting characteristic of unfamiliar travel related to life events that people also discussed, was the impact of their life events on their emotions during unfamiliar journeys. This is discussed further in section 4.3.3.2

A number of circumstances other than life events were also reported to prompt unfamiliar travel. One instance when many people undertook unfamiliar travel was for travel in other cities. Many participants were asked about such travel, particularly, in instances when they were unable to recall local unfamiliar travel. People discussed travel in other cities of Victoria and Australia and overseas. Overseas journeys described were geographically diverse but some of the locations included the United Kingdom, Paris, Singapore, Finland, the United States of America, Spain France, India, Japan, Italy, among other places:

> I was in the UK last June and I used the underground and took the train from the airport and all that. Interestingly enough I haven't travelled much in my own country on the regional trains. I tend to drive more which is quite interesting. When you travel overseas you tend to…I think after being stuck on a plane for so many hours usually if you want to go to the US, or Europe or the UK you're a bit more happy to travel on trains, a bit

> more 'cause you can sort of see and I think if you're a tourist you're looking a bit more for the visual (Interview U).

> Yeah. In each case, I don't tend to routinely hire cars overseas I tend to use public transport a lot more (Interview BB).

> I did 6 months abroad in San Diego, study abroad. That was amazing but every public transport over there was unfamiliar (Interview F).

Many of the interviewees expressed a high willingness to use public transport for travel overseas, often they said they were more willing to try public transport overseas than in their own cities, however, a few people stated that they had not used public transport overseas.

Many other prompts to undertake unfamiliar public transport related to visiting friends and family and attending parties:

> Yep. I went to a friend's birthday party, which is in…I can't remember what it's called but on the way to Ballarat so I…went into the city and then had to get onto the V/Line which I had never done before. And then I had to wait for another bus to get to her house (Interview C).

> I was going to a party, so meeting someone before going to a party, so I took the bus. I hurt myself recently, I normally would walk…but because I hurt my ankles I couldn't walk (Interview I).

It was interesting that Interview I's travel had a combination of factors prompting her travel: a party, meeting someone before the party, and having recently hurt herself. It is interesting that Interview C recalled an unfamiliar journey to attend a friend's birthday party but does not recall exactly where it was. Some more examples included Interview H described visiting her daughter in Brisbane as prompting travel and Interview J described using an unfamiliar journey to attend and engagement party in Heidelberg Heights. Another interviewee (Interview W), who had not undertaken unfamiliar travel in recent times, described how she went to St Kilda to meet her mother and sister for lunch approximately two years ago.

One participant (Interview X) described how the introduction of a new service prompted her first trip and continued use of the service. When Interview X was asked how she found out that the service was being introduced, she could not quite recall but thought it was either by an advertisement in the newspaper or a flier on another bus. Similarly, Interview CC described how the introduction of a bus service in Brisbane prompted her to use the service:

> The bus system was only introduced a few years ago so when I spent two months living in Brizzy, it took a while to get my head around how the buses worked. I still prefer going on the ferry but the buses are handy and quick and again information, I think they

also have really good printed material available that you can get at the information centre and then I also shared a house with some friends and they also told me which buses to use and where to change (Interview CC).

Another prompt for unfamiliar travel for some interviewees was work, attending conferences and school field trips.

> I was working in an area that I hadn't worked in before and I was unfamiliar with and I was taking train and tram (Interview H)

> Yeah, I was in Wollongong recently, maybe the 1st week of July, so two months ago and I stayed at a hotel then I had to catch a bus to the conference venue (Interview I).

> Yeah, I mean it was actually for work here. I had to take a group of visitors from overseas to a school in the Eastern Suburbs from here. And I had to take them on bus (Interview P).

> I was involved with a school excursion with our kids and we went to Docklands and I'd never been to Docklands before (Interview BB).

Interview H had to work an area that she was unfamiliar with. Interview I had to attend a conference in a regional city and used a bus to get to the venue. In the latter two examples the interviewees described having to guide other unfamiliar travellers on services that they too were not familiar with. It is interesting to note that many of these trip purposes would have an element of time pressure and expectations of others associated as well.

Sometimes personal and health appointments necessitated unfamiliar travel:

> My osteopath changed her rooms so she moved to somewhere in South Melbourne so I had to catch the light rail and I wasn't sure which stop to get off at…so I just had maps…'cause it tracks on your phone so yeah it was easy (Interview S).

> Only a week or so ago, a friend of mine was in the hospital in Moreland (Interview A).

> I had to go and see a specialist in the city so, that was an unfamiliar transport trip (Interview Q).

Interview S's example is interesting because it was her specialist having a life event (moved workplaces) that prompted her unfamiliar travel. Similarly, Interview A's travel was affected by somebody's admission to the hospital, which could be seen as a life event. Presumably Interview Q had a health-related need to see a specialist also. Hence it seems that healthcare (either for self or others) can prompt unfamiliar travel.

Some interviewees described undertaking unfamiliar travel for leisure including going to events like attending concerts, going to the movies and shopping:

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So I decided to see a movie that wasn't showing at anywhere I was familiar with and it was showing in Sunshine, so this was on a weekday so I was travelling all the way from Clayton out to Sunshine (Interview DD).

Did I say Avalon? No I'm pretty sure it begins with 'A' and it's past Footscray, past Sunshine, ah Antona is that a place? Altona? Altona. Okay so I was trying to get to a concert in Altona and there were organised buses from North Melbourne train station and I knew the street they were on but I didn't know how to find that street so I had taken the train to North Melbourne to catch these buses. Once in the flow of the journey it was fine but it was quite a difficult process to prepare for (Interview T).

Overall a number of unfamiliar journeys described were for recreation and shopping. One interviewee, Interview U, suggested that large crowds generally encourage her use of public transport. Interview T's unfamiliarity is clear with his inability to recall the name of his destination. The last part of his quote is interesting in that it indicates that the pre-trip planning requirement for cognitive effort is more taxing than the trip itself (trip planning will soon be examined in more depth).

In addition to travel overseas, some respondents described taking unfamiliar travel as a means to explore their current metropolitan area:

Sometimes I take public transport for pleasure. Sometimes, especially in the afternoon; I would potentially take an unorthodox route home just to expand my knowledge of the grid system…I'm open to novel public transport experiences (Interview T).

If I had absolutely nothing to do and I kind of had a bit of an aim to go shopping or to get something for dinner, I'd just catch the bus and kind of jump off when it looked good and it was kind of orientation and getting familiar (Interview F).

Thus for some participants unfamiliar travel was a way to learn the local geography, explore and have leisure time. Interestingly, this type of non-directed travel seemed more desirable to participants for afternoons and evenings. Such exploration travel was more common amongst people who had been living in a city for less than two years

Interestingly, Interview T also described how the structure of ticketing in Melbourne encourages him to undertake more unfamiliar travel:

I come from New Zealand and there we don't have an integrated ticketing system which I would say dramatically reduces my public transport usage. Coming to Melbourne, and knowing that I could pay a certain amount of money would provide me with unlimited public transport across all platforms really was, it seemed like a great thing to me, and it has become less novel, but I still hold an appreciation of it (Interview T).

Thus the integrated ticketing in Melbourne encourages this participant to use transit more often as there is less cognitive effort and anxiety associated with ticketing and he uses his home country of New Zealand as a benchmark to compare with.

Overall there was a relatively big diversity in prompts for unfamiliar transit travel including life events, travel interstate or overseas, new services, work, conferences, appointments, visiting friends and/or relatives, healthcare, leisure events, recreation and explorations. In some instances, other people's life events prompted unfamiliar travel. Crowds, exploration and the structure of ticketing also facilitated unfamiliar travel.

4.3.2.2 Mode choices

Throughout the interviews people were asked why they had chosen to use transit for their journeys as opposed to other modes. Mode choice was examined between *car, walking, cycling, or public transport* and for mode choice between *different types of public transport*. Mode choice in the former context is examined first, and in the latter context after this. It is worth noting that throughout the interviews it became apparent that there was a sort of feedback mechanism with mode choice. Sometimes people's previous experiences with certain modes influenced their choice of modes for future travel, thus mode choice was quite relevant to circumstances of travel but also future behaviour (research question 3), often on the basis of their experiences (research question 2).

The rationale for taking *unfamiliar travel* by public transport tended to be fairly similar to the reasons provided for *familiar travel* and typically related to: parking, travel time, activities, finances, other responsibilities related to travel, the availability of someone else to drive, and for some, an inherent preference for public transport. The rationale for using public transport was very similar for familiar travel but for familiar travel respondents more often mentioned health and environmental benefits also. For unfamiliar travel a few respondents mentioned occasions when they wanted to drink alcohol whereas this was not brought up for familiar travel. For both familiar and unfamiliar travel, some people described preferences for public transport that lead to intentionally not getting a car/license to drive or choosing their residential locations to facilitate travel by public transport. In relation to familiar travel, some respondents described having to adjust their schedules to use transit and in some instances, trip suppression occurring due to the unavailability of services. Overall many of the reasons to use transit as opposed to other modes were similar between unfamiliar and familiar travel.

Participants were asked whether they would have any preferences related to *mode of public transport* for their unfamiliar travel and specifically, if one mode of public transport would discourage them from travelling on unfamiliar services.

A few participants did not seem to have a preference for whether unfamiliar travel would be by bus, train or other modes:

> It would be whatever was available (Interview W).

> Usually, if the time difference is not that big. I mean, we usually chose the most convenient one where we don't have to change (Interview K).

Meanwhile many participants reported strong preferences for particular modes for unfamiliar travel, with some people even stating that they would not use public transport if only certain modes were available. Overall people tended to prefer trains, and to a degree, trams, over buses:

> I'd avoid the bus…because in my mind it takes longer and the services are a bit more intermittent I guess, and can be delayed by the traffic conditions whereas the train and the tram ya know, particularly now as they're freed up, you know the predicted travel time is probably more accurate than the bus…I'd probably go straight for the train rather than thinking of a bus (Interview S).

> I preferred the trains 'cause ya know throughout my life I've been more of a train user anyway so I had a bit of an understanding of how they worked…The buses were something more we ventured into after a while there so it took a bit more, local knowledge before you start using the bus service (Interview BB).

> I would never have taken the bus too because I didn't have a clue where the buses would be going. You know because that part of the city, I am not familiar with...yes, the tram or train [would be more intuitive] definitely. The buses in areas that you've not been in, I would be a bit afraid to take it. Because sometimes they can go round and round and round and round before they get to a spot (Interview E).

Interview S perceived trains and trams to be more reliable in terms of travel time and admitted that she would likely not even think to take a bus. Meanwhile Interview BB attributed his preference for trains to his history of experience using trains and thought that buses were only appropriate in circumstances where you have accumulated a substantial familiarity with an area. Similarly Interview E seemed concerned that she would not know where buses were going and thought trains and trams are more intuitive. People often explained that trains were easier to navigate than buses, which they perceived to be difficult for wayfinding:

Except for the SmartBuses[3], buses don't have the 'your next stop is blah blah' so if it's the first time you know exactly where you are on the train so buses I suppose you can kind of see from street signs and whatnot (Interview Y).

Well I never used buses 'cause I really never quite worked them out and I found the Underground took me to wherever I needed to go (Interview W, describing her time living in London).

I think if I'm unfamiliar with a city or an area I would prefer to catch a train because you can have the map and you know the secrets of stops and then you basically only get into trouble if the train starts skipping a whole bunch of stations and you can't get off whereas I think with buses it's a lot harder to orient yourself, I mean there might be stop numbers but you probably haven't got a map that gives you an indication of where those stops are (Interview DD).

Overall these quotes suggest that buses (except for SmartBuses) were seen to be hard for wayfinding in terms of orienting oneself on maps, and necessitating reading of street signs which was perceived to be more difficult than reading a train map. It was implied that trains tend to be equipped with maps whereas there was less certainty about this for buses. The real time route information on trains was seen as beneficial. Also some respondents discussed how trains and trams are more permanent and tend to be more linear (particularly trains) both of which reduced their anxiety for unfamiliar travel. The special Melbourne 'SmartBuses' were identified by some participants as being more attractive than other buses due to the presence of real time orientation route signage.

A few respondents identified travelling with family as a factor that would influence their mode choices for unfamiliar travel:

Certainly train because I think it works really well, travelling with families on the train, I don't know why that necessarily is but I just think it's more comfortable, shuffling kids on and off the train and you can usually get them a seat, although they love the bus (Interview BB).

I wouldn't go by tram I don't think. It depends on where it was, what we were doing…[because of the issue with prams being problematic to have on trams]…so I would probably look at train options and bus options if I was with him (her son), (Interview Z).

This 'family factor' was not raised by many respondents but at least for the examples above, it seems that if children are factored into the mode choice equation, trains would be the most

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[3] SmartBuses are higher frequency buses which have a dedicated branding and are provided with bus priority and real-time information.

preferred mode because of level platform for boarding and alighting (particularly with a pram) and availability of seats. It was interesting that to a degree, Interview BB was not entirely sure precisely what factors made the train more comfortable for travel with his family.

Preference for trains (and sometimes trams) over buses was not always entirely related to practical aspects but sometimes amenity, comfort, or innate interest. For example, Interview T described what characteristics of buses dissuade him from using them:

> It's actually the streets that they're on…I just don't like car traffic a great deal so streets that have trams running up them often aren't very busy with road traffic, the train and tram system…is so much more fluid cause I guess the whole running on rails thing feels like it's a conveyor belt. It just runs very smoothly…with a bus, the traffic is more erratic. I associated them more with cars which is something I don't appreciate (Interview T).

A few interviewees reported that modal options in areas have even caused trip suppression:

> I haven't really explored the bus network in Melbourne much at all…I've kind of preferred to find alternate ways…I have really wanted to get to know the north and west parts of Brunswick more than I do…[but] there's no east-west…tram transport, there might be a bus, but what seems to be easiest, but at the same time nonsense, is to catch a train the opposite way, back into the city to exchange it for one that is heading out but because of the lack of east-west tram thing and I don't know, my lack of desire to catch buses I haven't actually gone to that part of the city, even though I'm very intrigued by it (Interview T).

> I would reconsider my decision if it was going to be very inconvenient. If for example, I had to change modes of transport a number of times but I have to say because I don't have an alternative, if it's somewhere I really need to go and I can't afford a taxi, because usually a taxi costs a lot, I'll still go. I have an example of this. On the weekend I needed to get to a medical centre and there's one out in Berwick that seems to be the closest 24 hour medical centre and so I made the trek out there (Interview DD).

It is interesting that Interview T interpreted it to be easier to catch a train in the opposite direction to get on a train heading to his desired destination than to catch a bus, though the latter would be more direct (but presumably less frequent). Interview DD identified a large number of transfers as being a factor that would potentially suppress her travel but admits that because she is a bit 'captive' to public transport, trip suppression is somewhat rare.

It was also somewhat evident that there are feedback mechanisms whereby people's previous experiences impact their mode choices for later unfamiliar travel. People described how their previous unfamiliar travel experiences shaped their subsequent attitudes related to mode choice:

> So I would definitely consider it (travelling by train in and around Melbourne), the whole family would, because my wife and I had that good experience travelling by train in the UK (Interview BB).

Interview BB's good experience of transit in the UK have given him and his family positive attitudes about transit that, he thinks, may translate into undertaking unfamiliar transit travel in Melbourne. Interview L also how her unfamiliar journey experience on a bus impacted her opinion about buses more generally (they make her sick). Meanwhile another interviewee, Interview M, explained that his experience of using unfamiliar transit in Melbourne to travel to places other than the CBD has given him a perception that it tends to take a long time, particularly as it often requires transfers, so he prefers to drive anywhere other than the CBD. These findings are provided in this section because they are about mode choice but they also address research question 3.

Overall, for unfamiliar travel, a number of participants expressed public transport modal preferences, with some even avoiding using public transport if it would be by a certain mode. Some of the modal specific elements influencing attitudes were about perceptions of wayfinding, speed, network simplicity, and ability of a mode to accommodate certain travel needs, such as travelling with children, and having a background understanding of modes like trains. These preferences often seemed to relate to minimising anxiety associated with wayfinding. Trains were perceived to be particularly attractive and some interviewees had an aversion to trams and many to buses. Mode choice between different types of public transport was not explored extensively for familiar travel though some interviewees did mention some preference for trains. Thus modal preferences seemed to be particularly important to unfamiliar travel, particularly to facilitate wayfinding. Also some people described how previous unfamiliar travel experiences have shaped their future mode choices for unfamiliar travel and for travel more broadly.

4.3.2.3   Characteristics of unfamiliar travel

In this section, some characteristics of unfamiliar travel are examined. First, travel companionship is reviewed which is followed by an examination of trip planning.

Unfamiliar journeys were sometimes solitary but were often reported to be undertaken with company:

> The first time, I took the train was with my sister and my father (Interview K).

> I was grateful to have a friend who was able to guide me on this journey (Interview T).

In many instances travel companionship was seen to be positive (e.g. Interview T above), presumably because the anxiety of wayfinding is reduced by shared responsibility. Some people described having one of the group (or duo) as dominating the navigation, for example, Interview BB described leading navigation when travelling with his wife. High rates of travel companionship for unfamiliar travel may have been due to different trip purposes associated with unfamiliar travel. Indeed many people described having company for overseas unfamiliar travel (e.g. Interview DD). One interviewee (Interview X) stated that she tends to end up travelling with other people for longer unfamiliar journeys but for short everyday ones she more often travelled alone.

Contrastingly, familiar journeys were more often undertaken alone:

> Most normally by myself (Interview J).

> Usually, I am by myself (Interview L).

> Usually alone…Sometimes I'll bump into to a colleague on my trip home, but usually alone (Interview G).

This may because a large proportion of the *familiar* journeys described were for commuting to work/university. People tended to be travelling by themselves for these journeys, unless they happened to bump into someone.

One particularly prominent contrast between unfamiliar and familiar travel was how much pre-trip planning was required for unfamiliar use versus how much information familiar travellers tended to know about their travel options and services they were using. For unfamiliar travel, many of the interviewees described undertaking relatively extensive information gathering to reduce anxiety and uncertainty:

> I do use PTV Journey Planner[4] a fair bit; if I am going somewhere new and I am not sure how to get there I will use PTV Journey Planner and sort of work things out… And I had gone on Journey Planner to figure it all out and even looked on the G Map[5] street directory so that I could look at the landmarks around the area so that if I was looking out the bus window when I would be able to go "well, that's the shop that I saw in G Map (Interview G).

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[4] PTV stands for Public Transport Victoria, the umbrella organisation for public transport in Melbourne.

[5] Google Maps

Well before I came [to Melbourne I thoroughly explored the website in terms of the journey planner on there (Interview Q).

For Melbourne-based unfamiliar travel, many interviewees described using the PTV journey planner. Some people reported that the Journey Planner was very helpful while others were not confident it always offered the most direct option. Many interviewees also used Google Maps to identify landmarks to assist with their wayfinding. Interview Q reported exploring the PTV website thoroughly before moving to Melbourne.

A number of people reported getting assistance from other people they know for their trip planning, for example Interview CC reported her friend in Hong Kong printing out maps for her when Interview CC visited her.

Interview D reported needing to carefully plan 'really unfamiliar' journeys:

If it is really unfamiliar and I need to plan I do plan it pretty carefully. And usually, it goes okay. So, I think because I have the mentality of being happy to use time and to always have stuff with me that I can do. I'm never really, if I ever stuck; it's not usually a big drama because I have got stuff to do to use the time… as long as you've allowed enough time, as long as you built into your journey a margin for error so that you have got time to get there even if something goes wrong. And then, okay, you have a hitch and it delays you. But, if you've planned your journey well you will get there on time anyway and [if] you've got stuff with you, you can make use of the time (Interview D).

Thus Interview D plans trips very carefully "if it is really unfamiliar", but even so, allows extra time and brings activities to do in case there are any problems with getting stuck. His testament suggests that previous unfamiliar (and possibly familiar) travel has led him to believe in the necessity of planning carefully and allowing extra time. Trip planning was often described adaptation people made to optimise their unfamiliar travel experiences.

Many participants couldn't remember exactly what they had done to prepare for trips but rather commented on what they usually do to prepare, surmising that they probably went to the journey planner website or looked at maps:

I'm on the internet and I'm printing out maps, writing down directions and I just…like to be prepared. I hate getting lost and I like to know where I'm going (Interview Z).

If I'm going somewhere new I like to look it up, look it up on the map, and print out the map and take it with me (Interview B).

> I still don't have a smartphone…in year 2008 I started to use the website to search for public transport route…I draw it on a piece of paper, not to use printing because printing costs money…[that way] I don't have to bring the whole Melways[6] with me…Before that I didn't realise that public transport route can be traced easily on the Melways….I'd just ask people, ask the driver….later for everything I referred to Melways, later even easier I used the website. Because the Melway cannot locate for you the exact location. Using the streetdirectory.com.au you can look at basically which side of the road…the website make the work (Interview AA).

Thus a number of respondents reported having a bit of a pre-trip planning routine for unfamiliar travel. Interview AA's account is interesting because it shows how his pre-trip planning his evolved over time: he used to rely on asking drivers and others for assistance but has found a website that works well for him to prepare. Also like Interview AA, a number of people reported having a smartphone (or not) as affecting the amount of trip planning they undertake. A number of interviewees discussed which apps they use for unfamiliar travel and which tools they preferred or disliked. The PTV Journey Planner was a relatively popular tool though some identified issues with it (particularly the app), and many reported wanting to use it in conjunction with other tools like Google Maps. Another interviewee described using hotel information and website information to plan her unfamiliar journey, but she found some of the information was conflicting which confused her:

> The hotel had told me where the bus stop was but didn't say which direction to catch it in. When I…looked at the university website to see transport options and they said the free shuttle bus doesn't run during the semester break which led me to believe that this bus which I knew was free, wasn't going to be running, which clashed with what the transport information website had told me, so I was confused with all of the information that was provided…so, in practice it was fine but the information gathering exercise was a quite complex one. Information everywhere, it was all just conflicting (Interview I).

So Interview I found her information gathering exercise taxing because there was overly-abundant information but some of it was conflicting and non-specific.

Consulting others was another common pre-trip planning strategy. For domestic unfamiliar travel people often got advice from relatives and friends. For interstate and international travel people often got advice at their accommodation:

> I did have help there from other people I asked, I was staying at a hostel, I just asked them, "where's the nearest stop?" (Interview J).

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[6] Melways is a local street map book for Melbourne.

It was not uncommon for people, like Interview J, to get advice from accommodation when they were travelling interstate or overseas. Interview R described how her tour guide book was an asset for travelling in Italy with her husband in helping them to figure out the ticketing as the ticket validation machines were not obvious, among other obstacles. However she also had a local provide assistance:

> This was all explained to us by someone who had been living there so it was all really easy and I think we would have found it a lot more difficult if we hadn't known but we used that kind of knowledge and that experience in order to research the situation in Paris so that we didn't have any problems in Paris at all. I think we probably would have if we hadn't had a previous experience of someone actually tell us 'this is how European rail works' (Interview R).

This example is interesting because it seems the knowledge Interview R gained from a local in Italy also impacted her future unfamiliar travel behaviour in other countries in Europe.

Thus relatively extensive information gathering exercises were undertaken prior to unfamiliar travel though occasionally interviewees reported not requiring extensive trip planning. Some interviewees had less uncertainty about services, in particular, some frequent and long term users of Melbourne's public transport system reported that they often require less travel planning:

> It depends on the journey, but I mean I have got to know the public transport network reasonably well. And so, I can sometimes just know that you just – you know, work out from general knowledge of the route which way to go. So, just take it, you know, but sometimes – I have to plan a bit because, you know, time may be a constraint. And probably the weekend – the weekend when the services don't run so often, time is more of an issue making connections is more of an issue. So, I will typically have to look up timetables or maybe get on the web and look up the timetables on line and work out the route (Interview D).

> I did a quick search on the internet to work out the fastest way to uni and I did it. Because I was so comfortable using public transport by that stage (Interview J).

Interview D's quote suggests that he often requires very little trip planning which he attributes to his extensive knowledge of public transport in Melbourne, but time constraints and frequency of services at off-peak times can necessitate additional trip planning, primarily checking timetables. Interview J also attributed her minimal need for trip planning to her background experience with public transport use generally. Another interviewee reported that she sometimes does little trip planning for unfamiliar travel, at least, domestically:

> I mean not always [I don't always plan trips much in advance for unfamiliar travel]. I mean sometimes I just get on the train, get off wherever or, you know, or say you want to go to a place you just look and see where the train, you know, the nearest train stop is

for example. But, I guess being in a foreign country, you're more likely to plan a little bit in some ways (Interview P).

In this example, Interview P reports that she feels more trip planning is necessary abroad whereas at home she feels less anxiety so undertakes less extensive, if any, pre-trip planning.

In contrast to unfamiliar travel, descriptions of familiar journeys exemplified a high level of knowledge about services:

> I regularly get the, usually the bus to Monash so I usually ride the bike or I go for a long walk up to my next station where they've got a bus interchange and I get a bus from Oakleigh to Monash…there's a few routes. There's the 900, the SmartBus, or there's a few of the 800 buses, there's the 802, 804 or 862 I think, they all follow much the same route to Monash. (Interview X)

> Okay it's a journey of about 30 to 40 minutes depending on the time of the day. It's the number 733 bus or sometimes it's the 733 and sometimes it's the 703 bus but mainly it's the 733 (Interview D).

> I live 15 minutes away from South Yarra Station. If it seems like it will get me there quicker and the tram is there on Toorak Road I will jump on the train, but the traffic on Toorak Road is shocking I kind have to do a little kind of like mental calculation of like okay, "is it going to be quicker for me to walk or is this tram actually going to beat me to the station rather if I end up walking will the tram pass me?"… because the tram is not on a – it doesn't have like its own are access way, it gets stuck behind traffic. And so, every morning I do that juggle like "am I going to walk all the way and then catch the tram?", and I'm always like, "okay, I've gotta get to the train station, get the 9:01 so that I can get to work on time for 9:30" (Interview G).

Thus many of these participants have extensive enough knowledge about their services that they can do some trip planning while they're travelling, that is, make adjustments to optimise their journeys based on the conditions that they encounter. The ease with which they can do this with their knowledge likely reduces anxiety whereas the pre-trip planning required prior to unfamiliar public transport travel likely increases the cognitive cost.

Some participants could describe in detail common incidents affecting their familiar travel time and causing delays:

> Then I take any of the other buses that brings me to Monash. That's the 900 or the 862 to Chadstone or any of these. Now I catch the bus at about 5 to 8 in the morning. Very rarely they would be early but in all probability they are on time at that stop. But as we go down the Springvale Road, it starts backing up because it caters for the Hailbury College student, it caters for Killester College and it caters for all the people are getting off at Springvale Station. Now, in the previous days they used to have another shuttle that used to run from Chelsea to Springvale Station that used to take these people but now they have all these people on this long route. So, when I get into the bus, I have to

take a back seat but at Springvale Station half of the bus empties. So, I run and come back to the front to make it easier for me to get out at Wellington Rd. Now invariably, we get caught at Springvale gates[7]. And sometimes if there is a problem that could be at least a 20 minute wait otherwise it's about 5 minutes 'till the gates- the trains come and go. And most of the people empty out there. So after that it's, if the Mackinnon School bus has not come to Springvale Station before our bus then we tend to get all those children in our bus too (Interview E).

Interview E clearly has strong knowledge of the incidents that affect her daily commute in terms of locations that can be problematic, what causes the disruptions (e.g. train gates), and additional bus travel demand generators. She also could describe the historical change in services that has increased demand along her route. Such knowledge was not uncommon; some of the long-time public transit users also could even recall the history of changes to services of their familiar trips:

Nowadays there's enough buses that you don't actually have to check, I used to a few years back, I used to only really know about the 900, so that's when I started getting the bus [she used to drive], when that service came in. I used to check the bus timetable for a particular time but then I discovered that the 800 buses also go to Monash and between them there's enough. Ya know something is always going to come along within 10 minutes (Interview X).

Thus Interview X could also see that her transit travel options are better now than they used to be, this has reduced the amount of trip planning she requires.

Thus overall little pre-trip planning was associated with familiar travel, though occasionally participants would describe how they would look up departures times for familiar trips, particularly when their travel would require transfers and they would want to minimise wait times. On the other hand, unfamiliar travel was associated with more extensive trip planning. This would have had a higher cognitive cost than familiar travel. Moreover, familiar travellers, who were knowledgeable about their routes, could sometimes describe a number of service options for their travel, making them more resilient to service disruptions as their knowledge of travel options allows them to adapt their travel easily while travelling.

4.3.2.4 Summary of overall findings related to circumstances

In summary, the key findings from the interviews related to research question one, the circumstances of unfamiliar travel, are:

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[7] Rail level crossing gates.

- The concept of 'unfamiliarity' was not clear and meant different things to different interviewees. Responses indicated a spectrum of unfamiliarity: people described services they had used previously but alighted at different stations, their first time travelling alone, using services that were 'less familiar', or even just when aspect of a system changed (e.g. a new ticketing system).

- Unfamiliar travel was often described as being associated with life events like starting university courses, starting a new job (or interviewing for one) and moving cities. In some instances people described having strong emotions related to the trip purpose (e.g. increased anxiety associated with unfamiliar journeys related to job interviews). In some instances interviewees described trialling various ways to travel for these life events, which impacted their long terms travel behaviour, and sometimes explicitly described such travel being used to evaluate continued use of the service (Research Question 3). In addition, some interviewees described life events eliciting a series of unfamiliar journeys, notably after moving to a new city.

- Other prompts for unfamiliar travel included travelling interstate or overseas, visiting friends and family, the introduction of new services, work, conferences, school field trips, personal appointments including health for oneself or others, others' life events (e.g. moved businesses), leisure and events, and exploration. Sometimes new aspects of services like integrated ticketing facilitated more unfamiliar travel. Familiar travel tended to be associated with commuting for regular work and study.

- For choice of mode, decisions were based on similar incentives for familiar and unfamiliar journeys (cost, travel, preferences, other responsibilities, parking availability, etc.) though health and environmental reasons were mentioned a few times for familiar travel and drinking alcohol was mentioned as a reason to use public transport for unfamiliar travel.

- For mode choice *between different modes of public transport* for unfamiliar travel, most respondents described a preference for trains over buses and sometimes trams. This was due to a perception of buses being associated with more uncertainty: difficult to navigate, taking longer and being more vulnerable to delays, less experience with buses, less conducive to travelling with children and be less enjoyable to travel on. These factors were generally identified as prompting anxiety. Some people described how previous

unfamiliar travel experiences have shaped their future mode choices for unfamiliar travel and for travel more broadly.

- Unfamiliar journeys were more often taken with company. Some people mentioned this as reducing anxiety for unfamiliar travel. Sometimes interviewees described one of the travellers as dominating the navigation

- Unfamiliar travellers tended to require pre-trip preparation and research for their travel to reduce anxiety and aid successful travel execution. Information gathering strategies identified for unfamiliar travel were: obtaining information from websites, mobile applications, hotels and other people. Some reported this pre-trip planning to be somewhat taxing (having a higher cognitive cost), particularly when there was conflicting information. In contrast, many interviewees were impressively knowledgeable about their familiar journeys, sometimes able to describe factors causing service disruptions and knowing a number of service options for their travel. This enabled reduced anxiety and the ability to adapt travel if there were service interruptions, making them more resilient.

4.3.3 Experience of unfamiliar travel compared to familiar travel

The second research question, which aims to explore the experience of unfamiliar travel compared to familiar travel, is addressed in this section.

4.3.3.1 Activities while travelling

Participants were asked what activities they do while travelling. There was a stark contrast in responses for unfamiliar and familiar travel accounts. Unfamiliar travel interviewees tended to describe active cognitive activities such as reading maps, looking for signs, and observing scenery:

> If I'm going somewhere less familiar I'm more likely to read less and then keep an eye out for the station I've got to get off at (Interview B).

> Just looking out the window for where my stop was and the stop numbers (Interview Y).

> I was concerned about missing my bus stop because I didn't know where it was so I was paying very very close attention. Now if I take a bus trip and I don't know where I'm going I have my GPS on my phone so I know exactly when my street comes up and I press the button close enough to that stop but back then I didn't have a mobile phone that had GPS on it (Interview R).

> If it is a new route that I haven't been to before I will look around and have a look at what is going on, what is happening around. Once I am familiar with the route then

there is no need to look around because it appears the same every day when I go to work and then come back (Interview AA).

Interview B described looking for her station rather than reading. Interview Y described looking his stop and stop numbers. Most respondents discussed active cognitive activities related to unfamiliarity for unfamiliar journeys: primarily looking around and trying to ensure that they did not miss their stops and, particularly when overseas, getting to know the area. Some participants, such as Interview R, discussed how the development of technology has impacted the activities they do on unfamiliar journeys, enabling them to be somewhat less cognitively aware on unfamiliar journey. Interview AA even explicitly noted that there is no reason to look around once he is familiar with an area.

Occasionally participants described undertaking activities on unfamiliar journeys that were related to the life events for which they were travelling:

> Yeah, I was doing what you do before an interview and worrying about what I was going to say just ya know, preparing a game plan, going over the questions, trying not to be nervous and just to calm myself (Interview I).

In some instances, like Interview I, the pressure of the life event attracted more cognitive focus that wayfinding on the trip itself.

Some unfamiliar travel contexts, particularly overseas travel, elicited other activities:

> The other thing is when you're travelling overseas is you're lugging your suitcase a lot so you're looking for somewhere to store your baggage so you can get it in and out so that's probably something you wouldn't contemplate so much when you're coming to and from work (Interview U talking about her unfamiliar public transport travel overseas).

> Looking at the signage of where we were as each stop passed and just keeping an eye on my belongings and fellow travellers (Interview M).

Thus some interviewees' activity focus for unfamiliar travel overseas was finding a location to store their luggage and protecting their belongings due to concerns about security.

Infrequently, unfamiliar travellers described not feeling a need to look around, or doing activities similar to those described by familiar travellers:

> I feel I can [use the time as productively on unfamiliar trips as familiar trips] if I want to. It depends on how interested I am in the journey itself (Interview D).

> I was stuffing around on Twitter (Interview I).

Compared to unfamiliar travel, there were some major differences in what activities were undertaken during familiar travel. People tended to describe sleeping, dozing, reading, studying foreign languages, playing games on their phones, looking out the window, and listening to music:

> While I'm on the train I'm often looking at the newspaper on my iPhone, to just sort of catch up with what's happening in the world and I also sometimes send messages to people if I'm trying to organise to go to the movies with friends or something like that (Interview DD).

> In the mornings…I'm usually kind of half asleep. But usually when I come back, I will read the newspaper or just listen to music (Interview K).

> I usually will read my book or listen to music or do a crossword (Interview J).

The above quotes are only a small selection of similar descriptions. Familiar travellers overwhelmingly described doing activities generally unrelated to their commute itself including reading, relaxing and other activities. Many of the interviewees described their journeys as a unique opportunity for downtime to do such activities in the midst of their busy lives. Though occasionally people described an interest in looking out the window for familiar travel, many described not noticing the journey itself:

> It's just, you get used to it when you've done it so often and you start to just not see anything because it's so familiar. The things that you probably would notice are the things that have changed or change in the traffic mostly [her bus route is on a busy road with no priority] you notice if it's busier than usual mostly because it affects your travel to work (Interview Z describing her journey to work).

Thus Interview Z only notices anything out of the norm for her familiar journey to work.

4.3.3.2 Emotional state

Another area of strong contrast between unfamiliar and familiar travel was emotional state: how people tended to feel on journeys differing by familiarity. Overall, there was a variety of emotions experienced for unfamiliar travel. The most prevalent unfamiliar travel emotions raised were anxiety and excitement; these are discussed in more detail in the remainder of this section. Other emotions experienced for unfamiliar travel included enjoyment, anticipation to see someone, annoyance, discomfort (with heat), gratitude for air conditioning and feeling alert. One interviewee even described feeling satisfaction at the end of his unfamiliar journey at having completed it successfully.

A number of interviewees described feelings of anxiety associated with their unfamiliar travel:

> Anxious about getting lost I think…going to end up way out of the way. I wasn't really worried about the getting the wrong bus because it's usually clearly marked. I was worried about missing the stop (Interview C).

> I'm usually nervous if I don't know what I'm doing. Yeah particularly if I have to do it by myself which I don't usually have to, usually there's someone else there that knows what we're doing. But yeah I would get nervous if I think that, I'm going to miss my stop and not know how to get back (Interview R).

> I was a bit of nervous because I have never taken the bus and I rarely take the bus. So, that is the only bus that I take, basically. Yeah. So, I was bit nervous and I was afraid, I didn't want to miss the stop again (Interview L).

From these quotes it is clear that much of the anxiety associated with unfamiliar travel is due to concern about missing one's stop. Much of the anxiety people described was attributed to concern about wayfinding. They used a variety of words to describe their feelings, 'nervous', 'concern', 'confusion' and even 'frustration' but overwhelmingly a large share of respondents described negative emotion for unfamiliar travel. Interview L's anxiety was partly due to her unfamiliarity with buses as a mode of transit but also because she had previously missed a stop when undertaking unfamiliar travel. The fact that she was nervous from previous mistakes poses an interesting implication for research question 3: would such anxiety from a first trip experience discourage some from even undertaking subsequent unfamiliar travel? Anxiety was often related to worry about making mistakes and as will be discussed shortly, people did describe a number of errors made on unfamiliar travel.

Some interviewees also cited being anxious about security, but this is explored in section 4.3.3.8. Some described anxiety being elicited by the lack of autonomy they felt:

> I guess I like being in control so I wasn't too comfortable with that sense of not knowing where I was and not being in control of the situation, but I mean I didn't feel very uncomfortable (Interview DD).

This lack of autonomy may be a source of stress for many of the interviewees. It is worth noting that Interview DD also said that she was "not that uncomfortable", thus though some anxiety may be experienced it was not an overwhelming level.

Another source of anxiety for unfamiliar travel was travel being related to life events. For example, occasionally people were undertaking unfamiliar travel in relation to starting a course or job and were anxious for this new activity. This was sometimes reported to exacerbate travel anxiety, for example:

> I didn't realize that it was semester break and that the shuttle does not run during semester break so I ended up at Caulfield on the day of my interview and getting to the bus stop, finding a notice saying this bus does not run during semester break, and being like "oh my God, this is my bus and I have to get to my interview" and so I ended up having to catch a taxi just so that I could get to my interview on time (Interview G).

In this example, Interview G had a job interview which is already a stressful component of a life event (starting a new job) which added extra anxiety; she wanted to make a good impression. Her unfamiliarity with the travel meant that she did not know about services ceasing to run during semester break, which led to her making a mistake and actually led to her taking a taxi. During her job interview for which she was travelling, Interview G was informed about another service that she could have taken but did not know about and subsequently used this service in the future.

While many participants described some level of anxiety for their unfamiliar travel, not everyone reported stress for unfamiliar travel. Some described apathy and a number described feeling excitement.

Perhaps reflecting inter-personal characteristics, some participants described more positive feelings of excitement or novelty for unfamiliar travel. For example, Interview A described having an intrinsic interest in public transport and feels comfortable using unfamiliar travel in other states. Another participant described how when she first moved to Melbourne from her small town in New Zealand with no public transport, she was very overwhelmed but also excited:

> It was exciting and it was a novelty and it was really fun and we couldn't wait for our family to come over so that we could show them the trams and all that sort of stuff. And then it becomes not a novelty anymore, it becomes a matter of convenience and then sometimes it can be just a pain…if things don't go your way (Interview Z).

Thus while she was initially very excited, over time the novelty wore off. Some interviewees differentiated between wayfinding in their home city as tedious and unfamiliar travel overseas or in a new city as more exciting, offering novelty and sparking their curiosity:

> Well it's always fun when you're on holidays because you've not got that pressure like when you're trying to get to work. I'm usually quite curious. I quite enjoy it. I don't remember having any particular problems (Interview S).

> The other interesting, yeah, they had like, wheelchair ramps and stuff and that was pretty common over there. So, I remember being fascinated by all these signs (Interview F).

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Mostly I guess, well, nothing in particular; it's just that going to a new place is just a bit exciting because like I don't know what it's like (Interview L).

Thus in some instances people felt feelings of excitement associated with unfamiliar travel, primarily related to getting to explore and learn about a different area.

Meanwhile, participants tended to provide little description for emotions associated with familiar travel other than apathy, boredom and frustration:

Sort of boredom usually and frustration if there were delays (Interview N).

I don't think I had really strong emotions or really strong perception of any particular good or bad thing about the train…I mean, it was just the train (Interview O).

Thus apathy and boredom were prevalent emotions associated with unfamiliar travel. Frustration was common and typically due to delays, cancellations, and crowding.

Anxiety was occasionally mentioned for familiar services and was primarily related to concern about potentially missing services and disruptions to services. A few people described emotions that they associate with their familiar travel based on previous experiences, sometimes with a negative expectation:

Well, I've gotten used to it, used to it, so when I get into the bus early in the morning I say my morning prayers. Because it's, you know, it's 45 minutes. So, I just sit there and say my morning prayers (Interview E).

If a train was cancelled, you knew it was going to be a horrible journey, crammed in like sardines (Interview W).

Familiar with how her bus is often delayed in traffic, when prompted about emotions, Interview E suggested a process of 'getting used to it' which dulls you; she had an expectation of possible disappointment. Similarly Interview W experienced dread in anticipation of negative impacts of train cancellations.

Overall, familiar journeys tended to associated with no emotions, a feeling of dread on the basis of prior experience with disruptions to services, frustration at crowding and occasionally anxiety about missing services.

4.3.3.3 Wayfinding

As discussed previously, unfamiliar travellers had often undertaken a process of pre-trip planning to assist with wayfinding to minimise anxiety and ensure they successfully completed their journeys. Unfamiliar journeys were also shown to be associated with a more active process of

environmental cognition than for familiar journeys, often related to navigation and wayfinding. This is perhaps one of the most prominent and possibly important experiential characteristics of unfamiliar travel: an active process of wayfinding. Wayfinding is examined in-depth in this section.

Respondents often described undertaking wayfinding on their unfamiliar journeys:

I kept looking, 'is this the street?' Is this the street?' because I didn't really know the area. I knew a bit of it but then it went into a part I didn't know and it's just looking at all the street signs. I knew what street I had to get off at, so I was just constantly on the alert for most of the time really. I mean you get the hang of it after a bit but at first, ya know, 'what's that street? Should I have got off there?' (Interview W).

Like Interview W's testament above, wayfinding typically involves looking for street signs, landmarks, and at maps. It is a process that many reported requiring concentration and sometimes elicited anxiety, particularly as people second-guessed their navigation, like Interview W, wondering if they had already missed their stops.

A large number of interviewees described particular elements of journeys that challenged them in wayfinding:

So, Parliament and Flagstaff are those classic ones that have multiple layers of, I guess Concourses and then you jump up and depending on which escalator you got, you end up in a different side of the block and then I am a little bit disorientated until I can, generally I am looking for a street sign to tell which part of the grid I am on because it's often, it's sunset or dusk or even dark (Interview F).

Stops you couldn't necessarily find. 'there's a stop at this station', whereas actually it meant down the road and round the corner, you couldn't find anything (Interview R, discussing her experience in Toronto).

And I found that quite confusing, they have strange ways of organizing their buses. It was actually quite a good bus; it was free and the bus was going in a loop and they label their buses 55A and 55C depending on what direction they are going in. Where we were, we were at kind of either end of the, at the mid-point of the loop, so it didn't matter in fact whether I caught the 55A or the 55C and I had trouble understanding that concept (Interview I)

A number of people, like Interview F, described underground stations with multiple exits as being a bit disorientating. Interview R found stops being marked as at a station, but actually just being close a point of confusion. Some people, like Interview I, said they became confused when services and stations had similar sounding names/numbers. People generally reported having services change at different times of day to be problematic: Interview K stated that she

was confused by how the city loop part of train services switches directions at different times of day.[8] Other wayfinding challenges for unfamiliar travel itself included:

- no route maps on-board transit vehicles
- maps being difficult to interpret or inaccurate
- phones not working
- trouble with apps
- figuring out which bus shelter to go to
- different operators of services leading to less integration of information.

In addition, some people described their unfamiliarity with the local geography their services went through as being problematic and one woman expressed particular concern for wayfinding in a quiet area where she would be unable to ask for help. Another woman described moving her luggage up and down platforms to pose an additional wayfinding challenge.

Participants also described difficulty with wayfinding at 'trip ends', that is, once they alighted from their service to get to their final destination. Aspects which were identified as particularly challenging were lack of maps upon exiting stations (one participant described wishing there was a 'you are here' map upon exiting), confusion related to coming out underground stations with multiple exits, being unable to see one's destination from the street.

Some participants stated that whether it was day or night would impact their wayfinding with darkness associated with reduced information and sometimes increased wayfinding anxiety:

> Like trams it's a little bit easy because it will say the exact stop number you need to get off at, but then again if you are on the tram and if it's dark you are like…it can be kind of hard to see the number of the tram stop sometimes and you are kind of like poking your head out the door when it stops and there is that worry of like "oh my God is this my stop?" (Interview G).

> It's not a place where they have a lot of overnight buses and I prefer to take a bus during the day when I don't know where I'm going. It makes it a lot easier but it also means you can look at the scenery (Interview DD).

> My vision is not very good at night and also travelling by public transport at night, I'd be very careful travelling on public transport on my own as a single (Interview CC).

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[8] The Melbourne City Loop is a one-directional set of tracks that reverses direction at midday to facilitate direct journeys to/from the city.

Thus although tram stop numbers facilitate wayfinding, Interview G reported that darkness can be problematic in actually reading stop numbers. Interview CC described how she had poor vision at night which can exacerbate wayfinding challenges further. Similarly Interview DD reported a preference for day-time travel. Another Interviewee described how the real-time directional information on board SmartBuses helped alleviate this challenge, when it is accurate anyway:

> It can tell you the location. During the dark time I cannot see much outside, but be careful sometimes when the driver press the bus wrongly it can tell you false information (Interview AA).

Thus it seems Interview AA has observed times when the real-time information was set incorrectly negating the benefit of having it.

One other interesting aspect of wayfinding which has been alluded to previously (in section 2.1.2) was whether or not there was variability in wayfinding experience by mode. When asked if certain modes were easier or harder to navigate a minority of interviewees stated that they would not find a bus or train or tram more or less hard to navigate while the majority of other participants stated the opposite: that some modes of public transport required more or less wayfinding. For example one participant (Interview Y) said they she has to check more often where she is on buses. Other interviewee's wayfinding experiences of buses include:

> Buses are even a bit more stressier because it's hard to kind of know, if you don't know exactly where you're going, you've never done that journey before, it is really hard to know where to get off the bus. So I usually ask the bus driver like I usually know the stop like an intersection I need to get off at and I usually tell the bus driver, "can you give me a bell when you hit this spot?" But sometimes they forget which is fair enough. Sometimes it's like ya know you kind of craning your neck trying to look out the window and seeing road signs go past and yeah Interview G).

> With the trains and trams yes [it was fairly easy to navigate] what is tricky is the buses…figuring out the bus and the connection that can get tricky…to figure out which is the right stop and where the bus actually goes and how it links and then I think the major thing is to not miss my stop and when they go and stop and they do little turns and detours then I'm not quite sure where I am now and there's some buses that do awkward loops (Interview CC).

Hence Interview G reports that buses are more stressful for wayfinding that other transit modes, and has found that asking drivers is not a foolproof wayfinding strategy and that trying to look out the window can be difficult. Interview CC noted that she gets confused about the transfers ('connections'), where the buses actually go and particularly, how not to miss her stop. She gets confused by the non-linear nature of buses. Based on testaments like these and the mode choice

analysis in the circumstances section, it seems that buses pose the most discussed wayfinding challenges (with the exception perhaps of SmartBuses as discussed previously), and trains pose the least wayfinding challenges. Trams seem to be somewhere in between.

Interview DD, who stated she had a preference for trains because of the maps on board, offers a recommendation for how wayfinding on buses could be improved:

> I think the route maps could be a bit more specific. I think in Canberra they might have all of the stops marked on the maps but I don't think they do that for Melbourne [buses] (Interview DD).

Thus Interview DD has found that the route maps on buses in Melbourne to not be specific enough and has observed better route maps on buses in another city, Canberra.

In addition to challenges with wayfinding encountered, a number of interviewees, like Interview DD above, described facilitators to their wayfinding. Some people mentioned that transferring onto shuttle services with only one stop helped with wayfinding as did having a destination that was an end-station of a line:

> Maybe because it was on, it was from Glen Waverly[9] and it was on the Glen Waverly line and so, you know, it was never like, you know, like in Oakleigh[10], you know, there are two different lines you can take and neither of them is called the Oakleigh line you know (Interview O)

Similarly, people described how going to very popular destinations was also fairly easy because they could just follow the crowd. Service labelling was also appreciated:

> That was all really nice because the train was there, it's doors were opened, it was all nicely labelled on the train itself, on the door, you know, on the screens and so on but that was a train ran to – I believe it, it wasn't, it didn't say Geelong, it said something else but I was able to work out that that was the one I wanted again because it labelled by where it was terminating rather than the main city it's going through (Interview F).

It is interesting that interview F noted the number of places the train route was sign-posted. There is an implication that multiple sign-postings are better than less, to better assist passengers with wayfinding.

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9 Glen Waverly is a terminal station

10 Oakleigh is a mid-station along a rail line.

A large number of people described how modern technology, apps and websites assisted them with wayfinding:

> I find it [using unfamiliar travel around Melbourne] easy now because I use the web-based supports in terms of scheduling and working out what I need. I still don't think our public transport maps are that great, although the system is not that complex, it is when you factor the buses in, I don't think there is a really good connection, personally, between tram and train services and the bus network. It's like they're two separate entities to me, even to the point where at this stage I'm not sure what I do with my myki on the bus (Interview BB).

In this quote from Interview BB, he attributes his ease of wayfinding to modern technology but also can see potential improvements to the navigational cues available, that is, that the public transport maps are not 'that great' and that the different types of public transport are not well-integrated for wayfinding. It seems that modern technology helps him cope with wayfinding but that he recognises that in terms of wayfinding, the system and informational needs for customers the system could be improved.

A substantial number of people noted aspects of other cities' transit systems that facilitated wayfinding and often they found the navigational aids abroad better than in Melbourne. Interview F described how in the USA public transport options are integrated into Google maps:

> One of the really, really nice things and I am really sad that Melbourne doesn't have it is, because I had a limited access to a car as well; I would just put in where I was, where I wanted to go in Google Maps and there would be buttons, it went "walk, cycle, public transport or car" (Interview F).

Thus Interview F really liked having public transport information integrated into Google Maps so that all of the modal options were readily and easily available for comparison. He was disappointed that multi-modal navigational software was not available in Melbourne particularly as his access to a car was limited.

Interview O who described how in Barcelona, despite not speaking the language, it was easy to navigate due to good signage and different coloured lines:

> the different coloured lines, you know, I don't know the signage is really good, but that's something compared to Melbourne I think that some other large cities around the world are really much better at: the signage and you know…sometimes you see in the CBD like you know…"Federation Square this way" and stuff but it's not quite as comprehensive as what we get other cities and, you know, like for instance in Barcelona when you are getting off of the train, the metro….you know, there are different exits there of course…and so as soon as you step off the train you can see like the "Church, this way", you know, "whatever street that way" and so it tells you which exit you need to take

from the time you get off of the train which is really helpful. And so, for instance on Saturday we went to the Melbourne Museum to see an exhibit and we get off the Parliament and it really wasn't until actually we were out of the station that there was signs for the Melbourne Museum. And you know, that's something that, that's a big spot, you know, that's the kind of thing that Melbourne really could improve (Interview O).

Interestingly Interview O's experience of unfamiliar travel abroad made her more concerned about wayfinding facilitators in her hometown. From a research perspective, it is helpful that she could make a specific recommendation: that having signs for popular destinations should be in transit stations rather than after you exit them, presumably because that would assist in reducing one's anxiety about which exit to take when there are multiple choices.

A final example of wayfinding experience abroad is Interview DD who found that having a conductor on services in Sri Lanka was beneficial in advising tourists when their stop was approaching and when to get off:

It makes it easier than here where you have to rely on the driver for any information about where you are. It's that they knew we were tourists so they looked after us (Interview DD).

Her quote suggests that having a conductor not only facilitated her wayfinding experience but also left her with a positive sentiment of being taken care of. Such impacts on attitudes are examined more thoroughly in section 2.3, as previously mentioned.

Thus design components that were identified as facilitating wayfinding on public transport included:

- stop numbers being provided on the journey planner site and on signs
- directional signage
- real time information boards (e.g. 'next stop is')
- route maps on-board and at stops/stations
- services differentiated by colour
- multi-modal (including transit) options integrated into Google Maps
- one stop shuttles / end-of-line destinations
- multiple labels of services
- end-of-trip destination information outside transit stations
- good integration between transit modes
- modern technology, apps and websites

Drivers and conductors that were willing to provide assistance were also noted, but are perhaps, not a design component.

Earlier the impact of having experience with transit was also identified as being a factor that reduced the amount of trip planning required before an unfamiliar journey. Similarly, previous experience with transit generally was identified as a facilitator for wayfinding:

> I think I knew exactly where to go because of my experience (Interview A).

This quote implies that one's background experience with using transit assists in wayfinding. The exact reason for this is unclear but some potential explanations are: because they are more knowledgeable about where to find wayfinding information, perhaps they can use a system more easily so are more able to more readily focus on wayfinding, or are simply more familiar with the services generally even if they do not use them perhaps they know where exactly they go.

Another key finding from the research on wayfinding experience was participants' reporting of *strategies* that they utilise to assist in wayfinding. For example, some people reported relying on others they were travelling with:

> I wasn't really familiar with that. But because my sister studied at Caulfield she was familiar with that whole area [around Chadstone] (Interview K).

> I remember coming back there was always someone from the place where I was doing work experience, with me. So I never actually remembered where the second stop was, I'd just get off with them and then walk to the station with them and then everything was fine (Interview C).

For Interviewee C, observing others was not always helpful particularly when he developed a sort of dependency on using a colleague for wayfinding and so did not learn the geography himself. This strategy would also be useful for unfamiliar journeys where one had a travelling companion.

One of the most prevalent wayfinding strategies was asking for help either from drivers or other passengers:

> Well often times I will ask the conductor or the driver I will ask, you know, and they are usually pretty good about, you know, telling you, when the right stop is and everything so. That's when I am on the tram or the bus that's usually who I ask for advice (Interview O)

> Yeah so, there were about 10 people or so [that I was responsible for], you know, they were all international visitors. And….there was nothing saying, "the next stop is this", and so I asked the driver (Interview P).

> Relying on the bus driver to, reassure me that I had – actually that I got on the correct bus, even the numbers on it, I knew that but I didn't know any other suburbs and again also, getting you know, engaging with him to make sure that I got off at the place I was expecting to get off (Interview H).

> You know you're not always in a position in a busy bus to ask the driver so you just have to take a bit of a punt sometimes…I use that as a standard always to ask the driver [if the bus isn't as busy] (Interview BB).

In these examples, Interview O reports having positive experiences with asking the driver for assistance which has resulting in her viewing the driver as the 'go-to' for assistance. Interview P was responsible for 10 or so people and found signage to be lacking so asked the driver for assistance. Interview H sees asking the driver for help as a means to confirm she is using the right service and so that she alights at the rights stop. It's interesting that she refers to "relying" on the driver for "reassurance" as this almost implies a dependent relationship and that the interaction helps mitigate anxiety. Interview BB's testament reveals that while he is happy to ask a driver for assistance, he finds that is a busy bus can be an obstacle for relying on this strategy. Interview E (note quoted) even reported ringing her sons who were familiar with the area for advice when she got off a bus service too early.

Despite a large proportion of interviewees reporting they asked drivers and other passengers for assistance, some participants stated that they did not ask for assistance on their unfamiliar journeys. In fact some of the interviewees described avoiding asking for help:

> Rarely [do I ask others around for assistance]. I don't like to (Interview S).

> I eventually found it after asking someone. Normally I don't do that, I am very good at directions and locations (Interview E).

There is almost an implication from these quotes (and other interviews) that not only do people not like to ask for help, but perhaps there is almost a sense of failure or embarrassment in asking. Then again, not wanting to ask for help may just reflect interpersonal preferences, such as introversion and extroversion. Perhaps sympathetic to the reluctance to ask for help or at least the frustration of getting lost, one interviewee described going out of her way to help others:

> [In Melbourne] generally I accost other people if they look lost and offer to help them…I do [see a lot of people getting lost] because I work here [the Alfred Hospital] and so you often see people who, they want to get to the Alfred and they're not sure which tram to get or they're not sure which stop to get off and often if they're coming to

the hospital they're quite stressed because they're either coming to see someone who's sick or they've got an appointment. It's nice to be able to help. Occasionally I accost people who look lost but they aren't lost and they don't want my help (Interview S).

This testament is interesting because it reveals that Interview S senses that others sometimes do not want to be approached and offered assistance and also that she understands that struggling with wayfinding may be more stressful when compounded with a stressful trip purpose. She values being able to help in such instances.

Another wayfinding strategy that people discussed was observing what others were doing:

> It was a matter of looking around, seeking out people who looked like uni students and following them and realizing they all stood at one bus stop and I didn't know which side of the road I needed to stand, in order to get to Monash, but I noticed that there was one side where a lot of students were gathered so I just sort of figured that must be the uni-bus and so I hopped on there, which was absolutely packed (Interview Q).

> But once I got to the bus stop and got on the bus- And then I realized there were conference people on the other side of the road which I tried the next day and it got me there in roughly the same amount of time (Interview I).

Interview Q sought out a particular demographic, people who liked like university students, to guide her when she transferred. Meanwhile Interview I also looked for a particular group of people and after observing their behaviour, tried their transit strategy the following day. While observing others may be beneficial at times, it is worth considering that for many trip purposes with lower travel demand generation this may not be effective.

Another wayfinding strategy interviewees reported employing was sitting in a certain part of vehicles to assist with wayfinding:

> I noticed what [stop] number I had to get off at and in the tram you have to really be seated at the window to be able to see the stop numbers (Interview E).

In the quote by Interview E, she has found that sitting a certain part of the tram helps her see stop numbers. Similarly, Interview W described how she tries to sit near the door for unfamiliar travel so that she can get out quickly when she realizes she is at her stop. Interview G also applies this strategy of strategic sitting, notably to see signs, especially on long trams but that this does not always work if the tram is busy and struggles at night. While strategic position may be an effective wayfinding strategy, it may rely on previous experiences of trams before, knowing an optimal place to sit on the tram for wayfinding, is a sort of adaptation of how one takes unfamiliar travel.

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Another participant (Interview W) evaluated her as not being wayfinding-savvy and described how carrying a little book of maps helps her:

> I'm a map person. I'm not good….like if I turn a corner I tend to be lost, forget what direction I came from so if I've got a map, I can look where I am, hold it up the right way…but if I've got a map I'm all right (Interview W)

Thus Interview W does not consider herself to have a good sense of direction but has found carrying maps an appropriate adaptation to facilitate unfamiliar travel. Another interviewee described how she prefers to purchase tickets that allow for getting lost on unfamiliar travel.

> I like the idea of overall passes even if they cost you a little bit more. 'Cause you don't even have to think about um, you can just hop on, hop off, and I think for tourists being able to hop on and hop off, if you get yourself a little bit lost you can always seem to find your way out of it (Interview U, discussing her preference to buy a weekly pass for unfamiliar travel in London).

So Interview U finds weekly passes better allow for getting lost, presumably because anxiety about purchasing subsequent tickets would be reduced.

Overall there was a diverse mix of strategies employed to assist in wayfinding on unfamiliar public transport travel including relying on travel companions, asking for help (though many reported avoiding doing so), observing others, sitting in a certain place on vehicles, carrying navigational aids, and purchasing open tickets to allow for getting lost.

Although wayfinding was a prevalent characteristic of much of the unfamiliar travel discussed some participants did not explicitly describe wayfinding as a big part of the unfamiliar journeys they described:

> I've used public transport lots in Europe and have found it pretty easy. Once I got on a wrong train though, only once though and I've used it quite a lot (Interview X).

> I think I knew where I was going to, so you know, that's good (Interview C).

> Usually it was pretty easy and we had our smartphones and GPS works everywhere and so yeah usually we'd have a look before we left (Interview Y discussing travel in Japan)

Thus, although many interviewees discussed wayfinding as an important aspect of their unfamiliar travel, some accounts of trips and unfamiliar travel generally seemed to be characterised by ease in wayfinding.

In terms of familiar travel, perhaps not surprisingly, there were few wayfinding challenges associated with familiar travel though occasionally interviewees described trying to juggle which service to use based on timing:

> I mean, I do the juggle of like "okay, well which bus is leaving first, and so not the bus 900 to Caulfield I'll jump on that, if the 601's not here, I'll jump on the Caulfield or the Elwood as well". The Elwood tends to sit in the loop for ages before it sort of departs, so again it's a bit of a juggle like, hey, "which bus is going to leave, which is here, which one is going to leave first and"… (Interview G).

Thus for familiar travel, wayfinding is uncommon, but rather sometimes people go through a process of trying to figure out which service will be *optimal.* In contrast to unfamiliar travellers, familiar travellers tended to be well-informed about their journeys and did not typically require much in the way of wayfinding. However consistent with the previous finding that familiarity occurs on a spectrum one familiar traveller who does not travel *that* frequently reported:

> Because it's often I am trying to get around like to the next couple of stations in the city loop and I can never work out because I am always traveling at odd times and it's not regular enough I can never work out which way it's going. So, I generally look for the guy in the high-vis around on the Concourse saying which is the next train or which platform for the next train to wherever and I normally go across and do what he says… I am not regular enough in the city and I am not always going to the same spots, I normally jump out and become a bit disoriented (Interview F)

In this example even though it was a somewhat familiar journey, Interview F still requires some wayfinding assistance, he attributes this need to the low frequency of him undertaking the travel.

Interestingly, commenting on navigation prompted a number of the interviewees to provide self-evaluations of their wayfinding abilities to help explain why they did/did not get lost. People often described themselves as being good or bad at wayfinding:

> It [unfamiliar travel] usually doesn't bother me too much like, I just use the Metlink [PTV] site and plan my journey and then I go look at the maps (Interview C).

> I wouldn't say that I've got a good sense of direction but I kind of pay attention where I'm going so I know how to get back in case I need to and I think travelling helps, if you've travelled a lot and you've had to get used to how to navigate in certain areas and stuff like that (Interview Z).

> As I say having a really poor sense of direction, I do worry about getting lost (Interview B).

> [I say I have a bad sense of direction] because when I drive I regularly get lost. These days I have a GPS in the car and even sometimes when I'm in familiar areas I get in the wrong lane (Interview CC).

Thus it was observed that people have perceptions about their wayfinding abilities and 'sense of direction'. Interview C claimed she does not get too bothered about taking unfamiliar travel whereas Interview Z and Interview B, among other interviewees, claim to have poor 'sense of directions' which increases their levels of anxiety. When one of these interviewees (Interview CC) was asked about her self-proclaimed poor sense of direction she attributed her self-evaluation to frequently getting lost in her car. It is, however, unclear if self-perceptions shaped their experiences, if people's experiences shaped their self-evaluations, or if both mechanisms are at work.

4.3.3.4 Mistakes / errors

Despite the facilitators and strategies for wayfinding discussed above, a number of people reported making mistakes while undertaking unfamiliar transit, often in wayfinding. Some mistakes increased the length of the journeys:

> I think the first time I was quite unlucky because I didn't know it was an express train. So, I missed my stop and then I had to go back again… So, it didn't stop at my suburb and it went on – and I didn't know what to do…because I missed my stop, so I didn't know when the next stop was, so I asked someone in the train and they said, "oh, this is an express train, it's going to Moonee Ponds and the next stop was Newmarket" and so I said "okay". So, they said "just get off at Moonee Ponds and take the train back again"…I was a more scared than anything else 'cause I wasn't sure where I was going (Interview L).

> There was an A and a B loop that was concentric and they just almost went continuously and I was – my house is kind of the second to last stop on one of the directions that I normally catch but I wanted to go past the shops and I didn't actually realize that they change- they kick you off the bus at the end of the concentric loops, they kick you off because the bus driver gets off and has a smoke and gets coffee and whatever and gets back on in 10 minutes. And so that was a little bit because I was just sitting there going, you know, "this is going around again, isn't it?" (Interview F).

Interview L accidently took an express train and missed her stop, meaning that she had to alight further along on the service and then go back. Interview F did not realise that a driver would be stopping for a break, meaning he had to sit and wait for that. Errors in wayfinding were fairly common. Most mistakes related to missing one's stop, getting off too early in anticipation of potentially missing a stop, not taking the most efficient route, and going the wrong way toward one's destination after alighting from a service. These types of errors would have the effect of making people's unfamiliar journeys longer. This may have in turn increased people's perception of how long a journey would take by public transport typically even if their experience was somewhat exceptional in that they would be unlikely to make mistakes once the trip became

familiar. Such experiences were reported to elicit negative emotions in some cases and may have led to further anxiety for future unfamiliar travel.

Some mistakes were more problematic than others though. For instance, some interviewees reporting getting lost for substantial periods of time after making a transit mistake:

> [When I moved to Canberra], I did catch the wrong bus a couple of times and end up somewhere lost in the suburbs so I had no idea where I was and didn't have a smartphone at that stage and couldn't even lookup where I was (Interview DD).

In this example, the person's use of the wrong service led to him being lost in an unfamiliar area and he did not have resources to quickly and tirelessly rectify his mistake. Other mistakes were less troublesome:

> On the trams it's usually not too much of a problem; it just means you've got a bit of an extra walk. Depending on the line but yeah, sometimes you can end up with an extra 15 minute walk which it's not ideal but you deal with it… when it is unfamiliar you don't know how... even though you can check how far the train – the next train is away just it's you're in a new environment, you don't know what to expect. People might be different though it's no big deal to me. At night it might be a little bit more worrying because it's - particularly if you are a lone woman traveling by yourself it's like, "oh my God" (Interview G).

Thus Interview G perceives missing one's stop on a tram to be simply a slight inconvenience that she can rectify by simply walking an extra 15 minutes. It is worth considering that someone who is more mobility-impaired might find such a mistake more daunting, particularly if services are infrequent and they might have to wait awhile for a tram back again. Moreover, some travel purposes and scenarios may not readily offer 15 minutes of flexibility. Interview G does see mistakes at night to be a bigger deal due to concerns about security when walking by herself at night.

4.3.3.5 Fares & ticketing

Some participants described ticketing as a noteworthy aspect of their unfamiliar travel experiences though this was not the case for all unfamiliar travel. Within Melbourne there was a variety of experiences reported in association with unfamiliar travel:

> And I remember we were unsure how to use the Metlink ticket (Interview K).

> Not confusing. Previously there was 3 zones now only 2 zones are available so it makes the system less confused [sic] (Interview AA describing using public transport in Melbourne after moving from Malaysia).

Thus, some interviewees reported confusion about ticketing in Melbourne, though this was not always the case. Interview AA's quote suggests that having two rather than three zones has made the system even simpler to use. Generally people reported that once they figured out Melbourne's metropolitan ticketing system they could generally switch between modes without trouble, because of the integrated ticketing system:

> I think that it was pretty easy to understand. The only thing I think there was some confusion about was like the, 2 hour tickets or you know, the daily tickets and stuff because I think in Glen Waverly Station maybe it wasn't immediately obvious where, who, to talk to. So, I think, probably there were the machines and stuff and so probably if you knew what you wanted, then you could do that but if you weren't sure, I remember, we kind of wandered around and we ended up looking, like going into a convenience store or something. But you know, they had the sign saying, you know, "Metcard sold here or something", so. Yeah, I think there was a little bit of confusion about that. And the tram, I think once we knew that the train and tram, the buses were all connected like on the same ticket, yeah then it was really like, it's really easy and convenient and we knew, what we could do and how long we could do it... I think we probably asked the person who we bought our first metcard from (to learn about integrated ticketing), I don't think we were ever, I don't think we knew beforehand, I'm pretty sure we didn't, we definitely asked somebody (Interview O describing her first train trip in Melbourne).

Interview O's recount reveals some confusion about the 2 hour versus daily and other ticket options. She recalls not knowing where to go to get help as the machines did not offer enough information for her and her partner so they went out of their way to get personal assistance but she also stated that once they understood it, they were fine to use all of the metropolitan services. That said, another respondent reported a bit of confusion about ticketing on a Melbourne bus:

> It might have been the first time I ever used a bus in Melbourne and I we were using the older system back then I wouldn't have had a myki and I think I would have paid for a day's journey from the driver and then on subsequent trips just waved the card rather than realising that you needed to slot it in and so I would just get on the bus and show the driver and they seemed to think that was okay but I was using it in ignorance (Interview T).

Interestingly Interview T's experience showed that he continued to use his ticket incorrectly for some time after the first trip. This highlights the issue that people may not learn all components of transit use from a first trip.

A few interviewees recounted their first times using the regional train service in Melbourne, V/Line:

Cheltenham is a premium station so I bought my V/Line ticket there and I was amazed by how cheap it was. With a concession, in off-peak and it was like, basically only 50 cents more to go all the way round to Ocean Grove. I think I was, it was a big change (Interview F).

The first time would have been down when I was living in the country so add a two hour V-Line bus trip to that and I remember being very confused about the ticketing system. I couldn't understand why the drivers were so rude…and I didn't understand that you couldn't just hand over a $20 note and get back a $2 ticket but soon learnt how to work it and now just pity other people who don't know how to do it (interview R).

Interview F was pleasantly surprised by how inexpensive the regional train fare was. Interview R had a less pleasant experience when she was confused about *how to* buy a ticket on a V/Line bus. It is interesting that she then pitied other unfamiliar travellers.

There were quite a lot of counts of tourist travel overseas with a mixture of experiences reported:

Yeah it's extremely easy, it's incredibly impressive. There are enough ticket machines there are loads of them, there are plenty. They are very simple to use. There's a really clear system. The only thing that can be difficult is in some of the less busy stations there's no map. So the idea is you look up where you want to go and it will actually tell you how much you need to pay and so you put your money in the machine and your ticket comes out….if you're not sure it's simple: you buy the cheapest ticket and top it up when you get out….you just put your ticket in and it tells you how much you need to pay (Interview X describing ticketing in Tokyo).

The buying of tickets [in Toronto] was very complicated too. You had to buy the tickets from vending machines but you couldn't' ask a question at the vending machine and it was not obvious what you needed to get from A to B (Interview R).

Thus some unfamiliar travel overseas had issues with ticketing (e.g. Interview R), while others were impressed by other systems. Interview X thought ticketing was easier when a map is available by the ticket-buying location and appreciated that she could top up her ticket if she did not buy the right one. Generally people did not report having trouble with using vending machines to purchase tickets but did occasionally mention frustration at the inability to ask questions. Sometimes people mentioned countries having 'tourist tickets' which were generally looked at positively. One aspect of ticketing some interviewees found confusing overseas was figuring out where to insert your ticket at stations (e.g. Interview M).

People did not generally report speaking a different language to be difficult when purchasing tickets overseas but some people (e.g. Interview S) found that researching ahead of time helped alleviate that potential problem. Other interviewees recalled vending machines having an option

to purchase tickets in their preferred language (generally English). One participant recalled how in Sri Lanka:

> They have a conductor who comes through and sells tickets so you can just tell them where you're going and they charge you the appropriate rate. They don't necessarily speak English but what they would do is write a ticket for you and hand it over so you knew how much you had to pay and then you would hand over the money and they would give you back the change (Interview DD).

She found this system, whereby the conductor would write you a ticket when he or she did not speak English to be relatively easy to use.

A few respondents also discussed currencies in relation to their ticketing; generally different currencies were not problematic but sometimes an interesting novelty:

> That was the working out which coins are which, working out that all the vending machines would take all of the coins and not all vending machines would take notes, so it was all bit of a, it was that mix of unfamiliar currency… Dimes and nickels which were all backwards in size and it didn't actually say how much they were. So, yes – so got the ticketing worked out, again I was a bit bizarre by the, you– you get a ticket per trip kind of thing rather than the Melbourne system of, you know, you buy a ticket based on where you want to go and you use that until when you get there (Interview F).

Interview F's account shows that the currency was an interesting novelty but not necessarily intuitive and he found the ticketing per trip a bit 'bizarre'. Some other interviewees discussed the exchange rates as being a little tricky to work out at first for their overseas transit travel.

Sometimes people were simply surprised at how you buy tickets in other places. For instance Interview R was surprised that they used subway tokens in New York City. Interview T described how different ticketing was on buses in India:

> This is often but not always the case in India: you jump on board and in some seat on the bus there will be someone who takes the money but there's not a prescribed time at which you pay him and you wouldn't really know who he is. But what happens is that you'll see people on the bus start to send money down it. So, if you're sitting in the seat behind me, I might give you some money and you'll pass it on, and pass it on…and it's a very trusting system where perhaps you're going to a destination 20 rupees away and you've only got 500 rupee, you can generally expect that 480 rupees will flow up the bus back to you with your ticket validated. It's kind of beautiful (Interview T).

Interview T seemed not only surprised at this type of ticketing but also impressed by the level of trust and interaction with other passengers involved.

Ticketing for familiar travel was not examined extensively as it was surmised that once people understood the ticketing systems, they either would not have any further issues related to ticket purchase, or at least issues related to unfamiliarity, for example:

> I've had a myki since I got here one and a half years ago so by that time I've known just to try and touch off (Interview Q).

Overall fares and ticketing was not an important aspect of unfamiliar travel for all interviewees: some experienced some anxiety in figuring out systems while for others it was not a source of stress. Generally once someone understood a system they were okay for other unfamiliar travel. Some people preferred to have an option of buying a ticket from a person rather than a vending machine and many people found language differences not to be problematic. There was some intrinsic interest in different ticketing systems and currencies.

4.3.3.6 Transfers

Transfers were brought up as a source of anxiety for unfamiliar travel in some of the previous sections, notably with regard to trying to minimise the number of transfers in the section on mode choice, in the wayfinding section in terms of the lack of integration between services, following crowds when transferring, and making mistakes or asking for help when transferring. Interview M described needing to be aware of transfers in terms of when one service is supposed to arrive and the next one depart. Some interviewees reported that having to buy tickets per trip rather than in an integrated way (like in Melbourne) was negative for unfamiliar travel that required transfers:

> [In] Toronto, the public transport system there was insanely complicated…And you couldn't buy group tickets so sometimes you'd go a day and if you went anywhere you hadn't anticipated you'd end up spending $30 on different bus tickets and then train sort of sections. If you got off your bus you had to buy a new ticket unless you got on the next one at exactly the same stop. If you didn't know that, you didn't know what you were doing, you didn't realize you had to have passes, like you had to hand your token in, they'd give you a pass…you couldn't get on transport for the rest of the day (Interview R).

Thus Interview R found the ticketing in Toronto confusing, expensive and not user-friendly, particularly that you had to transfer at exactly the same stop. When asked how this system could be improved, Interview R seemed pessimistic:

> I don't think they can do anything with what they've currently got. It's awful. Their own people can't even understand it (Interview R).

Thus while Interview R thought the system was confusing for unfamiliar travellers, she also thought it was problematic for familiar travellers. Some interviewees found transferring less stressful for unfamiliar travel when services had high frequencies:

> It all worked quite well I guess because I was travelling in the peak time so there was lots of trains (Interview DD).

Some of the anxiety associated with transferring for unfamiliar travel could be alleviated by researching ahead of time. For instance one interviewee went into a regional area with low frequency services which he recounted:

> The only thing I worried about is whether the bus would wait for the train if the train was running very late, but I know that – I went on to the internet before I went and sort of worked out that, you know, there is a journey planner. And it said on that, 'bus waits for train'. So, I knew that, and the train was on time so it was not a problem (Interview A).

Thus the low frequency of services was a point of concern for Interview A but the fact that he was able to confirm that the connecting bus was integrated and would wait for his train reduced his anxiety.

4.3.3.7 Interactions with other passengers

Unfamiliar travellers described some interesting interactions with other passengers as part of their experiences. For example, as previously discussed in the section on wayfinding, some people discussed getting help from other passengers for their unfamiliar journeys though many others stated that they did not do this. Some interviewees also described how when they travel abroad they are more likely to talk to other people:

> And [we would] chat with a few locals, if they realized we were talking in English or notice that we were Australian (Interview J).

> I think I strike up the conversation on the bus because there was two of us, for the first half an hour, like it was the bus driver and one other guy. So, we struck the conversation, which is very easy to do as a foreigner because as soon as you open your mouth they realize that you are not from around there (Interview F).

Thus, it seemed that people would often strike up conversations while travelling abroad; they found locals to be particularly friendly when they sensed the interviewees were foreign. Talking to people can also be a means to reduce anxiety by acquiring information, the conversation seemed to provide some comfort to the interviewees and be a positive experience for people. In some instances, casual conversations with others were seen as so positive as to outweigh less savoury interactions with other passengers:

I found it quite good but my sister didn't really enjoy the trips. I think she found it too crowded and too hot and that she was quite uncomfortable being squished up against lots of other people whereas I think because I've been places like India and caught local buses in similar conditions I'm maybe a bit more used to it and I really quite like it because of the interactions I get to have with locals whereas I don't think she sees the interactions with the locals as outweighing the discomfort (Interview DD discussing public transport use in Sri Lanka).

In Interview DD's case she found that her interactions in Sri Lanka with locals provided enough gratification so as to outweigh the discomfort of the heat and crowding. Interestingly, her sister, who she mentioned did not enjoy the trips, was from Sydney and drives for the vast majority of her travel there. This could suggest that her usual travel, which is characterised by more individual space, solitude, and temperature control, may make her less adaptable to different experiences; however, it also could be attributed to simple differences in personalities like introversion and extroversion.

Another interviewee even thought he would be more likely to interact with other passengers on an unfamiliar journey in Australia:

It's always like you if you find someone who is also travelling than it's easier to talk to them I think like the same if I was in Sydney and I met someone from Melbourne I could talk to them more easily (Interview Y).

His statement implies a sense of camaraderie that you feel when you meet another person from your hometown in another place.

Some interviewees described an increased tendency to talk to strangers on unfamiliar journeys related to life events:

But the first time I took the 737, it was like my first day so I was kind of excited. And I actually started talking to – I don't remember who started the conversation, me or her, but I started talking to this girl on the bus saying it's my first day of uni and she like told me about her experience. So I had an interaction and that was pretty cool. (Interview C)

I think it was the next day after we arrived [in Melbourne] or something… while we were on the tram, we met a couple who were on their way to gallery exhibition and like just some guy's house basically in the inner north and so they were like, "oh, do you want to come?" and we were like, "yeah, why not" so we went…I think it was – just the thing about when you are being in a new place, you know, when you are really, really fresh somewhere, I think it's just you know, you are quite open to new things and probably or maybe you walk different, you look little a little bit different or something you don't quite fit into the crowd and so people notice you and I think that's why (Interview O).

Interview C had a life event as the circumstance prompting her travel. In terms of experience, she was excited. This contributed to her having a conversation with someone else on her bus

(experience & circumstance – characteristic of travel), which she saw as a positive aspect of her travel (potentially impacting her attitude about use of that service). Interview O ended up talking to another couple on a tram just after moving to Melbourne and then even going out with them that night.

Overall the interviews seemed to suggest that unfamiliar travellers end up talking to strangers more often than familiar travellers do. There are a few possible explanations for why this might occur. It may be that unfamiliar travellers look lost and people might want to help them or it may be that when people are unfamiliar, they can be uncertain about components of their travel and seek information to reduced uncertainty so are more open to talking to other people (and may therefore appear more approachable). Likely it is some combination of these two explanations.

In terms of familiar travel, people did not describe interacting with strangers but some respondents did describe people that they regularly see or regular patterns of patrons on their journeys:

> People either keep to themselves or they're really loud, there's no kind of like in-between like I don't really ever talk to anyone because everyone's always kind of in their group or on their own (Interview P).

> I do [discuss my concerns with other passengers]. I mean I have a few regular friends at the bus stop, we will exchange conversation. And then when I get off here some of them are the Monash College students (Interview E).

> I do see familiar faces on the train…but because I take different trains each day quite often or a range of them; you don't see the same person. It's interesting to see people I know, but who I don't necessarily speak with (Interview BB).

Thus for familiar journeys, some respondents described seeing people repeatedly enough that they became familiar faces (e.g. Interview BB, E); some to the extent that they would even converse with people, though that was described as relatively rare. As described by Interview P, generally there was a bit of a norm of not conversing with other people on familiar services. Some people discussed awkward interactions associated with crowding while other familiar accounts simply noted regular patterns of behaviour amongst passengers.

4.3.3.8 Security

Anxiety about security was described by many participants for both unfamiliar travel and familiar travel. In some instances unfamiliarity seemed to exacerbate concerns about security but many

familiar travellers, particularly females, worry about security in familiar settings too, particularly at night.

Many participants were asked whether unfamiliarity would influence their sense of security, but the responses were mixed. Interview S said that her sense of security when she was abroad was about the same as when she uses public transport at home but that she does have a heightened sense of awareness:

> Because you stand out because you, it's very easy to pick a tourist, it's very easy to pick someone who doesn't know where they're going. I'm always quite aware of trying to not look like a tourist, going around with a map. But no I'm not too concerned…I'd still do everything that I wanted to do (Interview S).

Similar concerns were shared with other interviewees, particularly for unfamiliar travel in Europe with many interviewees saying that many cities in Europe are known for mugging and pickpocketing. Reputations affected feelings of security:

> I might have been feeling just a tiny bit nervous because that area doesn't have a great reputation so I wasn't really sure what to expect but actually when I was on the train there was just regular people like you see on the routes that I'm more familiar with, so I wasn't feeling too anxious at all (Interview DD).

Interview DD's quote shows not only concern due to reputation but also that her expectations were not met and she actually found the area she was concerned about just had 'regular people'.

Still a number of interviewees expressed concern about traveling on unfamiliar services at night in Melbourne. In another part of the interview, Interview X, also stated that sometimes she gets put off travelling at night in places she is familiar, but feels uncomfortable (she gave the example of Smith Street in Collingwood[11]). Another interviewee shared this sentiment also:

> The stereotypes of the neighbourhood [matter]. The service itself, I mean, using most of the Melbourne public transport network feels akin to using any other journey but it's the actual environments that it passes through that makes it unfamiliar and so if I'm going through a place which might actually be fine but I've heard has a bad reputation than I might feel less willing to take a public transport option at night time (Interview T).

Thus these responses indicate that some people might be dissuaded to undertake unfamiliar travel at night or overseas due to security concerns. This sentiment was more prevalent amongst

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[11] Considered by many to be an area associated with high crime rates (relative to Melbourne anyway).

females, but not limited to females (e.g. Interview T is male). Some respondents stated that travelling with another person helped to alleviate this anxiety:

> It was okay 'cause I was with James, if I was travelling by myself I probably wouldn't have travelled at night and stuff like that (Interview Y, discussing European travel)

> [Asked if night-time would impact unfamiliar transport in another Australian city] It might. If I were alone it might. If I had someone with me no it wouldn't (Interview X)

Thus some respondents said they might not travel by themselves on an unfamiliar service. In a similar vein, Interview X stated that she would choose a busier carriage for travel by herself at night on an unfamiliar service. Others said that they would get someone to pick them up rather than use an unfamiliar service at night.

> Interestingly one respondent thought some modes of transport in London felt safer:

> I was probably naturally a bit more nervous at night-time especially on the Tube and that. The buses, we used one or two at night, perhaps I didn't feel so nervous on the buses…I think the presence of the driver always gives you a bit of confidence plus with Tube stations, you're in this enclosed environment that you don't feel like you've got a lot of control over, you sort of feel like you're hidden away from the rest of society a bit (Interview BB).

Thus Interview BB thought that buses felt safer than the underground trains ('the Tube') because of the presence of drivers and because in the Tube stations she felt a bit claustrophobic and like she lacked autonomy. Another participant (Interview U) said that she felt safer on trains in Europe with higher class tickets.

Driver behaviour was a different type of security concern for one tourist to Sri Lanka using unfamiliar public transport:

> The drivers go very fast and sometimes they're very windy roads…I definitely wasn't worried about other people on the bus. They were all really friendly and they'd sort of ask where you were from and things like that. But I was more sort of worried about the traffic conditions and stuff like that. The speed at which all the busses going especially in the mountainous areas (Interview DD).

For familiar travel, some interviewees stated that they did not feel concern for security. However some did express some concern for security, which was primarily impacted by whether it was light or dark out, and particularly for females:

> It's only ten minutes and it's pretty well-lit, the streets I walk down, and otherwise it's just my street, which is somewhat dark but I know it's my street so it's okay (Interview Y)

For her familiar travel at night, Interview W described how her husband tended to come join her for her walk home from the station at night – thus she had made an adaptation in order to mitigate concerns about security. Some respondents reported that their security experiences have improved over time though particularly as patronage on transit services has grown in Melbourne including at off-peak times like at night.

Thus overall, the relationship between familiarity and security was not straightforward: some interviewees reported feeling insecure in familiar locations, some stated that they would be more concerned in the context of unfamiliar travel, but for many this was specifically identified as being affected by the reputations of neighbourhoods, travel companionship and patronage on services.

4.3.3.9 Language

Primarily related to travel overseas, interviews were mixed in terms of whether or not speaking different languages was problematic for unfamiliar travel, but most interviewees did not identify language as being a major issue:

> That was hard. Language was a barrier a little bit. And because I'm not very confident speaking other languages even though you try…but I found that when I went to France and I tried people weren't really that nice to me anyway and so you think 'just forget it' and speak English and it was okay though, we got to where we needed to get too (Interview Z).

> And most people speak really good English and if not just use sign language or somehow communicate it (Interview Y).

> I was glad I had another girl with me. At the time I was 25…we stood there for about an hour and….[kept asking people], "do you speak English?". "No, no no". Anyway then a man came and he did speak English….and he said, "oh this isn't the right bus stop." And he took us down to another bus stop (Interview W describing unfamiliar travel in Greece).

Interview Y's experience that most people speak English, or that you can get by without speaking the local language on public transport was the more common testament than people finding it problematic. People said that you could usually find someone that speaks English like Interview W did. Interviewees also reported language not being problematic because signs were often posted in multiple languages and announcements were often made in multiple languages with English always being one of the languages offered. Participants also described how you simply look for destinations names which you can still recognise without speaking the language, though some enjoyed listening to how they were pronounced on the announcements. Interview

A described knowing a bit of German as helping him feel comfortable using public transport journey plus having a positive impression of the system itself which facilitated his ability to use a system in another language. Still some people, like Interview Z (quoted above) and Interview J still found not speaking a local language to cause a bit of anxiety in taking unfamiliar transit, particularly for buying tickets. Interview AA, who had come to Melbourne from Malaysia also found that language was not problematic upon arriving and using transit services because he had been learning English in Malaysia.

Thus, for most respondents, speaking another language was not problematic for unfamiliar travel, though some had anxiety about the issue beforehand. For most of the interviewees who were native English speakers, they felt some gratitude that English is a commonly spoken and sign-posted language. Interviewees were not generally asked about language for familiar travel.

4.3.3.10   Summary of findings related to unfamiliar travel experiences

Thus, overall, key aspects of unfamiliar travel experience were identified as follows:

- For activities while travelling, unfamiliar travel tended to be associated with heightened cognitive awareness: looking for stops, at scenery, and sometimes trying to find places to stow luggage. In contrast, familiar travel tended to be associated with passive activities like reading, dozing, studying, playing games, and listening to music.

- In terms of emotions, unfamiliar journeys were associated with a variety of emotions but particularly anxiety and excitement. Anxiety was often related to wayfinding and fear of making mistakes like missing stops, but was also occasionally related to travelling alone, security, lack of autonomy or life events. Previous mistakes and inexperience with modes exacerbated anxiety. Excitement related to novelty and curiosity and was more prevalent in new cities. Overall, familiar journeys tended to associated with apathy, and occasionally feelings of dread with disruptions to services, frustration at crowding and occasionally anxiety about missing services.

- Much unfamiliar travel involved a process of wayfinding. Wayfinding often involved looking for signs, landmarks, and at maps; sometimes people would describe second-guessing their navigation while travelling which caused anxiety. A number of challenges to wayfinding were identified including: services changing at different times of day, mis-labelled stop maps, no route maps on-board transit vehicles, maps being difficult to interpret or inaccurate, phones not working, trouble with apps, figuring out which bus

shelter to go to, and different operators of services leading to less integration of information. Participants also described difficulty with wayfinding at 'trip ends', particularly a lack of maps upon exiting stations, confusion related to coming out of underground stations with multiple exits, and being unable to see one's destination from the street. Darkness was another challenge to wayfinding, particularly for seeing stop numbers and street signs.

- Interviewees identified trains as easier for wayfinding than buses particularly because they reported the latter to be associated with winding, non-linear routes, difficulty in seeing out windows, bus drivers that are not always helpful and service maps that could be improved.

- Facilitators for wayfinding included: real-time directional information on-board, stop numbering, direct non-stop shuttles, route maps on board and at stations, labelling of services, services differentiated by colour, modern technology, apps and websites, multi-modal (including transit) options integrated into Google Maps, good integration between transit modes, end-of-line destinations, and end-of-trip destination information outside transit stations. Drivers and conductors that were willing to provide assistance were also noted. Tools like GPS, apps, websites and maps helped unfamiliar travellers, as did asking for assistance and observing others.

- Strategies that interviewees identified for wayfinding included: relying on others, observing others, asking drivers or passengers for assistance (though some reported avoiding asking for help), strategic positioning on vehicles, carrying navigational aids like maps or instructions, and purchasing open tickets to allow for getting lost.

- Commenting on navigation prompted a number of the interviewees to provide self-evaluations of their wayfinding abilities.

- Some people described mistakes when taking unfamiliar travel. Most mistakes related to missing one's stop, getting off too early in anticipation of potentially missing a stop, not taking the most efficient route, and going the wrong way toward one's destination after alighting from a service. These types of errors would have the effect of making people's unfamiliar journeys longer or increased people's perception of how long a journey would take by public transport.

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- Interviewees described a range of experiences with unfamiliar ticketing but generally it was reported that once they had figured out ticketing in a city they seemed to feel confident with ticketing on other unfamiliar services in the city (though were occasionally confused with new modes). Integrated ticketing was identified as better for unfamiliar travel as was having fewer zones. Some were confused about where to buy tickets particularly for unfamiliar travel in Melbourne where the local ticket, myki, is not sold at most stations or on board many services. People were generally comfortable with buying tickets from vending machines, but sometimes advised that being able to ask a person questions is beneficial for unfamiliar travel and thus people particularly liked conductor systems. Where to 'validate' tickets caused some confusion.

- Transfers were brought up as a source of anxiety for unfamiliar travel, and thus many reported trying to minimise the number of transfers. The lack of integration between services and the potential to make mistakes were sources of anxiety for unfamiliar travel associated with transfers. Techniques for minimising anxiety related to transferring included following crowds and asking for help. Aspects of transit systems that helped with transferring included integrated ticketing and frequent service. Good pre-trip research mitigated anxiety.

- Interactions with other passengers differed between familiar and unfamiliar travellers. Generally speaking people did not converse with other passengers much for either familiar or unfamiliar travel but some described how when they took unfamiliar travel, particularly overseas, they would end up talking to people more. Some interviewees described an increased tendency to talk to strangers on unfamiliar journeys related to life events.

- In terms of security, some people stated that they would be more concerned with security for unfamiliar travel with a 'heightened sense of awareness'. Many stated that reputations of neighbourhoods would influence their perceptions of security. Travelling with others and having it be light outside reduced anxiety about security. Some found the presence of a driver (on buses) to reduce anxiety. A number of interviewees reported feeling insecure in familiar locations.

- Speaking a different language was somewhat problematic for some interviewees' unfamiliar travel, but the majority of interviewees did not find language to be as big of an

issue as they had anticipated, with many places having information in their preferred language (primarily English) available.

4.3.4 Impact of unfamiliar travel on attitudes and subsequent behaviour

This section looks at the impact of the unfamiliar travel on attitudes and subsequent travel behaviours. It first looks at the effect of unfamiliar travel on attitudes and then on behaviour.

4.3.4.1 Attitudes

This first sub-section examines the impact of unfamiliar travel on attitudes. Many respondents revealed aspects of their attitudes about public transport. However, for the most part these attitudes could not be directly attributed to having developed because of unfamiliar journeys. For example Interview R described her annoyance with other patrons on transit:

> You have people using the train as their personal platform to get on their soapbox and have a big rant about the government…that kind of thing I'm not exposed to anywhere else except on our public transport system (Interview R).

However nothing that she says in this quote suggests that she has this opinion because of her unfamiliar travel experiences. It would be methodologically questionable to ask if her attitude had formed from unfamiliar travel experiences as it is a leading question. That said some aspects of the interviews did provide insights in addressing this research question. This section about attitudes begins by examining impressions resulting from unfamiliar travel, then whether first trips were found to be more memorable than other trips is explored. Finally a brief review of knowledge people gained from their unfamiliar travel is offered.

A number of interviewees suggested that their unfamiliar travel experiences affected their impressions of services. One respondent discussed how she found a certain geographical section of Toronto's transport network to be particularly problematic:

> See downtown [Toronto] was okay. It was the outskirts of Toronto where we started that was really hard. We gave up at one point and just got a cab from the outskirts all the way into downtown (Interview R).

In this quote, Interview R's bad experience of transit in the outskirts of Toronto gave her a negative impression about transit in the outer area of Toronto *generally*. Similarly Interview I described how she liked the SmartBuses in Melbourne from her trial of a service as she discovered that they do not stop too frequently, meaning that they provide a relatively efficient service. Interview F described his positive impressions from his unfamiliar use of a V/Line train

and in particular how he liked having a kind conductor as opposed to a ticket inspector. These positive impressions suggest that these interviewees would be pleased to use these services again. A more explicit account of using a first trip to evaluate the viability of a service for possible subsequent use is offered by Interview I who described how she used her unfamiliar journey to a job interview to inform her decision about taking the job:

> I was a little bit nervous because I had a job interview and it was at 9:00 which is very early in the morning, it was very dark and I was giving thought to how early I'd have to get out of bed if I got the job because I was working at Melbourne Uni [before], it's quite close to where I live. And I thought if I have to get out of the bed at 6:30 that will be terrible. The trip itself wasn't that spectacular (Interview I).

This example is interesting because it is evident that Interview I was examining her journey, including the time she would have to wake up, as part of her consideration of taking a new job.

A large number of interviewees also discussed how their experiences of unfamiliar travel affected their impressions of city's public transport networks generally:

> We also went to Japan the trains there are incredible…they come every five minutes….It's ridiculous. It's really good. Usually it was all in Japanese but the numbers were all the same, like the numbers that we use or you could ask people and they would be really, really helpful. And the machines were really good (Interview Y).

> But their (New York's) subway system was unbelievable. It was brilliant. Everything was very well organised but the actual subway cars themselves looked really old so you're standing there wondering if 300 tonnes are going to fall on your head so they didn't look good but they ran on time and they were very intuitive (Interview R).

Generally people seemed to have positive impressions of transit networks overseas. In particular people seemed to appreciate the systems in Tokyo, Singapore, London, Germany, France, Barcelona, and New York. Interview S explained that she was just surprised that cities that were so much older could have better transit systems. A number of the interviewees described surprise at the service frequency of overseas and even other Australian cities' services compared with their perception of the poor service frequencies in their home city. Indeed it seemed that people's home services almost acted as a benchmark and experiences of systems overseas and shaped their attitudes about services at home.

> I think I just compare my travel experiences to travel experiences overseas and I always feel it's (Melbourne is) lacking (Interview P discussing non-presence of signage of next stops on buses in Melbourne).

> I remember it was my first experience of the train in Toronto and…the trains came every – five – minutes! And I was astounded. I don't know what that says about Melbourne's

public transport system…there was no question of 'when is the next train? I'm going to be sitting here for ages.' It was just there and it was just instant[aneous] (Interview V).

[I get upset about the public transport problems in Melbourne] Especially when I come back from overseas where things work smoothly (Interview CC).

Thus a number of people used Melbourne as a benchmark for their travel overseas, and for some this left them with worse attitudes about their home transit systems. Generally people's impressions of their home city's (typically Melbourne's) transit to be more mixed and generally less positive:

And one thing that I really realized quickly is that everything and this is really annoying, is that everything radiates out of the CBD, so if you want to go anywhere you have to go through the CBD first which is kind of irritating and I think it's really it's a poor design (Interview O talking about her impression of Melbourne after moving here).

How good the networks were [in London], you could get places, especially with the bus networks, you could get places at times of day that it wasn't my experience with the bus network in Melbourne…my experience of buses in Melbourne…after 6:00 the buses were non-existent (Interview BB).

Interview O thus finds Melbourne's CBD-centric network annoying and Interview BB found the longer service hours in London better than Melbourne's buses. Sometime people simply discussed aspects of networks that were superior (in their opinions) overseas. For example Interview U did not think Melbourne was as good at providing places to stow luggage as places she's visited abroad. Interview P's quote previously indicated that she thought signage was better overseas. Overall though it was unclear *why* people generally found overseas transit so superior to Melbourne's. It may have been that when they were overseas they were only using a limited number of services concentrated in city centres which probably had higher frequencies, longer service hours and more connectivity, (e.g. buses ran later in London in Interview BB's quote). Or it could be that familiarity breeds complacency, possibly by accumulating more negative experiences (due to a higher number of chances to have bad experiences).

Thus overall people's unfamiliar travel experiences abroad strongly shaped their impressions about that city's transit network mostly positively. Sometimes impressions of a city's public transport network seemed to also impact the interviewee's opinion of that city more generally. After getting much travel assistance in one city, one interviewee described:

It made us feel that it [the city] is friendly to travellers and foreigners and that, sorta they cared that we go off at the right stop and got to the right place, they pointed that it's over the road and everything and said "bye bye" and we thought, "that was really nice" (Interview W).

Thus Interview W's positive experience left her with a positive attitude about the city. The process of stereotyping was active in this example and the experience of their unfamiliar travel and the help they got gave these travellers a good impression of the city. Similarly Interview X described appreciation for Japan providing a number of opportunities to buy a ticket whereas:

> V/Line takes a more punitive approach. In Japan they take the 'we are here to help you buy the right ticket' approach. No one's going to be arrested unless they absolutely refuse to buy a ticket. They give you every opportunity to buy a ticket whereas here, they make it as hard as possible (Interview X).

In this example, Interview X seems to imply that Japan is more welcoming and Melbourne more hostile in terms of ticketing. These examples suggest that unfamiliar travel experiences affect more than people's impressions about the usability of the subject service, but also opinions of the wider city. Thus unfamiliar travel experiences may have wider implications to the tourist market.

Research Question 3a asks "Are first trips more memorable than other trips?" This question has relevance to testing whether first trips are associated with stronger impression formation and thus have more potential to impact attitudes than subsequent trips (consistent with the primacy effect). One way to examine strength of impression formation is through examining recall.

As described in the Method section, interviews were structured with participants first describing a familiar trip and then asked if they could recall the first time they made that journey. A number of respondents could clearly, or at least partially, remember these first trips:

> I distinctly remember the first time, you know, I guess I kind of took that trip and then got myself to sorry, to the city…and then went on to Geelong (Interview F).

> I can sort of remember it because it was a place I hadn't been by public transport there before. And so, you know, I'm a little bit of a cautious person, I like to know where I'm going and how I'm getting there (Interview B).

Perhaps Interview F could recall his first time using the train to Geelong because it was his first time using V/Line or because the trip would have been relatively long. Interview B explains that she could recall her journey because she had not been to the destination before.

Recall was observed to be particularly high for unfamiliar travel related to life events. For instance Interview O remembered her first time travelling to the city from Glen Waverly after moving to Melbourne. Interview E recalled her trip related to a job interview:

Well, when I finished with my previous job and I was looking for another job…I had gone for an interview. I remember that was um I don't know if was West Melbourne or what but it was by the Collingwood side, (Interview E).

In the example of Interview E, she remembered the trip to a degree because it was related to a life event but she did not seem to recall the trip explicitly. Interview Q somewhat recalled her first time travelling by train to Melbourne's CBD on the train line that she now lives on and at the time of her first trip, had moved to a few months earlier:

Um, very first time? Sort of roughly…[I was] just watching how many stops it is to go to the city because I'm new and generally new to Melbourne, I've only been here one and half years so just basically looking out the window and going 'oh it's nice and green unlike the train back at home, yeah just trying to figure out what the station names are because when they announce them they seem to be sort of different to what I imagine they would be so just trying to learn how to pronounce them (Interview Q).

Interestingly Interview Q seemed to remember her journey not only because it was her first time using a service after moving a few months previously, but also because she was relatively new to Australia so she was trying to learn the pronunciation of place names.

However, a number of participants struggled to remember unfamiliar travel, or aspects of unfamiliar travel, in their home cities (e.g. Melbourne):

This particular bus? Yeah, I can't remember. It was four years ago and I've done it a lot… (Interview D).

I mean I can't think of, yeah, particular instances (Interview M).

In these examples, the interviewees seem to imply that they know they have used unfamiliar services but cannot recall them specifically. Similarly, sometimes people could recall just some aspects of unfamiliar travel but not others. For instance, a number of people could not recall the route numbers that they had used, but could recall other aspects of journeys. In some interviews, participants detailed what they thought would have happened.

People could more often remember more recent unfamiliar journeys such as ones that had occurred within the last few weeks of the interview. For this reason, participants were sometimes asked to describe a 'recent' unfamiliar journey because it was hypothesized that they would be more likely to recall them. However factors other than recentness often also facilitated recall:

Well I suppose one that I particularly remember and it's not the most recent, but it's quite fresh in my memory because it was my first overseas trip (Interview V)

In this example, Interview V provided evidence that first experiences can be particularly recallable; she recalled her first train trip in Toronto *because it was her first overseas trip.* Thus this also seemed to be a life event.

In general, overseas travel seemed to be recalled more easily by participants. For example Interview R could not recall her first time using public transport to get to Chadstone but did recall her unfamiliar transit travel in France, New York, and Toronto.

People also seemed better able to recall unfamiliar travel that was problematic or stressful:

> I… was on the other side of the road maybe five minutes before the scheduled bus was supposed to come and I didn't know at that point the sort of frequency it would come and I believe it ended up coming on time while I was still unable to have crossed the road like the traffic was relentless for a certain amount of time and a bus came along the other side even though I was there early (Interview T).

> I don't remember getting lost so I must have [been okay]. I have recollections of other journeys in other cities, I remember a much more recent trip I got horribly lost and confused in Sydney but that was a trip that involved several trains and several buses and I hadn't planned the trip – it had been given to me (Interview V)

Thus Interview T recalled a first trip because he was unable to get across a busy road to get his bus and missed it. Another interviewee, Interview Z, recalled a strike that interrupted her journey and the sense of frustration at not having control over the incident. In contrast, Interview V says that she cannot remember getting lost so assumes her trip went well and then goes on to say that she remembers another trip where she got 'horribly lost', this comment illustrates the memorability of problematic transit travel. This finding was not limited to unfamiliar travel however: Interview R recalled a journey that was *familiar* because it was upsetting, she witness a guy get severely beaten on a bus. Meanwhile unproblematic *unfamiliar* trips seemed to not be recalled as easily by the interviewees or only elicited little description like, 'it was fine'.

Familiar travel was explored in a general way rather than by selecting a particular day and asking to describe that journey, so for this section, unfamiliar travel recall cannot be objectively compared with familiar travel recall.

One important aspect of Interviewees' descriptions of unfamiliar travel was the information that they described gaining from undertaking unfamiliar travel. These 'lessons' may have had an indirect impact on attitudes and future mode choice behaviour as people became more informed

about their travel choices. Some of the knowledge gained related to perceptions of distance, geographical trends related to service quality and perceptions of reliability.

A few interviewees described how unfamiliar travel changed perceptions of distance:

> The bus journey seemed to make the distance seem much smaller than I had anticipated. I was very new to Melbourne then and I thought that Prahran was a long way away but seeing it by road I just felt like everything was compressed and that was actually a very pleasant experience (Interview T).

> Well the surprising thing was that I live so close to a train station that's probably the main thing and I thought 'well in that case I can go more often' (Interview Q).

Interview T found that Prahran and Collingwood seemed closer to each other by bus. Interview Q was surprised to learn that she lived relatively close to a train station which was positive information to encourage her to use the train more often, a positive impact on her attitude about using transit. Thus people's unfamiliar journeys changed their perceptions of distances with space seeming smaller and in some cases this had implications for future travel behaviour.

Similarly, some interviewees described how their first trips increased their knowledge of an area. Interview E described how her first bus trip to a job helped her learn about some of side streets and surrounding land-uses in an area. Interview T described surprise at the location of the North Melbourne train station on his first trip there as he was surprised it was not closer to the shops of the North Melbourne village.

> That was my first experience to North Melbourne station. I was surprised at its location really. I would never have known that there was a station there and I guess I'm glad to be aware of it…it's not directly where I would associate with North Melbourne which is Errol Street, probably…it's in an industrial patch where if you were to just get off there and you were unfamiliar with the area you might not even know in what direction to head to find the village of North Melbourne (Interview T).

Not only was Interview T happy to have learned the location of North Melbourne station but he also felt concern for others who would be unfamiliar and using the railway station to access North Melbourne village. He worried that they might experience anxiety and wayfinding difficulty. Overall it seemed that unfamiliar travel experiences providing geographical 'lessons' for interviewees was regarded as a positive aspect of unfamiliar travel.

Another 'lesson' that people gained from taking unfamiliar travel related to travel time and travel time variability. This knowledge could have implications for future travel and mode choice. In

some cases these experiences later affected people's perceptions of travel times. There was some evidence that unfamiliar journeys 'felt' longer than subsequent trips:

> And at first I felt it was bit long but after that once you get to used it, it really isn't that long if the passengers get on quickly and without you know…if there is just the students and the people who are well aware of what's happening, it can go quick (Interview E).

Not only did Interview E explicitly state that her first trip felt longer than subsequent trips but she also seems to suggest that more familiar passengers make the trip quicker for her. Another interviewee described how her perception of travel time reliability has changed since her first trip:

> I didn't think [the bus was reliable]…at first probably because I wasn't really on time, my morning routine was all over the place but then now that I've got a routine in place, it's very reliable (Interview Z).

In this example, the interviewee's perception of reliability changed over time, particularly as she optimised her own travel to suit the system. Unfamiliar travellers were not as knowledgeable about travel time compared to familiar travellers and would often describe mistakes they made (as discussed in section 4.3.3.4) which may have made their journeys actually take longer in some instances. As a point of contrast, one interviewee described a *familiar* trip, in which she can anticipate the probable delay of her service:

> It's about a 10 minute walk to the stop usually, fairly leisurely pace, get enough time, get to bus stop, it's usually somewhere between 3 to 7 minutes late (Interview J).

Thus for Interview J, repeated delays of her service have given her a perception that her service is always and consistently delayed but because the delays are so consistent the timetables for the service would be almost redundant. Thus although the service is delayed in terms of the timetable, there is not uncertainty associated with the delay due to her past experience. To a degree it seemed that familiar travel was associated with more reliable and objective travel time estimates, and possibly even better perceptions of travel time reliability, whereas unfamiliar travel was associated with less knowledge and more pliable perceptions, notably that travel times 'felt longer'.

4.3.4.2 Behaviour

This section examines behaviour following first trips. It begins by looking at re-patronage and then includes a section of optimisation of behaviour following first trips.

There was a mixture of responses when participants were asked if they used services again following their unfamiliar journeys, though a number of people reported using services again:

> Yeah, I have been there about two to three more times…After that [the first trip] I was okay because I knew where I was going already and then how to get off the train and everything. So, that was good (Interview L).

Interview L's statement suggests that subsequent trips after her first were particularly good because of the knowledge she had accumulated from her first trip. Interview F, who reported using a service about 6 more times after an initial trip, was asked why he continued to use a public transport service after his first time. His response was much more related to a variety of factors, not solely his first trip experience:

> Again it was I just wouldn't warrant driving the two hours on my own and then also I didn't need my vehicle there because everyone was already arranged to be in one car, it was coming from Geelong. So, yeah, I mean, I would have some way to leave my car but I didn't need to and the amount of gear I had was manageable on my own. So, yes. It was kind of the logical answer and again for 3 or 4 dollars, that really, you know, that kind of made up my mind, 3 or 4 dollars or kind of 25 in petrol, maybe 30 dollars in petrol (Interview F).

Thus, the respondent did not explicitly describe his pleasant experience as encouraging him to use a service again, but it seems reasonable to assume that his first trip experience was not so negative that he was put off using a service again.

Meanwhile, some respondents reported not using services again:

> I decided to drive…Because it was on a Sunday and I went there [West Footscray] once on a Sunday and it was very tricky, interconnecting, and it was….much quicker [to drive]. [On Sundays] I know that the connections and the bus timetable is really reduced (Interview CC).

> I didn't actually catch the train back because I met up with a friend and she gave me a lift back into the city on her way (Interview DD).

Interview CC had found form her experience, services to be too infrequent at off-peak times so decided it would be quicker to drive for future travel. Interview DD did not use transit for the reverse of her journey simply because she had a friend returning to the city who could give her a lift, but she later said that she would be willing to use public transport to get to her destination again following her unfamiliar journey. Another Interviewee, Interview O, said that she found her unfamiliar travel to university to be inconvenient and decided that it was easier to drive so opted not to use transit to travel to the university for subsequent travel, particularly after they purchased a car. She did note however that her experience of travel to the city was good and

that they continue to use the train for travel to that destination. One participant (Interview Y) said she would not use public transport again following her unfamiliar travel experiences in a foreign city because she found the tram too small. Another participant (Interview M) stated that he would not use a public transport service that he described for both familiar and unfamiliar travel again simply because it takes too long. Thus for a number of interviewees, whether or not they used transit again was on the basis of their experience of convenience from their first trips.

Overall there was a mix of intentions and actual behaviour following unfamiliar travel some of which was related to people's unfamiliar trip experiences but mostly people reported their behaviour reflecting their impressions of convenience. However it is worth considering that people may not always be conscious of their impressions and the factors underlying them. In some instances people's feelings may be influencing their perceptions of convenience without consciously realising it. The psychological processes underlying these sorts of processes are difficult to investigate.

Another interesting finding from the interviews was that people make a number adaptations to optimise their public transport use both in terms of *how* they undertake unfamiliar travel and adaptations for their subsequent trips on a service following unfamiliar travel.

In terms of participants' adaptations for undertaking unfamiliar travel, many of these strategies were described in the sections on trip planning and wayfinding strategies. For instance, minimising number of transfers, planning for missed services, and bringing materials to use time productively in case there are any incidents were all strategies identified.

People also described a number of adaptations that they made for subsequent travel from the knowledge they gained during their unfamiliar travel experiences. Interview Q described how she discovered that a direct, non-stop shuttle bus that she could use instead of multiple services requiring a transfer, she then used that service from then on. Interview N described how a map made it look like one station was closer to his destination but he discovered that another station which was about equally-distant had more frequent and quick connecting bus services to get to his final destination, so he switched which station he alighted at in the future. Interview BB described how at first she just chose a random middle carriage of her train but then began going to a different train carriage which placed her in front of the train station exit and tended to have a little more extra room. Two more accounts of adaptations from unfamiliar travel follow, the first from Europe and the second from Sri Lanka are:

I suppose we becoming more relaxed about not racing to the platform when you see the train approaching because you know there is going to be another one in another few minutes (Interview M).

It was always a problem to know where to put our backpacks because they didn't seem to have any sort of luggage storage area. But we figured out on the back of the bus, we could put our backpacks under the backseat. That was the only seat they would fit under so we started trying to always get the backseat. And the second adaptation was that we did notice that one of the services was very crowded, so we started trying to ask the locals what time would be good to catch the bus. What time didn't really matter to us if we left at 9:00am or 11:00am. We'd ask and be told it will be less busy if you go after 11:00am, it will be after the peak and that helped us to avoid some of the really, really crowded bus trips (Interview DD).

Interview M discovered that services were very frequent in Europe so that they did not need to run to catch trains, hence his anxiety was reduced from the knowledge that he gained from using a service. Interview DD's anxiety about where to stow her baggage was reduced by discovering that there is a spot if she sits in the back of buses, which she did from then on. She also discovered that travelling at different times reduced crowding pressure.

In a similar vein, almost all interviewees described a number of adaptations that they made for *familiar* travel. This was interesting to note simply because it is worth considering that unfamiliar travellers did not generally have the opportunity to apply such adaptations. The adaptation to undertaking unfamiliar travel largely related to wayfinding and reducing uncertainty. In contrast, familiar adaptions often related optimising timing of travel and comfort on the basis of previous experiences with services. Some people described travel habits like eating breakfast or reading that they have developed to enjoy the time as discussed in section 4.3.3.1. A number of familiar trip adaptations related to trip timing. For example, Interview P has found that her service usually arrives and leaves earlier than the scheduled time on the Frankston line so she arrives early. A number of interviewees described leaving abundant extra time to allow for poor reliability. Some people described switching which train station they use depending on whether it is peak or off-peak times on the basis of relative frequency of services. A particularly knowledgeable familiar traveller described how she usually has to:

Get the bus before the one I actually need to get so that I get to uni on time. And often the bus is – like it arrives at like 10 o'clock, that's when my class starts so then you have to get the one like half an hour before, so that you can actually get to class on time (Interview C).

Thus Interview C has developed a strategy of catching the bus service before the one she actually needs just to make sure she gets to class on time. Similarly one interviewee described how his experience with struggling to cross a road to catch a bus has influenced him:

Yeah I definitely wouldn't ever leave catching that bus to the last minute (Interview T).

Another participant (Interview X) described how she used to take a train/bus combination to get to Monash University but then she found out that she could get a bus the whole way by walking and avoid the need to transfer which is what she does now:

> After a while I don't know what happened I started riding my bike a bit and was getting quite active and then realized I could walk up to Oakleigh and cut out the train and the buses were reasonably reliable. (Interview X)

Over time this person became knowledgeable about other bus services she could catch so she would not have to wait so long. Thus, through her process of familiarisation she actually decreased her journey travel time and optimised her travel to suit her preferences (i.e. a public transport journey not requiring transfer and she could choose from a variety of services). Interestingly this participant stated that she thinks other public transport users are unaware of all of these options.

Interview Z noted that if she travels 5-10 minutes earlier or later it can affect whether or not she gets a seat, "I find the earlier I travel the less chance I get a seat because it's peak time" (Interview Z). She also noted that if a bus is running late it's likely to be really full but that there is usually a fairly empty one not far behind, which she tends to wait for because she is pregnant and so prefers a seat.

One interviewee described how he sometimes waits to take a later train service to save money:

> So, normally I try and get either mom or dad or someone to drop me at Cheltenham train station, so I live in Cheltenham, I could catch the bus it just adds an extra half an hour to it… So, I'm normally good to go, especially if I'm after 6:00 because that means I can get home on the same $3 ticket or something like that. And so that often influences a bit of the timing, if it's, you know if it's 5:30 or 6:00 I'll wait, I'll have an extra half an hour at home and then head in. (Interview F)

Clearly this interviewee knows the ticketing and timing and adapts his behaviour to save money.

Interview U described how she has found that for her familiar travel in Melbourne, if she takes train services that go directly to Flinders St instead of around the city loop[12] it's much quicker so she tries to schedule herself to get those services that are quicker:

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12 Melbourne has a somewhat unique train set-up in the Central Business District with Melbourne's 16 radial

> One of the services goes direct to Flinders Street and so doesn't go around the City Loop, and they seem to be running a few more of those and so by doing that it would cut out probably another 5 minutes on my trip so I now go for the direct to Flinders Street…I'll think 'oh I won't go now 'cause the next train will be the direct to Flinders Street one'. That seems to be better (Interview U).

Similarly, in addition to realizing after one year of commuting to work that it was quicker to take a train and then a tram than to take a bus (which did not require transferring), one interviewee described how she alights from a different train stop now as an adaptation for her commute:

> I used to catch the train the whole way round the loop and then get off at Flinders Street station and then catch the tram, now I get off at Melbourne Central, so a couple of stops earlier and I do that so just trying to be effiencient….so I don't have to have to sit on train for longer than necessary and because at Flinders Street the tram stop is always packed (Interview S).

Another participant, described adaptations she applied for a long 2 – 2.5 hour journey to work to make her trip by bus more comfortable (though she now drives):

> One thing that I distinctly remember was…the seats were really uncomfortable and so I remember longing to have my car because I found that the seats were uncomfortable to the point that I was starting to get a sore back and so I would take a little towel that I could take and tuck up behind my back because I knew I had such a long trip, I really kind of set myself up and I'd have a bag with books and reading material in the seat next to me and I'd be sitting there with my little towel tucked behind my back like I'd set up camp on this bus because I was on their for at least an hour…but I did find the motion of the bus and the traffic and delays difficult to do any work (Interview V).

In this example, Interview V describes making adaptations to improve her level of comfort. Eventually her negative experiences and the long travel times by public transport lead her to change her behaviour. It seems that the types of adaptations made change with levels of familiarity as depicted in Figure 4-1, with the most unfamiliar travel adaptations including trip planning.

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suburban railway lines feeding into the 'City Loop' which is actually four separate tunnels that go around the CBD including through the two largest stations: Flinders Street and Southern Cross (formerly Spencer Street); and three underground stations: Flagstaff, Melbourne Central and Parliament. Trains change which direction they go around the loop depending on the time of day. All of the train lines serve Flinders Street, some having travelled through the Loop first, some travelling directly to Flinders Street then through the Loop, and a small number reversing at Flinders Street (as many trains did before the Loop was built). At midday most services reverse direction through the loop.

These adaptations discussed in this section suggest that unfamiliar travel must, in comparison, be undertaken less optimally, perhaps not always using the quickest combinations of services and also without employing some adaptations that would suit the travellers' preferences.

Adaptation

Unfamiliar

✓ Pre-trip planning

✓ Wayfinding optimisation

✓ Allow extra time

✓ Travel time optimisation

✓ Comfort
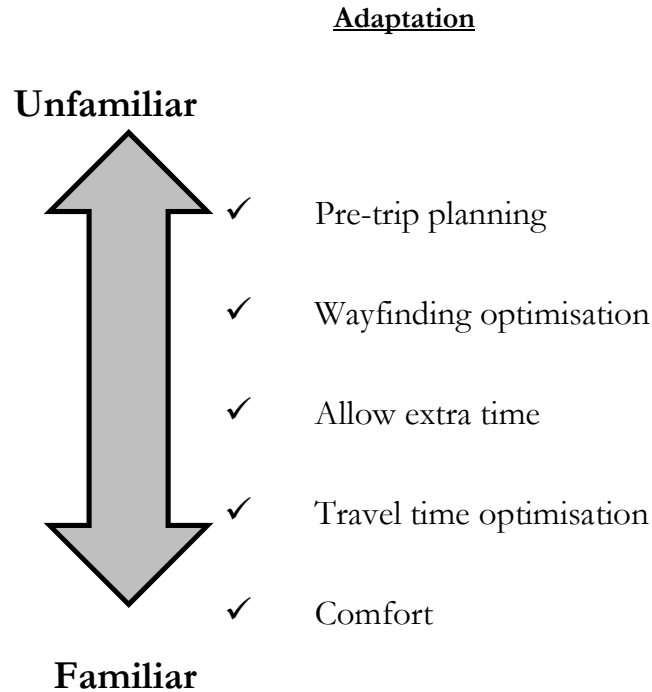
Familiar

Figure 4-1: Differences in types of adaptations based on familiarity

4.3.4.3 Summary of insights about the impact of unfamiliar travel on attitudes and subsequent travel behaviour

The key findings related to this research question were:

- Attitudes are difficult to directly examine and the impact of unfamiliar travel on one's attitude may be a sub-conscious process.

- Occasionally participants explicitly described unfamiliar travel experiences impacting their opinions of services. More often however they described their unfamiliar travel experiences affecting their opinions about city's transit networks more broadly and sometimes affecting their opinions of entire cities. Generally people seemed to have positive impressions of transit networks overseas. Often interviewees used their home

cities (typically Melbourne) as a benchmark from which to evaluate other cities' transit networks.

- Some interviewees struggled to recall particular unfamiliar journeys, though many could recall trips, particularly unfamiliar travel related to life events, recent travel on trips overseas or where travel was problematic

- Unfamiliar travel helped people learn more about transport and local geography. These 'lessons' may have had an indirect impact on attitudes and future mode choice behaviour as increased information about choices was gained. Some of the knowledge gained related to perceptions of distance, geographical trends related to service quality, travel times, and perceptions of reliability. To a degree it seemed that familiar travel was associated with more reliable and objective travel time estimates, and possibly even better perceptions of travel time reliability, whereas unfamiliar travel was associated with less knowledge and more pliable perceptions. Unfamiliar travel times seemed to 'feel longer'. This is consistent with previous research suggesting that people dedicate more attention to unknown environments (Nahemow 1971; Oliver 2002).

- There was a mixture of responses when participants were asked if they used services again following their unfamiliar journeys. For a number of interviewees whether or not they used transit again was on the basis of their experience of convenience from their first trips. However people may not always be conscious of their impressions and the factors underlying them. In some instances people may describe aspects of convenience when sub-consciously they are reflecting feelings.

- It was found that people make a number of adaptations to optimise their public transport use both in terms of how they undertake unfamiliar travel and for subsequent travel on services. Some participants described adaptations that they have made to how they undertake unfamiliar travel; these were largely related to wayfinding and reducing uncertainty. People also described a number of adaptations that they made from the knowledge they gained during their unfamiliar travel experiences. Almost all interviewees described a number of adaptations that they made for *familiar* travel, these largely related to optimising timing of travel and comfort on the basis of previous experiences with services. Unfamiliar travellers have not generally had the opportunity to apply such adaptations.

4.4   Discussion & conclusions

The Interviews provided participants with an opportunity to describe the intricacies of their experiences in more detail and in their own words. This exposed some of the subtleties of unfamiliar travel that could not be discovered through the confines of the survey-based research methods presented in subsequent chapters. When considering the results it is useful to remember that Grounded Theory served as the foundation for much of the research.

Overall the Interviews provided a number of interesting and important results. It was found that 'unfamiliar travel' can mean different things to different people and that there is a spectrum of unfamiliarity ranging from being unfamiliar to a city or country to being unfamiliar with an aspect of a service such as a new stop or station. However the definition of unfamiliar travel contained throughout this thesis (first time using a particular service) was generally applied for this research

Figure 4-2 synthesises a number of differences found between unfamiliar and familiar travel related to circumstances and experiences. Regarding circumstances (Research Question 1), first trips were observed to sometimes occur in relation to life events and were often associated with travelling interstate or overseas, visiting friends and family, new services, personal appointments like healthcare, leisure, exploration and events. They were only occasionally in relation to work, sometimes to work in a new area to attend conferences or to show others around. In contrast, familiar travel tended to be associated with commuting. The reasons identified for using public transport rather than cars were similar for familiar and unfamiliar users. In terms of mode choice between different types of public transport, there was a preference to use trains over buses (and sometimes trams) for unfamiliar travel, which was largely attributed to different degrees of difficulty in wayfinding. Compared to familiar travel, unfamiliar journeys more often required trip planning and were less often made alone.

Familiar travel

- Typically for commuting
- No/minimal trip planning
- Usually travel alone
- Stressors
  - Operational delays
  - Running late (self)
  - Crowding
  - Annoying people
- Activities
  - Reading
  - Sleeping
  - Playing games
  - work
- Informed: often know different ways to do PT trip (more 'resilient')
- 'Optimised': (can be quicker, know where to sit etc)

Both

- Reasons for mode choice
- Preference for trains
- Insecure travelling at night

Unfamiliar travel

- Related to life events, tourism personal appointments, visiting people and leisure
- Buses difficult for wayfinding
- Trip planning needed.
- More likely to travel with others
- Stressors
  - Wayfinding
  - Figuring out ticketing
  - Worry about mistakes (missing stop, or getting lost)
- Activities
  - Checking maps/apps
  - Looking out window
- May not be informed of all options (for contingency or to meet preferences)
- Not 'optimised': (don't know 'strategies' yet, may take longer)

Figure 4-2: Summary of differences between familiar and unfamiliar travel

Figure 4-2 also shows some of the key findings related to experiences (research question 2). Many of the experiential characteristics of unfamiliar travel were related to anxiety or anxiety mitigation. There was a stark contrast in activities undertaken while travelling between unfamiliar travellers, who tend to look around more and think about the journey itself, and familiar travellers, who tend to be focused on passive activities like reading, sleeping and listening to music. In terms of emotions, unfamiliar journeys were often associated with anxiety, excitement, curiosity, and sometimes confusion, or enjoyment. Much of the detail about wayfinding was also newly revealed through this research method. Wayfinding was observed to be a source of stress for unfamiliar travellers and a number of mistakes related to wayfinding were identified. Ticketing in Melbourne was associated with many concerns issues but ticketing overseas was generally not too problematic and less difficult than many respondents had anticipated. People were more likely to talk to other passengers during overseas unfamiliar travel than for unfamiliar travel in Melbourne.

A further synthesis of the findings related to Research Question 1 and Research Question 2 is provided in Figure 4-3 below and illustrates the personal process undertaken to make unfamiliar travel. It shows the various contexts under which unfamiliar travel occurs with a range in familiarity from being new to a city, down to just unfamiliar with an aspect of the system, and some common trip attributes like having a travel companion and trips that are not commuting and sometimes related to life events. Barriers and sources of anxiety for unfamiliar travel are identified including a lack of information such as when and where services go, how to navigate, fare rules, norms of travel and anxiety and uncertainty. These risks are then mitigated through a range of behaviours outlined under 'risk mitigation' including pre-trip planning, in-trip planning, and interactions with strangers, targeting 'less risky' modes, integrated ticketing and travelling with others. Characteristics of experiences are then identified.
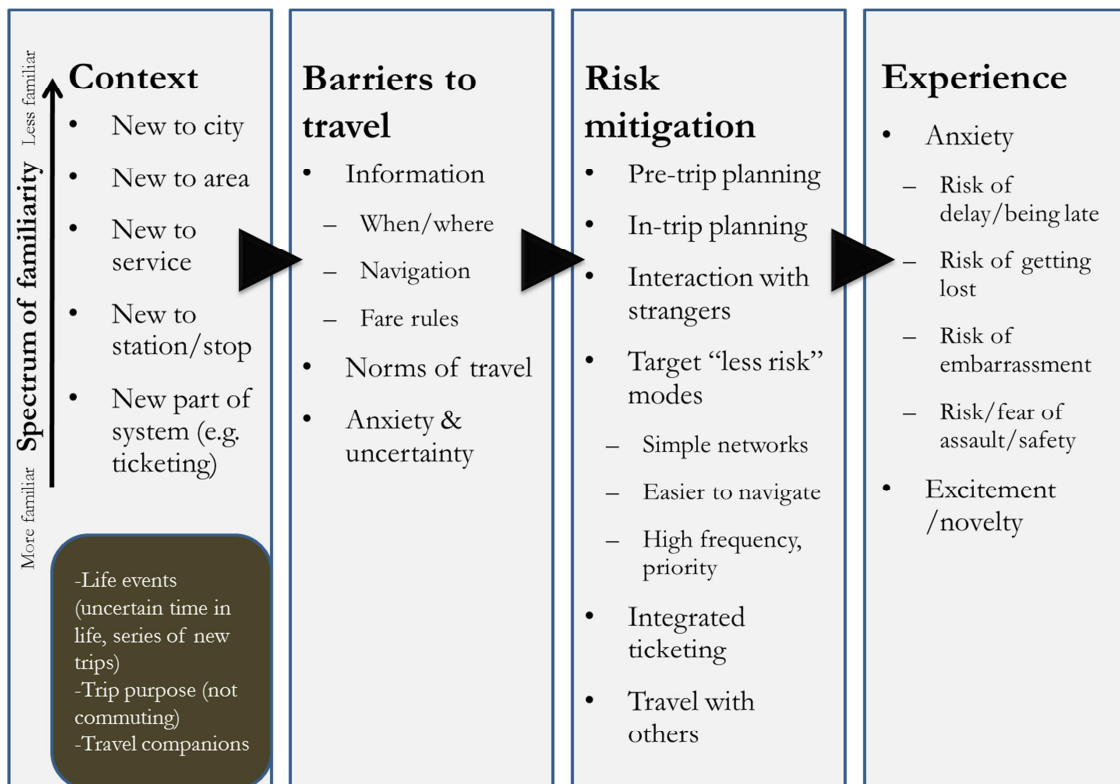
Figure 4-3: Process of unfamiliar travel

Research question 3 (impact of unfamiliar travel on attitudes and subsequent behaviour) is difficult to address because the impact of unfamiliar travel experiences on attitudes and subsequent travel behaviours may be subconscious and it was difficult to ask about the impacts without inducing bias in the responses. However some of the findings did suggest that unfamiliar travel may be important to subsequent attitudes and travel behaviours. People's

experiences of unfamiliar travel in other cities was observed to shape their attitudes about those cities' transit networks, opinions of home cities' networks, and sometimes their opinions of the cities themselves. Often people used their home city as a benchmark for evaluating other cities' transit networks. Recall ability was somewhat mixed but seemed somewhat higher for unfamiliar travel than familiar travel, particularly when related to life events, overseas travel, or critical incidents. In fact, overall travel was more memorable if it was 'out-of-the norm'. Interviewees were better able to recall travel in places they had never been to by transit before, unfamiliar travel related to life events, especially if they were new to an area, transit use overseas and especially travel that was problematic or stressful. More recently-undertaken travel was also more memorable.

A less direct impact was the observation that unfamiliar travel helped inform people's spatial understanding and travel time perceptions. Perceptions and estimations of time seemed to be more accurate and objective for familiar travel than unfamiliar travel, the latter of which 'felt' longer. This is consistent with previous research arguing that people tend to be more cognizant in unfamiliar environments which can affect their perceptions of time (Nahemow 1971; Oliver 2002). While this may not be considered an impact on attitude or behaviour per say, the findings do have implications for the behaviour under the Theory of Planned Behaviour due to the potential for the increased knowledge and effects on perceptions of 'perceived behavioural control' which is one of the three variables that has been repeatedly observed to explain intention and behaviour (refer to Chapter 2 for the review of TPB). In some instances, impacts on behaviour were more directly apparent such as when people described learning about aspects of the services that they liked or did not like and which they occasionally identified as affecting their intended future travel behaviour.

It was also observed that some interviewees have made adaptations to how they undertake unfamiliar travel to optimise their experiences. As people described their familiar journeys they often described how they had made adaptations to their travel to change circumstances of their travel to improve their experiences. Some examples included: travelling at different times of day, standing in certain areas, minimising transfer times and so on. It is worth considering that most unfamiliar travel will have less optimisation applied, thus journeys are likely to have some negative characteristics in their un-optimised state, though the importance of these adaptations would vary. Thus it seems that there is a process of familiarisation and optimisation that can occur from repeated use of a transit service, as depicted in Figure 4-4.

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Trip type	Process	Characteristics
Pre-trip	• Pre-trip preparation • Circumstances prompting travel	1. Information gathering 2. Prompts: -Life events -Visiting friends/family -Personal appointments -Tourism & work travel -Leisure/recreation/exploration
Initial trip	• Evaluating the system	Many facets of experiences: -Cognitive (wayfinding, observing & inquisitive) -Evaluative -More emotional (nervous, excited etc) -Level of uncertainty - requires preparation -Service operators can affect
Subsequent trips	• Adaptation & optimisation	Adaptations: -change services (e.g. time of day, trains over buses) -change circumstances to optimise: ticket option, self-placement, end-of-trip route
Familiar journey	• 'Just travelling'	Journey has become routine: -Only notice things out of the ordinary. -Passive (doze, read, music) -Focus is on activities rather than travel itself -Reduced process of assessing the system and strategizing

Experience affects likelihood to take other unfamiliar journeys:
- Trip suppression / optimisation (e.g. trains >buses)
- Allow extra time
- Increase preparation

Figure 4-4: Process of familiarisation and habituation

The initial journey is associated with higher levels of anxiety and cognition, then subsequent trips are somewhat familiar though people may still be optimising their use of a service and adjusting their behaviours to best suit their needs and preferences. Finally travel becomes familiar, it is 'just travel' for people and is characterised by less thought invested in the travel itself. Because most adaptations have been made during the 'subsequent trips' phase, people simply focus on activities, not the travel itself. These findings are consistent with previous research by Dziekan (2008) which were discussed in Chapter 2. Dziekan (2008) proposed a three-phase model highlighting the development of survey knowledge for newcomers to cities.

4.4.1 Implications

The Interviews offer a number of important insights for the research and the method addressed all three research questions. The application of Grounded Theory has been particularly helpful in revealing some of the complexities and subtleties associated with unfamiliar transit travel. The research method has been particularly advantageous in allowing participants to describe unfamiliar travel in their own words, allowing them to highlight which characteristics are particularly important to them. A number of implications emerge from the Interviews which include, in summary:

- There is diversity in what unfamiliarity means to different people

- Unfamiliar travel is associated with more emotions than familiar travel, particularly anxiety and a number of measures are taken by people to mitigate and reduce uncertainty

- A number of design features to support unfamiliar public transport travel

- Drivers are seen as the interface of unfamiliar transit services so can be key to providing reassurance or may impose negative affect

- Participants reported a strong preference for trains over buses and to a degree, trams, for unfamiliar transit journeys which may have implications for cost-benefit analyses in transportation planning and/or this may guide design of transit services

- Mistakes were often reported for undertaking unfamiliar journeys which could impact travel time perceptions or willingness to undertake future unfamiliar transit travel

- Processes of adaptation and optimisation were reported in relation to familiarisation of services and also how subsequent unfamiliar travel was undertaken

- Unfamiliar travel often occurred in relation to life events which at times increased travel anxiety. These important implications will now be examined individually in more detail.

Firstly, the finding that 'unfamiliarity' means different things to different people further emphasises the necessity of clearly defining unfamiliar travel in surveys and dissemination of the research findings. It also highlights the importance of considering unfamiliarity as a spectrum: it is not easy to define because it means different things to different people. Having used a service once before does not necessarily make one 'familiar with the service' for many people, as many who used services infrequently still described some anxiety. Moreover, if one has used a service before, but simply needs to alight at a different stop or station, they may still have difficulty with wayfinding, particularly once disembarked from the vehicle.

People tended to describe anxiety with using unfamiliar services and described measures taken to reduce anxiety. This is a particularly noteworthy factor because it is likely that such anxiety may suppress some unfamiliar travel from even occurring as people may at times consider public transport for their desired travel and then decide the barriers seem insurmountable. Not only are unfamiliar journeys associated with anxiety but unfamiliar journeys also tended to be recalled fairly well, suggesting to a degree that the primacy effect may be occurring, so that it is vital to encourage positive first trips. As discussed in Chapter 2 atypical events tend to be recalled better than typical events (Morewedge et al. 2005) so it may be that unfamiliar journeys are better recalled because they are atypical, but also perhaps due to increased anxiety which may be contributing to heightened memorability. Either way, the implication is that it is important for practitioners to implements measures that make unfamiliar travel experiences as positive as possible and reduce anxiety. Such measures would serve to benefit familiar users also.

A number of design features to support unfamiliar public transport travel (particularly wayfinding) were identified including:

- stop numbers (on the journey planner site and on signs)
- directional signage
- real time information boards (e.g. 'next stop is')
- route maps on-board and at stops/stations (including better maps on buses)
- services differentiated by colour
- good labelling of services

Interviewees also noted that drivers and conductors that were willing to provide assistance were also appreciated.

In terms of mode choice for unfamiliar travel, interviewees suggested that train is preferred, followed by trams, and then buses. There are two main implications emerging from this finding. Firstly, the perceived navigability of different modes for unfamiliar travel may be a 'mode specific factor' that is not be fully appreciated and captured in current transport analyses comparing different transit modes. Secondly this suggests that if bus (and to a degree tram) operators wish to attract new riders; their systems should perhaps be designed and managed to be more like trains. For example, Melbourne's SmartBuses were identified to be better for wayfinding than other buses due to the presence of real time navigational screens on board. Also bus routes that are more linear would address the concern people brought up with routes being difficult to visualise. The fact that people think of buses, and to a degree trams, as being slow and impacted by traffic should reinforce the need for priority improvements. Typical transport assessments often only consider *real* travel time savings and overlook perceived travel time savings. This undervalues priority improvements because they may increase perceptions (if not the actual reality) of travel times. Similarly the fact that trips *feel longer* for unfamiliar travel is certainly not taken into account. Routes that have higher numbers of unfamiliar travellers could have very different benefit -cost ratios (BCR's) if perceived travel time were to be measured.

Some of the errors that participants described encountering when undertaking unfamiliar travel, such as missing stops and taking wrong services, would have actually made their journeys much longer. While participants did not go to the extent of stating that this made them perceive their journeys to be longer than they would be if they did not make mistakes. It seems reasonable to assume that this process may be an important underlying feature of unfamiliar travel: people make mistakes that make their trips actually take longer to complete, thus potentially impacting their perceptions about how long it takes to travel somewhere by public transport. This would have the negative impact of dissuading them from using public transport into the future, perceiving it to be problematic and taking longer relative to car-based travel. In fact, this may not always be the case, or the discrepancies in travel time may not be as great as people perceive.

It is interesting to consider the adaptations and optimisation that were observed to occur. Perhaps there is a way to speed up the process of optimisation by providing more information to people about service intricacies. For example, an 'app' could be developed to provide hints about services, such as the ideal place to sit on the train for a quick exit, or other services that they could use to complete their journey if there are any service disruptions, or other useful information. It could even

have crowd-sourced information; for example if someone were to get lost trying to go somewhere by transit they could upload their errors and people could learn from them or transit agencies could even monitor the information uploaded which could help them prioritise improvements. Many of the adaptations described related to timing of services, so in theory if people described adaptations they made for timing of services in the crowd-sourced app, it might impact timing for other people or future timetable development by the authority.

Related to circumstances, it was found that unfamiliar travel is often undertaken with another person. This may mean that wayfinding tools such as maps, trip planning materials and navigational aids could be better designed for group use. It was also observed that unfamiliar often occurs in relation to life events, which at times increased travel anxiety. This is useful information for transit authorities to consider. It may be useful to work more closely with organisations like universities which are associated with a large number of unfamiliar trips to develop resources to optimise travel for unfamiliar users. This information also has relevance to travel planning in general: travel planners for organisations should be made aware of the importance of new employees' travel and the anxiety that may be associated with it.

4.4.2 Limitations

Despite the important and interesting findings from the interviews, as with all research methods, there were some limitations associated with the interviews. Participants were recruited from the University Access Survey (Chapter 6). This resulted in a sample of people very keen to partake in the research and included an over-representation of people who use public transport frequently. Even after intentionally selecting participants who were regular car users, many of the participants seemed to want to use transit and sometimes expressed guilt/reasons for not using transit. Thus the sample may have been generally more open to public transport use than the general population. Moreover, the interviewees were almost entirely university-based meaning that the interviewees may have higher education levels than the general Melbourne population which may have caused some bias in the type of answers received.

Almost all of the interviewees were native English speakers or had been living in an English-speaking country for a large number of years. It would be useful to interview participants who only speak a less commonly spoken language because English is very commonly spoken; it seems likely that many countries would have provided information in English, helping people. Wayfinding in another language may be more problematic for rarely spoken languages. Thus the interview findings cannot necessarily be generalised to the entire population.

As with most interviews, this research method had potential for response bias associated with people only reporting what they would like to report and to a degree bias from trying to please the researcher. While objectivity was the aim in collecting and reporting the results, there is some potential that researcher bias may have occurred to a degree, leading to presentation of results which the researcher thought were valuable at the cost of other findings that potentially could have been included. The interviews also relied on recall which may have affected what details were recalled and reported, however this also provides an indication of what aspects of unfamiliar travel are particularly noteworthy to conscious memories.

Despite these limitations, the research offered some important and interesting findings. The Grounded Theory approach facilitated collection of particularly rich information, with notably subtle processes and characteristics of unfamiliar travel identified.

5   Rail Origin-Destination Survey

5.1   Introduction

This chapter explores the prevalence, distribution, and characteristics of first trips, primarily addressing Research Question 1. It also touches upon Research Question 2 with some analysis of trip satisfaction. First trips are compared to familiar travel through an Origin-Destination Survey (hereon after referred to as the "O-D Survey"). This survey of approximately 24,000 public transport travellers is conducted by PTV on an annual basis, targeting a different public transport mode each year. This research method was selected because it would yield a large number of responses and the recruitment design would reduce self-selection. This research method also examines unfamiliar travel related to tourism and visitors to the city more explicitly than some of the other research method and compares unfamiliar visitor travel to local unfamiliar public transport travel.

Thus far this research method has resulted in one publication being accepted for publication:

> Schmitt, L., G. Currie, et al. (IN PRESS). A Network Wide Study of Unfamiliar Public Transport Journey Patterns Using a Major Origin-Destination Survey. <u>Transportation Research Board 94th Annual Meeting</u>. Washington DC, USA.

Though, at the time of putting the thesis together, the publication is still in a revision and subsequent review stage.

The chapter begins by stating the aims of the O-D survey followed by a description of the research method. The results are then presented in a series of sub-sections structured according to the overarching aims of the research method. The results are followed by a discussion section which draws a number of inferences from the results while also discussing the limitations of the research method.

5.2   Aims

This stage of research aims to address the following research questions introduced in Chapter 3:

RQ1: Under what circumstances do first trips occur?

- RQ1a: How prevalent are first trips?
- RQ1e: What personal and trip characteristics are associated with higher prevalence of first trips?

RQ2: What experiences are associated with first trips on public transport?
- RQ2a: How are first trips different to other trips?

Research Question 1e was a particular focus of this research, with a large number of analyses about personal and trip characteristics, especially spatial characteristics of unfamiliar travel. Other trip characteristics explored included access and egress to/from stations, trip purpose, and time of day.

5.3   Method

The data was collected on Melbourne's metropolitan rail network. This network includes approximately 16 electrified train lines which radiate out from an underground city loop. They are sometimes classified in terms of geographical 'groups' as depicted in Figure 5-1 below. Also shown in the figure are proximity-from-the-CBD rings which are relevant to some of the analyses that will be presented later in the chapter.

Data was collected during Feb 2012 – October 2012 and the survey was administered by PTV. The O-D survey is undertaken by PTV on an annual basis and each year targets a different public transport mode. In 2012 trains were the targeted mode. O-D data is collected from 6:30am – 7:00pm on weekdays, Monday-Thursday, at train stations across the metropolitan network. The surveyors target different stations on different days and interview every third person at each platform. Meanwhile, another person counts the number of people on each platform. The data is then weighted by PTV to be representative of how many people are actually at each train station when the survey is conducted. The interview survey is intentionally short and tightly structured to quickly learn where people are travelling from and to and which modes are used during their entire journey.
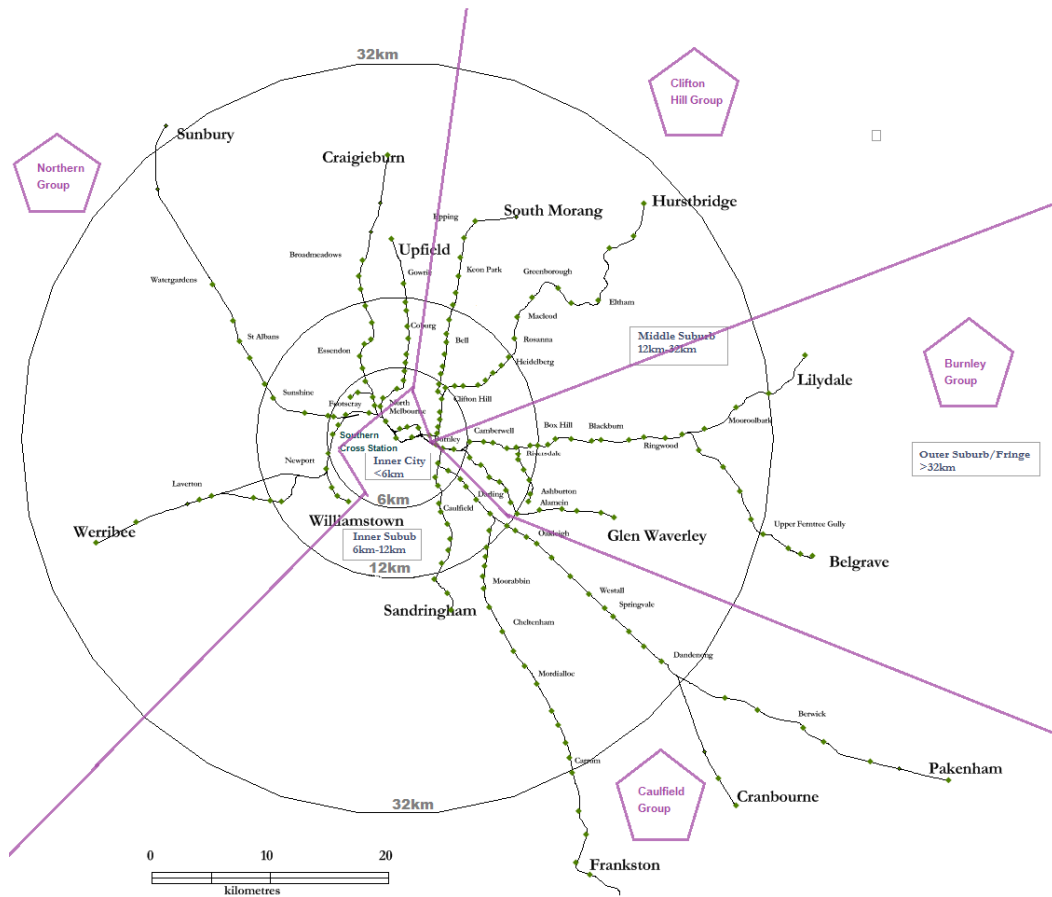
Figure 5-1: Rail network of Melbourne

In order to take advantage of this existing large survey, the researcher, who is sponsored by PTV, proposed that three questions be amended or added to the existing survey for the benefit of PTV and the researcher and then worked with PTV to optimise the wording of the questions. Two questions related to the prevalence of first trips and the other measured trip satisfaction.

Previously the survey asked participants how frequently they take the subject trip but did not include "first time" as a possible answer. Thus this question was restructured (as below) to account for first trip users, and also whether or not first trip users were Victorian residents or visiting Victoria. The full survey questionnaire is contained in Appendix 9. The questions added/amended are below. In order to measure prevalence of first trips, the existing question about trip frequency was amended to include first trips and read:

> *Q10 On average, how often would you use this service?*
>
> *1   If more than once a week, how many days a week?*
>
> *2   Once a week*

3   At least once a month (between 12 and 52 times a year)

4   Less often than once a month (2 to 12 times a year)

5   Hardly ever (1 or 2 times a year)

6   First time (Victorian resident)

7   First time (visitor to Victoria)

A supplementary question then was added to ask the first time users (only) whether they had actually used the service earlier in the day for their first trip and were in the process of undertaking the return trip, or were waiting to use the service for the first time. This was phrased:

Q10a Which of the following best describes how many times you have used this service?

1   I have never used this service before (today will be my first time) (skip to Q12)

2   I used this service earlier today for the first time and am now on the return journey (go to Q11)

Furthermore, previously the O-D survey did not include a question asking about trip satisfaction. This was added as follows:

Q11 How satisfied were you with your most recent experience of this service?

1   Very satisfied

2   Satisfied

3   Neither satisfied nor dissatisfied

4   Dissatisfied

5   Very dissatisfied

6   Don't recall

This question was not asked of those who were waiting to use the service for the first time (since they would have no experience). The remainder of the survey included questions about where the person had started their trip; how they had arrived at the station they were waiting at and a number of demographic questions. As evident in the full questionnaire (provided in Appendix 9), questions were generally multiple choice. For location references, respondents could touch a map of the area that they were referring to. Some of the questions in the survey included skip logic, so that participants were/were not asked certain questions on the basis of their responses.

5.4 Results

This results section begins with an overview of the sample captured. It then provides an overview of the survey results, beginning by addressing Research Question 1 (under what circumstances do first trips occur?), which provides an overview of first trip prevalence. Then more detailed results are presented about travel modes and other circumstances. A large portion of the results addressing Research Question 1 explore the geographical trends of first trips captured through the survey.

The last section of the results includes an analysis of the satisfaction levels associated with the data captured in order to address Research Question 2: "what experiences are associated with first trips on public transport?"

5.4.1 The sample

The O-D survey included 23,943 responses from all of the total 204 metropolitan Melbourne stations. Of the 23,943 respondents, only 518 did not complete the last survey question, reflecting a completion rate of 98%. Demographically the survey included approximately an equal split of males and females. Age-wise the sample was largely comprised of younger respondents with 50% under the age of 30. PTV has advised this is representative of Melbourne's public transport user population.

5.4.2 Weighting

As mentioned earlier in the chapter, the data provided by PTV included weightings which aimed to make the sample representative of all travel on the metropolitan network on a given weekday. The weightings were attributed to each interview by taking the number of people who entered a platform in a minute divided by the number of interviews conducted during the same period at the same platform. *Unless specified otherwise, these weightings are used for presentation of the results from here forth. However, statistical analysis is conducted using 'standardised' weights (individual weights divided by the average weight) so as not to artificially inflate the sample size, this is to ensure that the statistical tests are meaningful.*

5.4.3 Under what circumstances do first trips occur?

In order to address Research Question 1: "Under what circumstances do first trips occur" this section first provides analysis of how common first trips were and then explores the characteristics of first trips, such as for example, when and where first trips took place. In exploring the characteristics of first trips captured in the O-D survey it is worth bearing in mind that the data was captured from 6:30am – 7:00pm and on weekdays only and concern train stations and train travel.

Therefore the survey is likely to over-represent commuter trips and under-represent leisure (weekend and evening) travel.

5.4.3.1 How prevalent were first trips?

As previously discussed, Question 10 asked about trip frequency and was re-worded to include first trips. In the unweighted sample, it was found that 97% of journeys were not first trips. Meanwhile 3% of trips were first trips, with 2% being undertaken by Victorian residents and 1% being visitors to Victoria. Thus it seems the number of first trips was small, and although this represents 569 respondents (unweighted).

In the weighted sample (Table 5-1) only 2% of journeys were first trips but this would represent 10,654 journeys per weekday. This mean that each weekday approximately 10,000 first trips occur across the train network between 6:30am – 7:00pm 77% of which will be Victorian residents and 23% of which are visitors to Victoria.

Table 5-1: First trip prevalence

	Frequency	n	Percentage
First trips	First time (visitor to Victoria)	2,498	0.5%
	First time (Victorian resident)	8,154	1.5%
Less frequent	Hardly ever (1 or 2 times a year)	28,546	5.2%
	Less often than once a month (2 to 12 times a year)	17,831	3.2%
	At least once a month (between 12 and 52 times a year)	27,516	5.0%
	Once a week	37,843	6.9%
More frequent	More than once a week	429,386	77.8%
	Total	**551,776**	

5.4.3.2 Characteristics of unfamiliar journeys and travellers

Of these first trips, 9% were trips that had been undertaken for the first time earlier in the day (and people were undertaking the return trip) whereas 91% were first trips that were just beginning. This is an unusual bias. On review this is likely to be influenced by the survey times: 6:30am – 7:00pm which covers a.m. travel satisfactorily but only parts of p.m. return travel. Nevertheless it is a very substantial bias even with this possible explanation, that most of the first travel was only in one direction. Another plausible explanation was that some of the respondents may have answered, 'hardly ever', in instances when they had undertaken a first trip earlier in the day and were now

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repeating that travel in the reverse direction. Thus the prevalence of first trips might have been slightly higher and it possible that in such instances, this travel was classified as familiar travel, which to a degree, it was.

Figure 5-2 and Table 5-2 explore the demographic characteristics of unfamiliar travellers compared to familiar travellers. Compared to familiar travellers, there was a slight tendency for the share of unfamiliar travel to be higher by people over the age of 50, $\chi^2(7) = 67.49$, p<.01. People in the age group of 20-29 only took 30% of unfamiliar travel compared with 39% of familiar travel. Gender was not significantly related to unfamiliarity.
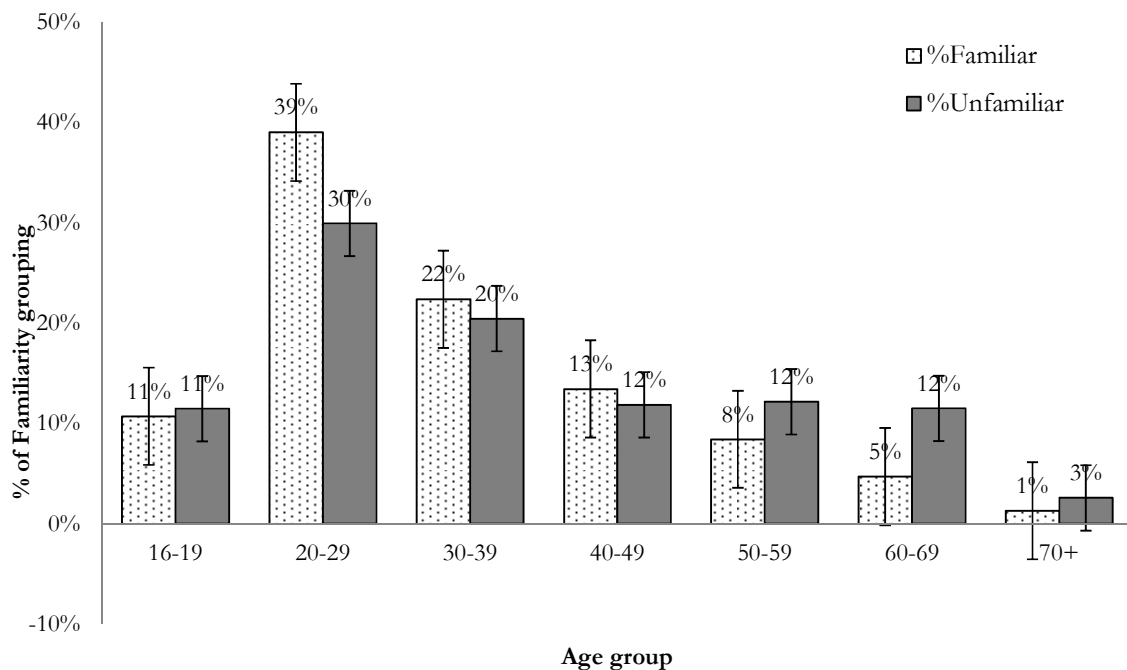
Figure 5-2: Age distribution of familiarity groups

When unfamiliar travellers' demographic characteristics were further disaggregated (Table 5-2), unfamiliar travellers who were Victorian residents were more likely to be in younger age groups than visitors to Victoria, who tended to be older; $\chi^2(14) = 123.47$, p<.01. In terms of gender, unfamiliar male travellers represented a greater proportion of the domestic unfamiliar travellers (55%), and a smaller share of the unfamiliar travel by visitors to Victoria (45%) than females, though the relationship between gender and unfamiliarity status was only marginally significant, $\chi^2(2)=5.48$, p<.10.

Table 5-2: Characteristics of familiar versus unfamiliar travellers

Personal characteristics	Familiar (%)	%Unfamiliar				
		Total unfamiliar (%)	*Visitor (%)*	*Resident (%)*	*Used service earlier (%)*	*Awaiting first trip (%)*
Age						
16-19	11%	11%	1%	15%	1%	13%
20-29	39%	30%	33%	29%	38%	29%
30-39	22%	20%	10%	24%	18%	21%
40-49	13%	12%	13%	12%	18%	11%
50-59	8%	12%	19%	10%	4%	13%
60-69	5%	12%	22%	8%	14%	11%
70+	1%	3%	2%	3%	6%	2%
Gender						
Male	49%	52%	45%	55%	48%	53%
Female	51%	48%	55%	45%	52%	47%

Note: Percentages reflect the percentage of each column category that fall into each category of personal characteristics, so for example, under the column % Unfamiliar visitor, 33% of visitors were aged 20-29.

In terms of time of travel, Figure 5-3 shows the proportion of peak and off-peak trips[13] for unfamiliar travellers (visitors and Victorian residents) and familiar travellers. It is evident that visitors to Victoria had the highest proportion of off-peak trips (69%), followed by unfamiliar travellers residing in Victoria (48%). Familiar travellers had a lower proportion of off-peak trips (33%). The relationship between familiarity and whether or not one was travelling at peak or off-peak times was statistically significant, $\chi^2(2) = 87.67$, p<.01.

In terms of the trip characteristics, Figure 5-4 shows the proportion of familiar and unfamiliar travellers by trip purpose. It is clear that all trip purposes were dominated by familiar travel. However a relatively large share of travel for holiday/tourism was undertaken by unfamiliar travellers visiting Victoria (25%). Meanwhile, those travelling for sporting events, personal business, and tourism/holiday were relatively often unfamiliar travellers who were Victorian residents (21%, 6%, and 6%, respectively). The relationship between familiarity, residential location, and trip purpose was significant, $\chi^2(16) = 2,381.67$, p<.01.

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[13]A fairly simplistic definition of 'peak' is used, travel occurring between 7:00am – 9:00am and 3:00pm – 6:30pm are considered 'peak' regardless of direction of travel, and all other time periods are considered 'off-peak'.
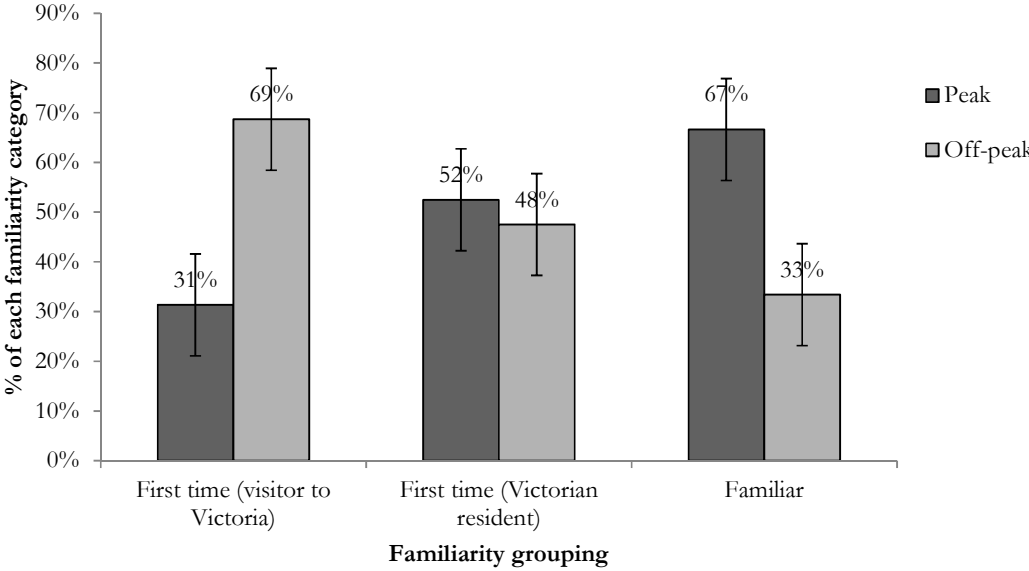
Figure 5-3: Proportion of peak and off-peak trips for each familiarity grouping
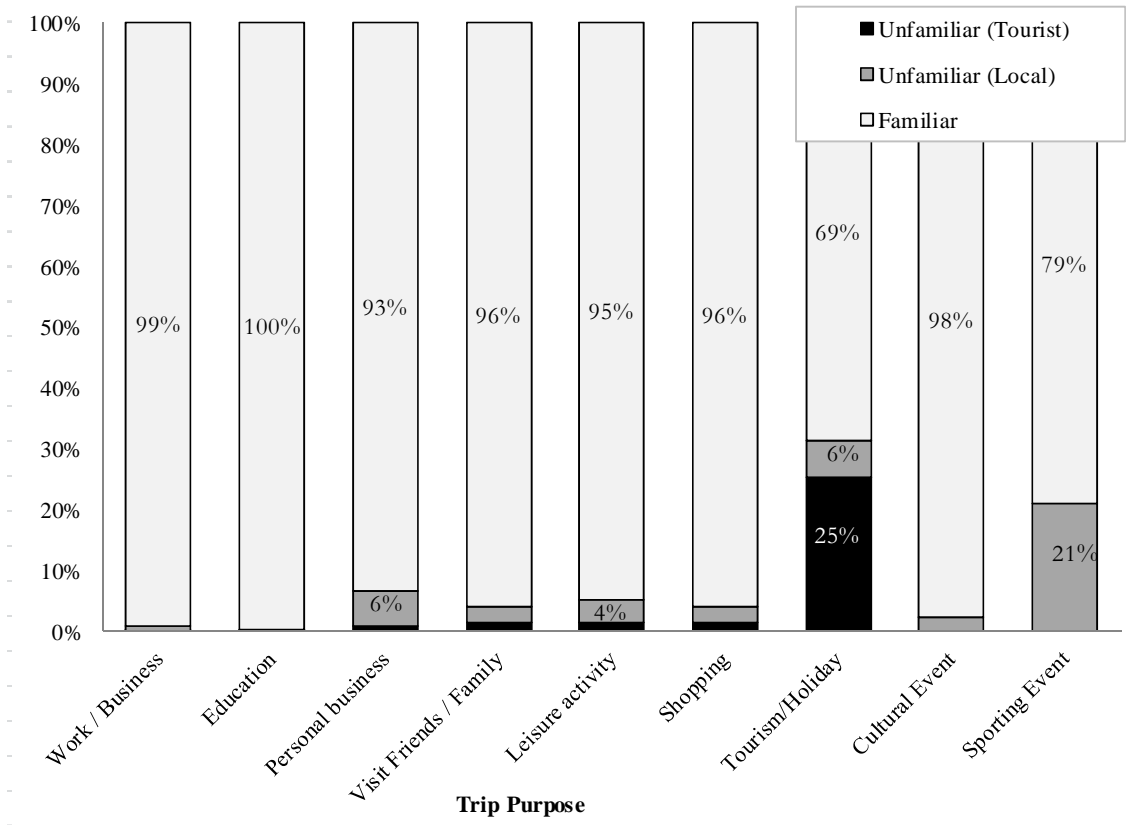
Figure 5-4: Proportion of familiar and unfamiliar travel in each trip purpose category

Next, analysis focussed on modes used to access stations and intended mode of egress for end-of-the-journey trip legs following the rail journey.

As illustrated in Figure 5-5, walking to stations was more common for visitors to Victoria (64%) than unfamiliar Victorian residents (50%) and familiar users (52%). Unfamiliar visitors to Victoria drove to the station the least (3%) followed by unfamiliar Victorian residents (7%), and then familiar users (12%). Unfamiliar Victorian residents were more likely to have accessed their rail station by train (18%) than either unfamiliar visitors to Victoria (3%) or familiar travellers (13%). Chi-square tests indicated that there was a statistically significant relationship between the familiarity groupings and access modes to the stations, χ^2 (16) =84.50, p<.01. Trends of egress were similar and also statistically significant, χ^2(14) =105.78, p<.01.
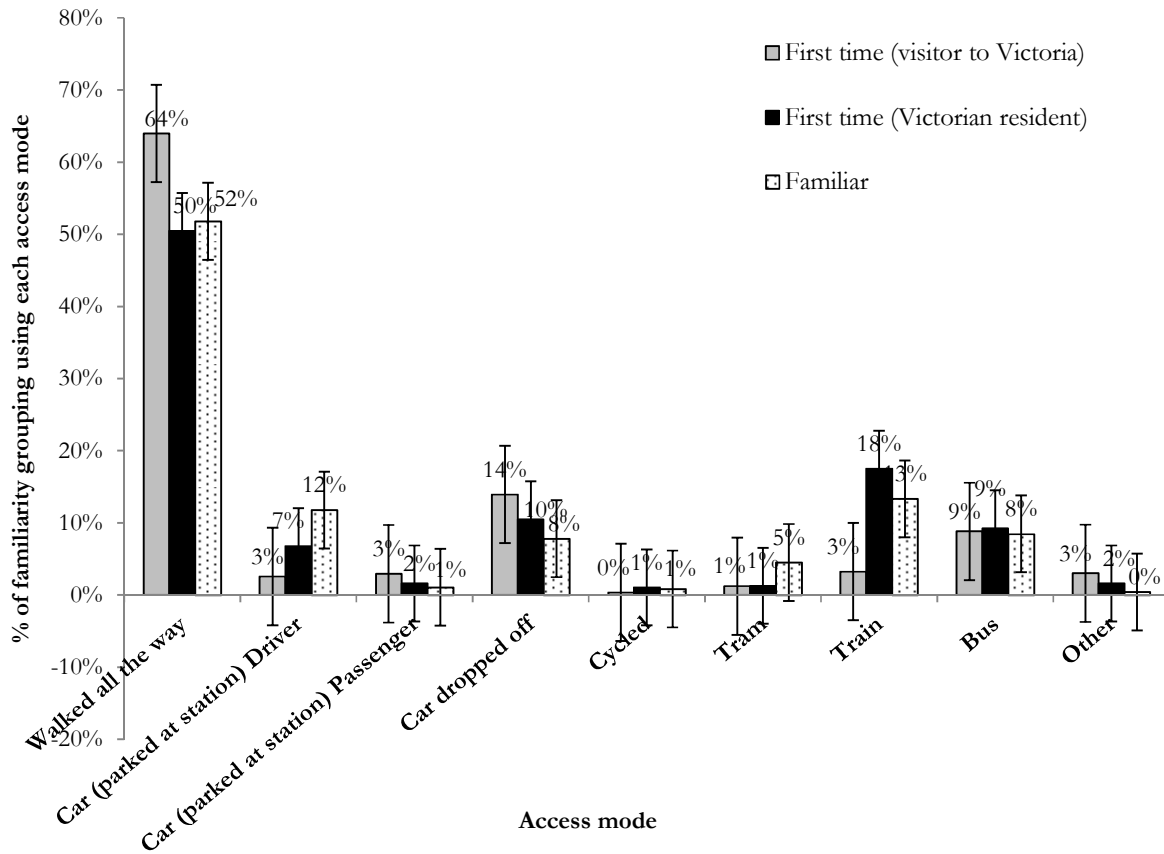
Figure 5-5: Proportion of access mode for each familiarity group

5.4.4 Spatial analyses

Spatial analyses were undertaken to ascertain if there were any notable geographical patterns related to unfamiliar travel. First the spatial analyses were undertaken by rail group and then in relation to distance from the CBD.

5.4.4.1 Origins

5.4.4.1.1 Rail groups (origins)

In terms of respondents' trip origins (Figure 5-3), both familiar and unfamiliar travellers had high levels of travel that originated in the Inner city / City loop stations and similar spatial distributions overall. However, comparison of the proportion of unfamiliar travel to familiar travel in each rail group (the percentage in parentheses) showed that the Burnley group had the largest share of unfamiliar travel compared to familiar travel. A Pearson's chi-square indicated that unfamiliarity was only marginally statistically significantly related to rail group used, $\chi^2(4)$ =8.42, p<.10. When further disaggregated between visitors, residents of Victoria, and familiar travellers, visitors were slightly more likely to originate from the Inner city/city loop and Burnley groups than the other rail groups, and unfamiliar residents were more likely to be travelling from the northern rail group χ^2 (8) = 29.44, p<.01.

Table 5-3: Distribution of unfamiliar travel origins by rail line

		Unfamiliar		Familiar		
		% Unfamiliar visitor	**% Unfamiliar resident**	*Total unfamiliar %*	**Familiar %**	**Total**
	Rail group	Column % (Row %)	Column % (Row %)	Column % (Row %)	Column % (Row %)	Column % (Row %)
Origin	**Inner city / City loop**	33% (0.4%)	29% (1.3%)	30% (1.7%)	34% (98.3%)	34% (100%)
	Northern	13% (0.3%)	22% (1.9%)	20% (2.2%)	18% (97.8%)	18% (100%)
	Clifton Hill	9% (0.4%)	11% (1.5%)	10% (1.9%)	10% (98.1%)	10% (100%)
	Burnley	28% (0.7%)	19% (1.6%)	21% (2.3%)	17% (97.7%)	17% (100%)
	Caulfield	16% (0.4%)	19% (1.3%)	18% (1.7%)	21% (98.3%)	21% (100%)
	Total	100% (0.5%)	100% (1.5%)	100% (1.9%)	34% (98.3%)	100% (100%)

Note: The first percentage shown in each box reflects the percentage of each column; the percentages below them, in parentheses reflect the percentage of trips in each row. For example, 33% of unfamiliar travellers that were visitors to Victoria were travelling from the Inner city/City loop rail group; this group comprised 0.4% of the total travellers on the Inner city/City loop.

5.4.4.1.2   Proximity to CBD (origins)

Analyses explored trip origins in relation to proximity to the CBD. This was achieved by grouping stations as follows:

- Stations within 6km of Southern Cross station were considered "Inner city"

- Stations between 6.01km – 12km were considered "Inner suburb"

- Stations between 12.01km – 32km were considered "Middle suburb"

- And stations that were more than 32.01km were deemed "Outer suburb/fringe"

These groupings are depicted in Figure 5-1 presented at the beginning of the chapter. By distance from the CBD (Table 5-4), the distribution of familiar and unfamiliar travel was similar, $\chi^2(3) = 3.47$, p>.10. When further disaggregated between visitors, residents of Victoria, and familiar travellers, no significant differences were found for proximity and category of familiarity, $\chi^2(6) = 6.90$, p>.10.

Table 5-4: Distribution of unfamiliar travel origins by proximity from CBD

		Unfamiliar			Familiar	
		% Unfamiliar visitor	% Unfamiliar resident	*Total unfamiliar %*	Familiar %	Total
	Proximity	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*
Origin	Inner city (<6km)	43% (0.5%)	37% (1.4%)	39% (1.8%)	40% (98.2%)	40% (100%)
	Inner suburb (6km-12km)	21% (0.5%)	16% (1.4%)	18% (1.9%)	18% (98.1%)	18% (100%)
	Middle suburb (12km-32km)	30% (0.4%)	38% (1.6%)	36% (1.9%)	36% (98.1%)	36% (100%)
	Outer suburb/ fringe (32km+)	6% (0.5%)	9% (2.1%)	8% (2.6%)	6% (97.4%)	6% (100%)
	Total	100% (0.5%)	100% (1.5%)	100% (1.9%)	100% (98.1%)	100%

Note: The first percentage shown in each box reflects the percentage of each column, the percentages below them, in parentheses, reflect the percentage of trips in each proximity group (by row), so for example, 43% of unfamiliar travellers that were visitors to Victoria were travelling from the Inner area; this group comprised 0.5% of the total travellers travelling from this area.

5.4.4.2 Destinations

5.4.4.2.1 Rail group (destinations)

In terms of destinations (Table 5-5), the spatial distribution of destinations was somewhat similar for familiar and unfamiliar travel. However, overall, a higher proportion of unfamiliar travel was to the Northern and Burnley rail groups than for familiar travel, and the relationship was found to be statistically significant, $\chi^2(4) = 19.64$, p<.01. Another Pearson's chi-square was conducted with familiar trips excluded to examine the relationship between destination geographical distribution and whether people were visitors to Victoria or residents. Whether or not someone was a visitor or resident of Victoria was observed to be marginally significant $\chi^2(4) = 8.07$, p<.10; notably visitors were more likely to be going to the inner city/city loop stations and somewhat more likely to be on the Clifton Hill line than Victorian residents.

Table 5-5: Distribution of unfamiliar travel destinations among rail lines

		Unfamiliar			Familiar	
		% Unfamiliar visitor	% Unfamiliar resident	*Total unfamiliar %*	Familiar %	Total
	Rail group	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*
Origin	Inner city / city loop	60% (0.5%)	49% (1.3%)	52% (1.8%)	52% (98.2%)	52% (100%)
	Northern	11% (0.4%)	16% (1.8%)	15% (2.1%)	13% (97.9%)	13% (100%)
	Clifton Hill	10% (0.4%)	7% (0.9%)	8% (1.3%)	11% (98.7%)	11% (100%)
	Burnley	7% (0.4%)	15% (2.5%)	13% (2.9%)	8% (97.1%)	9% (100%)
	Caulfield	12% (0.3%)	12% (1.1%)	12% (1.5%)	15% (98.5%)	15% (100%)
	Total	100% (0.5%)	100% (1.4%)	100% (1.9%)	100% (98.1%)	100% (100%)

Note: The first percentage shown in each box reflects the percentage of each column, the percentages below them, in parentheses, reflect the proportion of trips in each rail group (by row), so for example, 60% of unfamiliar travellers that were visitors to Victoria were travelling to an Inner city/City loop station; this group comprised 0.5% of the total travellers destined to these stations.

5.4.4.2.2   Proximity (destinations)

In terms of respondents' destinations examined by proximity from the CBD, 60% of the total unfamiliar travellers were traveling to an Inner rail station which was a slightly higher proportion compared to familiar travellers (57%). Similarly, a higher share of unfamiliar travel was destined to Inner suburban stations than familiar travel (15% compared to 12%), and a lower share was destined to Middle suburb stations (18% compared to 25%, respectively).   The proximity distribution of destination stations was different enough between familiar and unfamiliar travellers that a Pearson's chi-square indicated that familiarity was significantly related to the proximity groupings, $\chi^2(6) = 16.22$, p<.05. Interestingly, another chi-square test found that whether or not someone was a visitor or resident of Victoria was not significant to spatial proximity of destinations $\chi^2(3) = 2.31$, p>.10.

Table 5-6: Distribution of unfamiliar travel destinations by proximity from CBD

		Unfamiliar			Familiar	
		% Unfamiliar visitor	% Unfamiliar resident	*Total unfamiliar %*	Familiar %	Total
	Proximity	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*	*Column % (Row %)*
Origin	**Inner city (<6km)**	66% (0.5%)	59% (1.4%)	60% (2.0%)	57% (98.0%)	57% (100%)
	Inner suburb (6km-12km)	11% (0.4%)	17% 2.0%	15% (2.4%)	12% (97.6%)	12% (100%)
	Middle suburb (12km-32km)	17% (0.3%)	18% (1.0%)	18% (1.3%	25% (98.7%)	25% (100%)
	Outer suburb/ fringe (32km+)	6% (0.4%)	7% (1.5%)	6% (1.9%)	6% (98.1%)	6% (100%)
	Total	100% (0.5%)	100% 1.4%	100% (1.9%)	100% (98.1%)	100%

Note: The first percentage shown in each box reflects the percentage of each column, the percentages below them, in parentheses, reflect the proportion of trips in each proximity group (by row), so for example, 66% of unfamiliar travel by visitors to Victoria were travelling to an Inner rail station; this group comprised 0.5% of the total travellers destined to these stations.

5.4.4.3   Trip origin and destination flows

In order to further understand the spatial distribution of unfamiliar travel, spatial analysis was undertaken combining the origins and destinations of journeys (Table 5-7). It is evident that the largest share of the overall unfamiliar travel was from the Middle suburbs to the Inner rail stations

(26%), followed by Inner suburb and Inner city trips to the Inner city (15% each). Thus the results demonstrate a clear trend for unfamiliar travel to occur close to the CBD.

Table 5-7: Trip origin-destination flows for all unfamiliar travel

	Proximity	Inner city (<6km)	Inner suburb (6-12km)	Middle suburb (12-32km)	Outer suburb/fringe (32+km)	Total
Origins	Inner (<6km)	15%	11%	10%	3%	39%
	Inner suburb (6-12km)	15%	2%	0%	0%	17%
	Middle suburb (12-32km)	26%	2%	6%	2%	36%
	Outer suburb/fringe (32+km)	4%	0%	2%	1%	8%
	Total	60%	15%	18%	6%	100%

Next, Table 5-8 shows the spatial distribution of unfamiliar travel for visitors to Victoria (only). For visitors, the highest shares of travel were again to the CDB (66%) with 23% of such trips to the CBD originating in Middle suburbs and 23% originating in Inner suburbs. The next biggest concentration of unfamiliar visitors were beginning their trips in the CBD but travelling to the Middle suburban area (15%).

Table 5-8: Trip origin-destination flows for visitors to Victoria

	Proximity	Inner city (<6km)	Inner suburb (6-12km)	Middle suburb (12-32km)	Outer suburb/fringe (32+km)	Total
Origins	Inner (<6km)	14%	9%	15%	2%	41%
	Inner suburb (6-12km)	23%	0%	0%	0%	23%
	Middle suburb (12-32km)	23%	2%	2%	3%	30%
	Outer suburb/fringe (32+km)	5%	0%	1%	0%	6%
	Total	66%	11%	17%	6%	100%

For unfamiliar travellers who are Victorian residents (Table 5-9), the spatial distribution of travel is similar to the overall unfamiliar travel presented in Table 5-7.

Table 5-9: Trip origin-destination flows for Victorian residents

		Destinations				
	Proximity	**Inner city (<6km)**	**Inner suburb (6-12km)**	**Middle suburb (12-32km)**	**Outer suburb/fringe (32+km)**	**Total**
Origins	**Inner (<6km)**	15%	12%	8%	3%	39%
	Inner suburb (6-12km)	12%	2%	0%	0%	15%
	Middle suburb (12-32km)	27%	1%	8%	2%	38%
	Outer suburb/fringe (32+km)	4%	0%	2%	1%	8%
	Total	59%	17%	18%	7%	100%

Key findings from the spatial distribution analysis were thus:

- Overall, in terms of origin rail groups, unfamiliar travel tended to be distributed similarly to familiar travel. From a disaggregated perspective, unfamiliar travellers who were visitors were slightly more likely to have travel originating from the Inner/City loop area than Victorian residents.

- Similarly origins by proximity from CBD were similar between unfamiliar and familiar travellers.

- In terms of destinations, unfamiliar travel was more likely to be to destinations in the Burnley rail group and the Northern rail groups than for familiar travel. Visitors were more likely to be going to destinations in the Inner/City loop and the Clifton Hill rail groups than residents for unfamiliar travel. Examining destinations by proximity, a greater share of unfamiliar travel was to inner suburban rail stations compared to familiar travel. The latter group had a higher tendency to travel to middle suburban rail stations.

- Looking at origins and destinations together in terms of flows, the greatest share of unfamiliar travel was from Middle suburbs to the Inner rail stations; this was followed by inner suburb to inner city travel and inner-inner travel.

5.4.5   Experience of unfamiliar travel

The O-D survey had limited scope to address Research Question 2, "*What experiences are associated with first trips on public transport?*" because only one multiple choice question related to experience was included in the O-D survey. This was question 11 which asked how satisfied participants were with their most recent experience of the service, with possible responses ranging from 'very satisfied' to 'very dissatisfied'. To be consistent with other research methods in this thesis, these ratings were coded into a 5-point rating scale with 'very satisfied' valued as a '5' and 'very dissatisfied' valued as a '1'. By comparing these reported satisfaction levels of familiar travellers with those of the unfamiliar travellers waiting to undertake their return trip; we can address RQ2, at least to a degree.

This comparison was first performed with an independent samples t-test undertaken to compare all unfamiliar travel with familiar travel. Interestingly satisfaction levels were significantly higher for unfamiliar travellers (M=4.16, SD=0.60) than for familiar travellers (M=3.70, SD=0.88) and this difference was highly significant, $F(1, 22,619) = 9.85$, $p<.01$.

An ANOVA was then conducted with all three groups separated out (unfamiliar residents, unfamiliar Victorians, and familiar travellers). As shown in Figure 5-6, it was found that visitors to Victoria reported the highest satisfaction level ratings (M=4.35, SD=0.54), unfamiliar Victorian residents reported the next highest ratings (M=4.09, SD=0.61), and familiar users reported the lowest satisfaction levels (M=3.70, SD=0.88). The differences were observed to be significantly different $F(2, 22,618) = 5.21$, $p<.01$.
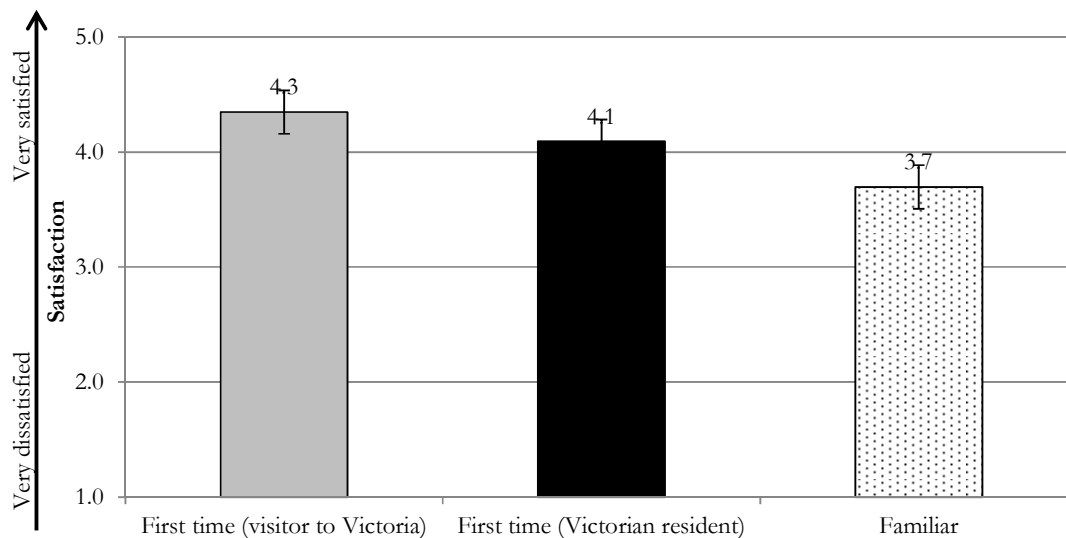
Figure 5-6: Mean satisfaction levels of previous use of service between unfamiliar users awaiting return trip and familiar travellers

It is worth noting that for this analysis, like all of the statistical tests presented thus far (unless otherwise stated), the standardised weightings were applied. The analyses were also repeated without any weightings applied in order to check if the weightings were causing any anomalies and the results were found still to be similar. However, there were only 53 actual respondents who had undertaken unfamiliar travel earlier in the day (22 visitors and 31 Victorian residents) the remainder of the unfamiliar travellers had not yet undertaken their trip. Conversely, 22,571 familiar travellers were able to answer the question about their recent experience. While the findings were statistically significant, given the relatively small number of unfamiliar travellers and that satisfaction was only evaluated on one variable, some caution should be applied in interpreting the results.

Because overall satisfaction was not observed to be significantly different in two of the other research methods contained in this thesis (the University Access Survey and the Journey Planner Poll and Follow-up Survey), the overall interpretation about unfamiliar experiences remains somewhat ambiguous. In order to further address this ambiguity, or the emerging question, "does familiarity breed overall dis-satisfaction with services?" the mean satisfaction ratings by frequency of travel were compared to ascertain if there were any trends. The results of this analysis are provided in Table 5-10 and suggest that indeed, perhaps this is the case. Correlation analysis of the relationship between frequency of service use and satisfaction ratings was highly statistically significant, with more frequent use of services associated with reduced satisfaction ratings, $r = -.08$, $p<01$.

Table 5-10: Mean satisfaction ratings based on familiarity

Frequency of use	Mean rating
First time (visitor)	4.35
First time (resident)	4.09
Hardly ever (1 or 2 times a year)	3.85
Less often than once a month	3.81
At least once a month (12-52 times a year)	3.87
Once a week	3.83
More than once a week	3.66

Thus, with regard to RQ2, based on the previous research and the current research, overall, in terms of experience, it seems that certain aspects like navigation and emotion tend to be lower for unfamiliar travel, but not necessarily the overall 'satisfaction' of the journeys, which may, in fact, be higher. A subsequent analysis investigated other variables that could affect trip satisfaction as well

as unfamiliarity using a multiple regression approach. The following factors were all input as predictor variables:

- Peak or off-peak

- Origin distance from the CBD (grouped)

- Destination distance from the CBD (grouped)

- Familiar or unfamiliar (with all unfamiliar trips combined)

- Journey purpose

- Age

- Gender

The results from this regression analysis are shown in Table 5-11 below.

Table 5-11: PT experience, by variables and familiarity

	Satisfaction
Independent Variable	*Standardised Betas*
Unfamiliarity	-0.01
Trip purpose	0.09**
Origin proximity from Southern Cross	0.03**
Destination proximity from Southern Cross	0.02**
Peak or off-peak	0.02**
Age	0.01
Gender	-0.05**
Adjusted R^2	**0.013**
F	**41.90****

Note: *$p<.05$, **$p<0.01$

While the model was statistically significant, unfamiliarity and age were not observed to be significant predictor variables, thus implying that although frequency of use and satisfaction ratings are significantly correlated, unfamiliarity does not appear to be the variable impacting differences in satisfaction ratings. Overall the R Square value of the multiple regressions was relatively low indicating that all of the factors considered only explain 1% of the variation in satisfaction ratings.

5.5 *Discussion and conclusions*

Of all of the research methods included in this thesis, the O-D survey most directly investigates the prevalence of unfamiliar travel on trains due to its large and non-self-selected sample size. Although

unfamiliar travel only represented 2% of the total public transport travel, this equated to approximately 10,000 journeys per weekday which is a fairly substantial market. Moreover, when examined without weightings, unfamiliar travel comprised 3% of all of the journeys undertaken. Measurement of prevalence might have been slightly skewed by the fact that the survey was primarily conducted during peak time periods. This may have had the effect of over-representing unfamiliar travel occurring during peak periods, and because it was observed that unfamiliar travel is more likely to occur at off-peak times (both in this method and in the Journey Planner Poll and Follow-up Survey), the overall prevalence of unfamiliar travel was thus likely under-represented. The time of survey may have also at least partly explained why 91% of first trips had not yet occurred and only 9% were trips that had been undertaken for the first time earlier in the day (with these participants undertaking the return trip). As described previously it is also plausible that some of the respondents may have reported, 'hardly ever', in instances when they had undertaken a first trip earlier in the day and were now repeating that travel in the reverse direction. Thus the prevalence of first trips might have been slightly higher and higher proportional to familiar travel if the surveys covered more transit operating hours.

In terms of other aspects of Research Question 1, 'under what circumstances does unfamiliar travel occur?' it was found that unfamiliar travel, compared to familiar travel, was more likely for:

- People over the age of 50
- Off-peak trips, particularly for visitors to Victoria
- Tourism, sporting events and personal business

Unfamiliar travellers who were visitors to Victoria were proportionally more often over the age of 50 than unfamiliar residents who were proportionately younger. Unfamiliar travellers who were visitors to Victoria had more often walked to stations to undertake their travel than familiar users or local unfamiliar travellers. In contrast, familiar travellers and unfamiliar residents had more often travelled by car to stations. The latter group were also the most likely to have accessed rail stations by other train services. The pattern of egress from stations was similar and also statistically significant.

By rail group, unfamiliar travellers who were visitors were slightly more likely to have travel originating from the Inner/City loop area than Victorian residents. Origins by proximity from CBD were similar between unfamiliar and familiar travellers. In terms of destinations, unfamiliar travel was more likely to be to destinations in the Burnley rail group and the Northern rail groups than for familiar travel. Visitors were more likely to be going to destinations in the Inner/City loop and the

Clifton Hill rail groups than residents for unfamiliar travel. Examining destinations by proximity, a greater share of unfamiliar travel was to Inner suburban rail stations compared to familiar travel. Familiar travellers had a higher tendency to travel to Middle suburban rail stations. Looking at origins and destinations together in terms of flows, the greatest share of unfamiliar travel was from middle suburbs to the Inner rail stations; this was followed by Inner suburb to Inner travel and Inner-Inner travel. It is interesting to postulate reasons for the spatial distribution observed. As we observed earlier in the chapter, a fair proportion of travel related to sporting events and tourism was by unfamiliar travellers. The primary sporting arenas and a number of tourist destinations and tourist accommodation options are close to the CBD which may explain some of this trend. Moreover, Melbourne's public transport network is particularly radial, involving travel through the CBD to get to many destinations. Also, the service levels of public transport tend to be better closer to the city with more public transport options and in many cases, higher frequency of services. Perhaps this improved service level facilitates unfamiliar travel. Finally, in encouraging more unfamiliar trips, some of our other research indicated that unfamiliar travel may occur in relation to beginning new jobs and the CBD is a huge employment centre which may also explain some of the trend.

In relation to Research Question 2 (experience of unfamiliar travel), it was observed that that on average, unfamiliar travellers were more satisfied with their recent travel than familiar travellers. However, only 53 unfamiliar travellers responded to this question. Thus, some caution should be used in evaluating the results, particularly as unfamiliar travel tended to be more spatially-oriented toward the CBD, where service levels are higher, potentially positively influencing trip satisfaction.

It is worthwhile considering this finding in relation to our previous research examining unfamiliar travel experiences. As will be revealed in the next two chapters, the University Access Survey found significant differences in trip experience for; 'ease of navigation' (wayfinding), 'emotional state', 'ease of navigating transfer', and 'ease of ticketing' which were all more negative for unfamiliar travellers. However, no attributes of trip experience were rated significantly more positive. In the Journey Planner research method, two experiential variables were significantly more negative for unfamiliar travel (navigation and emotional state) and two were significantly more positive ('actual travel time versus expected travel time' and 'comfort'). However in both of these research methods, overall satisfaction was neither rated significantly higher or lower between unfamiliar travel and familiar travel. In the University Access Survey it was rated equally between groups and in the Journey Planner research it was rated marginally higher for unfamiliar travellers (though not at a significant level). Thus this finding was not in contrast to previous research though it was a new variable that

was significantly different, which leaves the overall interpretation about unfamiliar experiences somewhat ambiguous.

Interestingly subsequent statistical analysis indicated that satisfaction ratings were significantly correlated to frequency of use, with more frequent use associated with lower satisfaction ratings. This finding is consistent with research by Rochefort (1981) who found that regular bus users found the bus system so poor that they could not imagine any improvements, nonusers of the system had a positive opinion of the existing system, though they would never consider using it; and occasional users had a very poor opinion of the system. Thus it seems that higher usage of systems may breed contempt. However, the multiple regression analysis in the present study indicated that a number of other variables explained variance in satisfaction levels better than familiarity and frequency of use. And while statistically significant, the multiple regressions did not have a high R-squared value, so much of the variation in satisfaction ratings was not covered by variables that were measured, so the results are certainly not clear and as this issue was not the focus of the study further examination would be beneficial.

Overall the O-D survey was very informative in answering Research Question 1, under what circumstances do first trips occur and offered some interesting insights about Research Question 2. The results found in this chapter, taken together with the other research methods help to provide a more informed picture of unfamiliar travel.

In the next chapter (University Access Survey) Research Question 2 will be examined in more depth and Research Question 3 will also be examined quantitatively.

6 University Access Survey

6.1 Introduction

The previous two chapters have provided some useful initial insights into unfamiliar public transport travel. Chapter 4 (Interviews) provides an indication of the important characteristics of unfamiliar public transport travel based on the qualitative Interviews. Meanwhile Chapter 5 (Origin-Destination Survey) identifies the circumstances of unfamiliar journeys and, in particular, highlights the differences between unfamiliar journey patterns for visitors and local residents. However quantitative analysis of experiences and impacts of unfamiliar journeys has thus far been limited in these chapters. Moreover, the circumstances of the unfamiliar and familiar journeys being compared have differed, particularly in the Origin-Destination Survey chapter, Thus further consideration of unfamiliar journey experiences and the impact on attitudes and behaviour is needed, particularly with controlling for trip origin-destination variability.

The present chapter (Chapter 6) documents the University Access Survey. This is a 'within-subjects', or 'repeated measures' based research method, meaning that there was only one group of participants and comparisons were made between their different reports, in this case, first trips being compared to subsequent travel. The research examines experiences and impact of first trips on attitudes and behaviour. This is achieved by surveying participants' about their first and subsequent public transport journeys to university campus.

A number of publications resulted from this research method including one journal article and two conference papers:

> Schmitt, L, G. Currie, and A. Delbosc (2013a)"Measuring the impact of unfamiliar transit travel using a university access survey." Transport Policy no. 30:301-307
>
> Schmitt, L., G. Currie, and A. Delbosc (2013c). Exploring the Impact of Unfamiliar Transit Travel on Attitudes and Behavior. Presented at Transportation Research Board 92nd Annual Meeting.
>
> Schmitt, L., G. Currie, and A. Delbosc (2012). Exploring First Impressions of Public Transport Services through a University Access Survey. Presented at Australasian Transport Research Forum (ATRF), 35th, 2012, Perth, Western Australia, Australia

The chapter begins by stating the aims of the University Access Survey which is followed with a description of the research method. The results are then presented which is followed by a

discussion which reviews a highlight of the results and the implications of these findings which is complemented by a discussion of the limitations of the research.

6.2 Aims

In the context of the University Access Survey, 'first trips' referred to participants' first time travelling to Monash University by public transit.

This research method aimed to address Research Questions 2 and 3:

- RQ2: What experiences are associated with first trips?
- RQ3: To what extent do first trips impact attitudes and behaviour related to mode choice?

The research aimed to address Research Question 2 by comparing individuals' ratings of a number trip experiences attributes from their first trips to a university campus with those of subsequent travel to that campus (section 6.4.3). The mechanism by which this is achieved will be explained in more detail in the Method section, 6.3.

As reviewed in Chapter 2 (the Review of Literature), the Theory of Planned Behaviour (TRB) posits that attitudes, along with perceived behavioural control and social norms, are an important predictor of future behaviour (Ajzen 1991). This chapter aims to address Research Question 3 within this framework. In order to investigate the relationship between first trips and attitudes, Rate of recall is also examined in section 0 to evaluate if first trips are particularly memorable, consistent with the primacy effect and also supporting the relevance of the TPB. Correlations between first trips and subsequent trips (which serve as a measure of attitudes) are examined in section 6.4.4. Then in order to examine the behavioural element of the TPB and RQ3, first trip ratings are examined along with current travel behaviour in section (6.4.5). Thus this chapter aims to ascertain whether consistent with the primacy effect, first trips impact attitudes, and thus, under the model of TPB, impact subsequent travel behaviour.

The University Access Survey also explores another aspect of Research Question 3 that was highlighted in the Review of Literature (Chapter 2), 'choice set' and 'captivity'. Recall from Chapter 2 that 'choice set' refers to the set of travel options from which travellers select and when travel choices are perceived to be limited, the person is considered 'captive' to a way of travelling (Ergün et al. 1999). In the present chapter captivity is considered in terms of whether participants have access to a car that could be used for their travel to a university in analysing mode choice behaviour.

Interestingly, Van Exel and Rietveld (2009) found that when education was one's trip purpose, there were lower instances of cars in the choice set. For this reason, captivity was particularly worthwhile to consider for this research method as a means of controlling for choice set bias.

In addition to these aims, this chapter next describes the research method in more detail. Following the presentation of quantitative results in sections 6.4.1 - 6.4.5, analysed qualitative results from the survey are presented 6.4.6. Finally section 6.5 offers a discussion of the results and implications of the University Access. The research method will now be described.

6.3 Method

The University Access Survey utilised a web-based survey to collect data from Monash University students and staff. Monash University has five campuses which have significant variation in the level of transit access available to each campus.[14] All of these campuses are within Melbourne's metropolitan area though varying in proximity to Melbourne's CBD. The biggest campus of Monash University is the Clayton campus which is approximately 20km from Melbourne's CBD. It does not have a rail line but instead is serviced by buses, many of which connect with rail stations in the area. The next biggest campus, the Caulfield campus, is closer to the city and is along two busy train lines and is also serviced by trams and buses. The other campuses also vary in public transport accessibility but significantly smaller than these two main campuses. Unfortunately the survey did not ask respondents to specify which campus their journeys were in reference to; however given much greater size of the Clayton and Caulfield campuses, it is likely that most journeys were to one of these campuses.

One advantage of the design of this method was that it simplified analyses since travel was to university campuses. This meant that many of the trip purposes were likely to be fairly similar (education and work) and it was likely that only a limited number of services were being used. Also, research suggests that tertiary students use public transport more than other populations. For example, Hebel (2009) undertook research; examining mobility behaviour in Polish towns and cities between 2000 and 2008. His research found that the most frequent public transport users were undergraduates who used public transport significantly more than wage earners and the

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14 At the time of data collection, another campus based in regional rural area, Gippsland, was also part of Monash University

unemployed. Similarly students have been observed to be extremely multimodal in comparison with other populations and they often use public transport both for commuting and other purposes (Kuhnimhof et al. 2006). In addition, since memories fade over time, universities offer an especially valuable opportunity to examine first trips. It seems likely that most of the students, at least, will have first travelled to the campus within the last 6 years.

6.3.1 Participants and procedure

Participants were primarily recruited using an electronic newsletter which is sent weekly to all university staff and postgraduate students (refer to Figure 6-1 below). An advertisement was included in the 'participants sought' section of the newsletter with the title, "Public Transport Experience Survey" over a seven month period from August 2011 – March 2012. This broad survey title was used to reduce self-selection by camouflage the aims of the survey. Potential participants clicked a hyperlink to access an information page which provided a description of the research and then offered a link to the survey hosted by 'Survey Monkey', a popular web-based survey provider. Unfortunately no equivalent newsletter is sent to undergraduate students, so some additional recruitment mechanisms were utilised to increase the number of responses and attract a wider array of participants. Fliers were disseminated at a cycling event on campus ('ride to work') and some advertisements, equipped with tear-off tabs with the web address of the survey, were posted in the campus centre.

Prospective participants were able to click a hyperlink which brought them to a page with a short description of the research and a hyperlink to the survey. Upon clicking the hyperlink and being directed to the survey, participants were first presented with an explanatory statement which was followed by the questionnaire (refer Appendices 10 and 11).
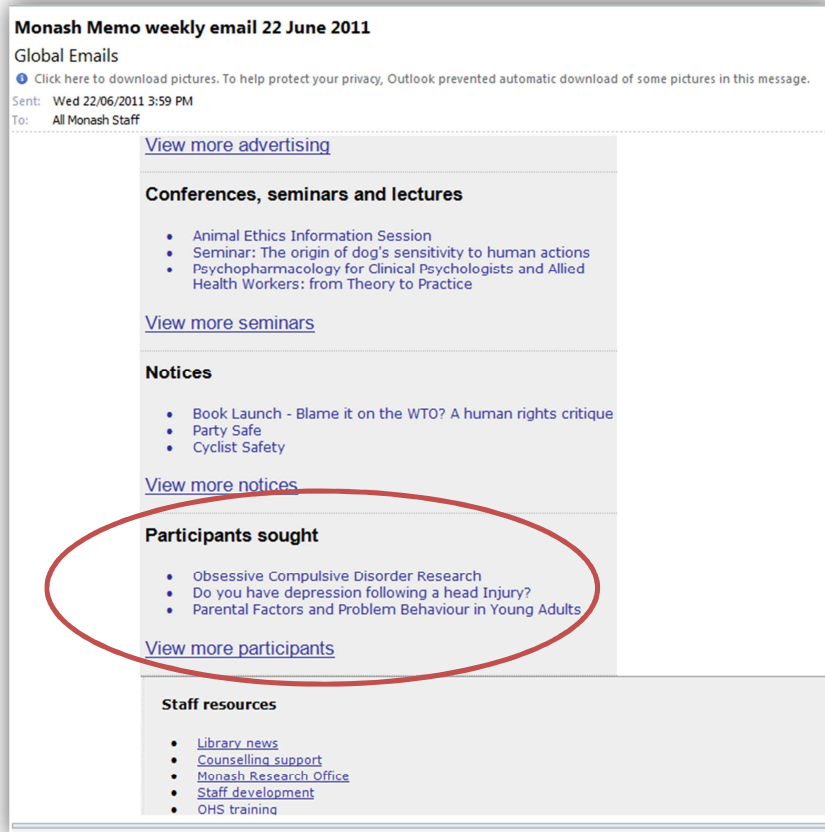
Figure 6-1: Example of the weekly Monash email memo

6.3.2 Questionnaire

Both the explanatory statement and the full questionnaire are provided in Appendices 10 and 11. The questionnaire asked about use of public transport for travel to and from Monash University, along with current travel behaviour habits, and other background variables.

Experiences of public transport were rated using eleven experiential factors (e.g. ease of navigation, sense of security etc.) with a five-point rating scale where low numbers indicated negative experiences (Table 6-1). Because each attribute's scale had a different 'start' and 'end', each rating scale was presented as a separate question such as, "thinking back to your first public transport trip to Monash, how would you rate your…?"

Table 6-1: Transit experience attributes measured[15]

Attribute	Rating scale	
Ease of navigation	1. Extremely difficult to understand	5. Very easy to understand
Ease of ticketing	1. Extremely difficult to understand	5. Very easy to understand
Ease of navigating transfer	1. Very confusing	5. Not at all confusing16
Expected vs actual travel time	1. Much longer than expected	5. Much quicker than expected
Time consciousness	1. Very concerned about being late	5. Not worried about being late at all
Comfort	1. Very uncomfortable	5. Very comfortable
Amenity	1. Very unattractive	5. Very attractive
Security	1. Very unsafe	5. Very safe
Emotional state during the trip	1. Very anxious	5. Very relaxed
Convenience	1. Very inconvenient	5. Very convenient
Satisfaction	1. Very unsatisfied	5. Very satisfied

In order to conceal the intent of the full survey to reduce response bias, participants were first asked to rate their overall experience of travelling to Monash by public transport. This was also intended to gauge overall attitudes toward the public transport access to Monash University. Respondents were then asked to rate their experience from their first journey by public transport to the university. In addition, participants were asked about a number of factors that may have affected the first trip experience such as: how long ago their last trip to the university occurred, whether or not they were travelling with someone else and how many times they had visited to the campus before by another mode. In order to account for the influence of "captivity" in terms of re-patronage of public transit, participants were also asked how often they have access to a private vehicle for travel to and from the university.[17]

There were also a number of questions about past and current travel habits. For example, participants described which modes they used to travel for the longest portion of their journey to and from the university in an average week (they could select a number of days for each mode

15 For first trips all attribute ratings included a 'don't recall' option

16 Also included the option "Did not have to transfer"

17 Possible responses included, "Yes, on all days", "Yes, on most days", "Yes for some days", "Only occasionally" and "No, never".

including the potential answer, 'did not travel'). In terms of sample representativeness, the responses to this query suggested that the sample was generally modally representative of the wider university population based on the campus wide annual travel survey, though there was some over-representation of transit travellers (51% in the University Access Survey vs 39% in the wider university population). This question was also used to analyse any trends related to first trip experiences and subsequent public transport use.

The last question of the survey invited participants to indicate whether or not they were willing to be contacted in the future should further research in the area be desired. It was noted that contact details would be stored separately from the survey results and would not commit people necessarily to partaking in further research.

6.4   Results

This section reviews the results discovered through analysis of the University Access Survey responses. The results were extracted from Survey Monkey, coded to feed into SPSS for analysis and then analysed using various functions and tests in SPSS.

6.4.1 Sample size and characteristics

A total of 285 participants began the survey with 249 participants completing all questions representing an 87% total completion rate. Demographically (Table 6-2) the sample consisted of 69 males and 180 females with a wide range of age groups, the largest of which was females between 31 - 40 years old. The vast majority of participants (73%) had lived in Melbourne for more than 4 years at the time of undertaking the survey.

Table 6-2: Socio-demographic characteristics of the sample

Age	%
18-25	26%
26-30	17%
31-40	31%
41-50	10%
51-60	13%
61+	3%
Gender	
Male	28%
Female	72%

6.4.2 Rate of recall

Given that much of the background literature reviewed suggests higher rates of cognitive awareness during unfamiliar travel and the importance of the primacy effect generally, it was predicted that first transit trips to the university would be associated with relatively high rates of recall in the study. This premise was supported with some 148 (59%) respondents reporting being able to recall their first trip, 60 (24%) 'partly' remembered it, while only 44 (18%) of respondents reported not being able to recall the trip at all. This finding was particularly suggestive of how important first trips are given the reported lapse of time since the first trips occurred. Of the 207 participants who were asked how long ago the trip occurred[18,] the majority (59%, representing 121 respondents) reported that the trip had occurred more than two years ago and 29 respondents (14%) stated that the trip had occurred between one and two years ago. Only 57 respondents (20%) reported that their first trips had occurred within the last year.

6.4.3 Experiential attitude ratings

The mean ratings for each of the experiential attributes measured are depicted in Figure **6-2**. For all attributes, mean overall trip experiences had higher ratings than first trip experiences (which were more negative), except for amenity and for some attributes the difference was marginal. Challenges were particularly apparent for the attributes: 'ease of navigation' (wayfinding), 'emotional state', 'ease of navigating transfer', and 'ease of ticketing' for the 'first' journeys.

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18 those that reported not being able to recall their first trip were not asked this question

Figure 6-2: Mean experiential attribute ratings for first and overall trips
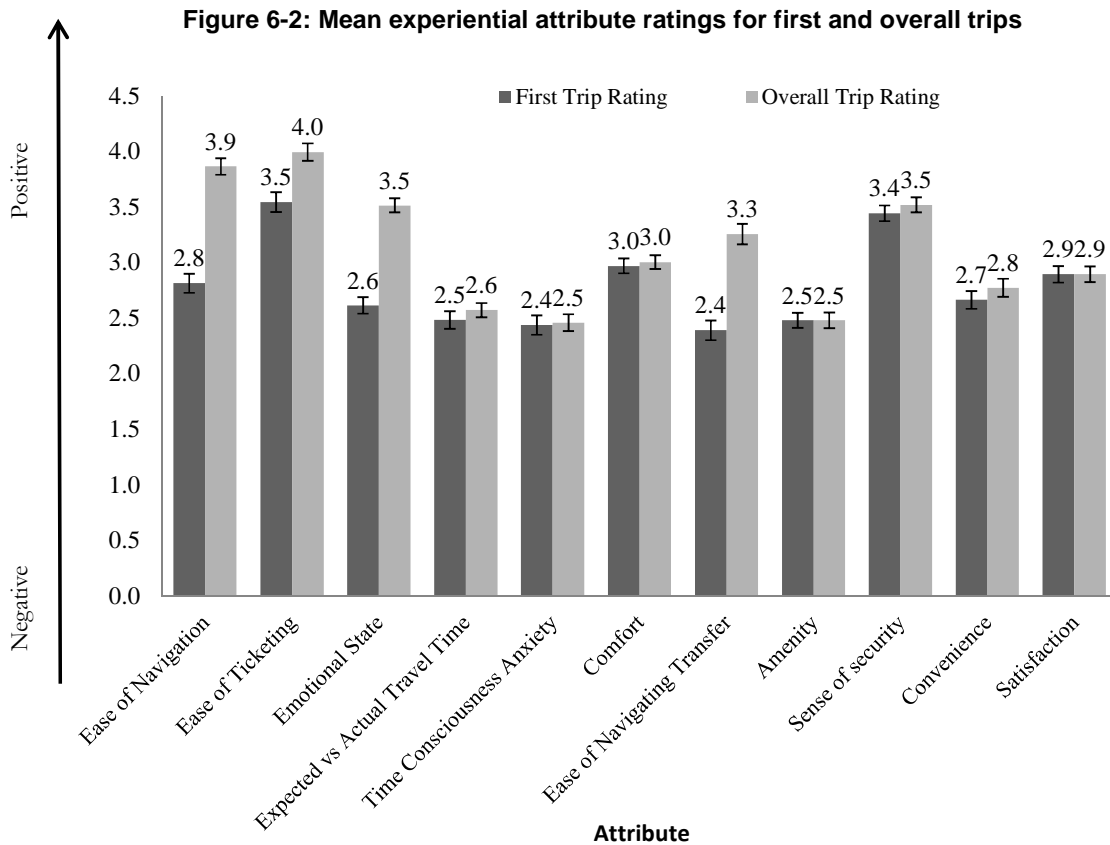
Statistical analysis of the patterns evidenced in Figure 6-2 was then undertaken using paired sample t-tests[19]. Table 6-3 presents the difference in means between first and overall trips for all attributes with asterisks denoting significance (*=<0.05; **=<0.01). The mean attribute ratings were significantly lower for first trips than for overall trip experiences for the attributes 'ease of navigation', 'emotional state', 'ease of navigating transfer', and 'ease of ticketing' by 21%, 18%, 17%, and 9% respectively. The differences in mean attribute ratings were not found to be significant for the other attributes.

A point worth noting in interpreting this data is that public transport services used may have changed over the years either as the services themselves change or people move homes and thus where they travel from. Indeed as shown in

Table 6-4 below, there was a large number of people reporting using different (34%), or at least partially different (27%), services for their most recent use of public transport to travel to campus

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19 All 'don't recall' and 'did not have to transfer' responses were excluded from this analysis

than their first trip to campus by transit. However no further details of how services used have changed was requested. It is simply worth considering these service differences in interpreting the results.

Table 6-3: Differences in mean ratings between first and overall trips for each attribute

Measure	First	Overall	Difference (first –overall)	% Difference
Ease of navigation	2.8	3.9	-1.1**	21%
Ease of ticketing	3.5	4.0	-0.5**	9%
Emotional state	2.6	3.5	-0.9**	18%
Expected vs actual travel time	2.5	2.6	-0.1	2%
Time consciousness anxiety	2.4	2.5	0.0	0%
Comfort	3.0	3.0	0.0	1%
Ease of navigating transfer	2.4	3.3	-0.9**	17%
Amenity	2.5	2.5	0.0	0%
Sense of security	3.4	3.5	-0.1	2%
Convenience	2.7	2.8	-0.1	2%
Satisfaction	2.9	2.9	0.0	0%

Note: **$p<0.01$ and *$p<0.05$

Table 6-4: First and last transit journey to campus the same

Same services on first and last transit journey?	%
Same	40%
Partially the same	27%
Different	34%

6.4.3.1 Factors potentially impacting trip experiences

A number of variables that might have affected journey experiences were investigated to ascertain how they would have influenced trip experiences. These included whether one had previously been to the university by another mode of transport and whether one had travelled alone or with a companion. These two variables are explored below.

It was hypothesised that first trip ratings would be affected by whether or not participants' had previously visited the campus by another mode of transport prior to their first journey by public transport (and were thus somewhat familiar with the campus location). The survey asked how many times the respondent had visited Monash University before their first public transport trip.

These possible responses were then grouped together[20] and analysed.[21] Differences in averages of all attribute ratings were analysed using one-way ANOVAs (Table 6-5). Even though the mean first trip rating for those who had visited the campus three times or less prior to the first trip was less than those who had visited campus four or more times prior to their first trip (2.73 for the former, 2.87 for the latter as shown in Table 6-5), no significant differences were found for Grouping I, $F(1, 196) = 1.59$, $p > .05$, $w = .05$. This indicates that having visited the campus previously by another mode did not significantly impact first trip experiences.

Table 6-5: One-way ANOVA of each attribute rating for previous campus visit groups

Variable	Mean first trip rating (0-3 previous visits)	Mean first trip rating (4+ previous visits)	df	F	p	w[22]
Average of all attribute ratings	2.73	2.87	1, 196	1.59	.21	
Ease of navigation	2.68	2.96	1, 190	2.68	.10	
Ease of ticketing	3.52	3.55	1, 181	.03	.87	
Emotional state	2.47	2.79	1, 193	4.64	.03*	.14
Expected vs actual travel time	2.39	2.51	1, 183	.58	.45	
Time consciousness anxiety	2.47	2.34	1, 191	.55	.46	
Comfort	2.97	2.89	1, 192	.34	.56	
Ease of navigating Transfer	2.29	2.53	1, 154	1.76	.19	
Amenity	2.35	2.60	1, 186	3.24	.07	
Sense of security	3.35	3.55	1, 191	1.68	.20	
Convenience	2.57	2.73	1, 196	1.00	.32	
Satisfaction	2.84	2.90	1, 195	.14	.71	

Note: **$p<0.01$ and *$p<0.05$

20 For sensitivity analysis two different types of grouping were considered and tested. Neither was significant.

21 Don't recall responses were excluded from this analysis

22 'w' was only calculated for findings which were significant.

Next it was surmised that it was possible that while overall experience was not significantly different between groups, perhaps certain attributes of first trip experiences could be experienced differently for those that had previously visited the campus before to those that had not. Thus a series of ANOVAs were also undertaken for each of the first trip attribute ratings (Table 6-5). From the results presented, it is clear that 'emotional state' was the only attribute significantly affected by whether one had visited the campus prior to travelling to campus by public transport ($p<.05$). For those who had never visited campus before the mean first trip rating for emotional state was more negative (M=2.47), whereas the mean for those who had been to the campus before was more positive (M=2.79). With an effect size, omega ('w'), of 0.14, the effect was relatively large, that is whether or not one had visited the campus 4+ times previously or not significantly affected their emotional state for their first trips. It is worth considering why emotional state of all the attributes measured was the only one affected by previous visitation to the campus. Given that ease of navigation was not significantly different, it seems that wayfinding was not responsible for the increased anxiety. It may be that the differences in level of anxiety could be attributed to life events, that is, a first visit would be more likely to be associated with beginning a life event (starting a course or job) whereas subsequent travel the campus might have occurred in relation to ongoing travel for that life path (e.g. once someone had already 'settled in' more).

It was also hypothesised that unfamiliar travel experiences would be affected by whether or not participants' travelled with another person when undertaking their first trip by public transport. It was hypothesised that having travel company would reduce trip anxiety as the other person may have knowledge or be helpful with figuring out unknown elements, plus the other person might distract the traveller from the trip itself.

Travel companionship was grouped into:

- those undertaking travel with someone who had travelled to campus by public transport previously
- those who travelled alone, or with a person who had not travelled to campus by public transport previously[23]

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23 For sensitivity analysis two different types of grouping were considered and tested. Neither was significant.

One way ANOVAs were then calculated with travel company as the independent variable and trip attribute ratings as dependent variables. There was no significant differences in the average first trip attribute ratings (F(1,199) = 2.42, p>.05, w= .08. [24]

Table 6-6: ANOVA of each attribute between travel companionship groupings

Variable	Travel alone, or with a likely 'unfamiliar' companion	Travelled with a 'familiar' companion	df	F	p	w[25]
Average of all attribute ratings	2.83	2.53	1, 199	2.42	.12	
Ease of navigation	2.87	2.24	1,193	4.54	.03*	0.13
Ease of ticketing	3.59	2.94	1,183	4.54	.04*	0.14
Emotional state	2.65	2.18	1,196	3.32	.07	
Expected vs actual travel time	2.52	2.00	1,187	3.61	.06	
Time consciousness anxiety	2.39	2.82	1,195	2.01	.16	
comfort	2.97	3.00	1,195	.02	.89	
Ease of navigating transfer	2.48	1.86	1,157	4.00	.05*	0.14
Amenity	2.47	2.54	1,189	.06	.81	
Sense of security	3.44	3.33	1,194	.16	.69	
Convenience	2.70	2.29	1,199	1.96	.16	
Satisfaction	2.91	2.71	1,198	.57	.45	

Note: **p<0.01 and *p<0.05

In terms of individual attributes of unfamiliar journey experiences that could be experienced differently for those that were travelling with experienced company rather than those who were travelling alone, the results indicate that travel companionship significantly affected experiences of navigation, ticketing, and navigating transfers. Interestingly, these are three of the four attributes that were rated significantly lower for first trips compared with overall trips. However, as depicted in Table 6-6, the direction of higher and lower ratings for these attributes were different to what was predicted; that is, mean scores for these attributes were scored higher by participants in the travel alone group than for those travelling with someone who had used public transport to travel the campus previously. This was the opposite of what was expected, but could possibly be attributed to travel companions having a negative influence (as a large proportion of the travellers were captive to

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24 Don't recall' responses were excluded.

25 'w' was only calculated for findings which were significant

public transport). It is clear from the effect size as measured by omega ('w') that the effect sizes were fairly substantial for all of these attribute ratings. Thus the analyses indicate that accompaniment on first trip was a factor which was not significantly predicative of first trip ratings for most attributes, but that it did significantly affect public transport experience in terms of navigation, ticketing and figuring out transfers, but companionship did not positively affect these attributes as hypothesised.

That concludes the investigation of Research Question 2 for the University Access Survey, including variables that affected first trips. The next section addresses Research Question 3.

6.4.4 Impact of first impressions on attitudes

Next, analysis of the University Access Survey results was undertaken examine Research Question 3, 'RQ3: To what extent do first trips impact attitudes and behaviour related to modal choice?' As discussed in the Review of Literature, previous research suggests that first impressions can have a strong impact on attitudes and be associated with stronger memories.

Table 6-7: Correlation between first trips and overall trips by attribute ratings

Attribute	Total	Time since first trip		
	(n = 203)	*< 6 months ago (n = 28)*	*6 months – 2 years ago (n = 58)*	*2 years + ago (n = 121)*
Navigation	0.42**	0.48*	0.44**	0.39**
Ticket	0.60**	0.79**	0.50**	0.59**
Emotional State	0.43**	0.60**	0.30*	0.46**
Expected vs actual travel time	0.51**	0.70**	0.40**	0.47**
Time consciousness	0.45**	0.61**	0.32*	0.46**
Comfort	0.53**	0.57**	0.38**	0.56**
Transfer	0.50**	0.69**	0.38*	0.47**
Amenity	0.74**	0.85**	0.77**	0.69**
Security	0.76**	0.83**	0.73**	0.75**
Convenience	0.73**	0.71**	0.79**	0.69**
Satisfaction	0.72**	0.79**	0.78**	0.67**

Note: **$p<0.01$ and *$p<0.05$.

In order to ascertain whether the results yielded any evidence of first trips impacting attitudes about transit, correlations between first trip ratings and overall trip ratings were computed in SPSS. The results are shown in Table 6-7 (under the 'Total' heading) with larger numbers denoting stronger correlations. All attributes were observed to have significant correlations between first and overall trip ratings. Correlations were particularly strong for 'security', 'amenity', 'convenience', and

'satisfaction' and particularly weak for 'ease of navigation', 'emotional state', 'time consciousness', and 'ease of navigating transfer'.

In order to then investigate how time lapse since first trips affected the relationship, disaggregate analysis was also undertaken by splitting the sample into three groups:

- those whose first trip occurred within the last six months of survey completion;
- those whose first trip occurred between six months and two years prior to undertaking the survey; and
- those whose first trip occurred more than two years prior to undertaking the survey

These results are presented in Table 6-7 (under the 'Time since first trip' heading) and suggest that:

- Correlation coefficients are higher in all attributes for participants whose trips occurred less than two months ago than for those whose trips occurred more than two years ago. This supports research that shows memories can fade over time (Corby and Homa 2011)
- However overall the correlation coefficients were slightly higher for the 2 years + ago than the 6-months – 2 years ago which leaves some ambiguity.

Another issue is that correlation coefficients do not equate to causation. There may be other factors influencing these correlations and it could be also that subsequent travel experiences influenced the reporting of first trip experiences. It is also worth noting that that disaggregated sample sizes were small. Thus this analysis suggests that first trips do seem to impact attitudes, consistent with existing 'first impressions' and primacy effect research. Also consistent with existing research, the importance of first impression in shaping attitudes was observed to slightly diminish over time, although this trend was not that consistent. And given the limitations of examining correlations, there is some ambiguity about the direction of influence, so these results should be interpreted with some caution.

6.4.5 Impact of unfamiliar travel on behaviour

In order to address the behavioural aspect of Research Question 3, "To what extent do first trips impact attitudes and behaviour related to modal choice?" respondents were asked to describe how they currently travel to and from the university in an average week. The vast majority of respondents reported using public transport again to travel to the university with a large share sharing travelling again many times:

- 21 (7%) of respondents used transit a few times after their first trip;

- 55 (19%) reported that they have used transit several times since their first trip
- 165 (58%) reported that they travel by transit very regularly now.

Only six participants (2%) reported never using transit to access the university since their first journey by transit. This number of participants was considered too small to be worthy of extensive analysis, however among this group, reasons for not using public transport again were: 'it takes too long' (n=5), 'other' (n=5 but the five specified reasons were different from one another), and 'services do not run frequently enough' (n=4)[26].

Further analysis was then undertaken in order to confirm whether it was the first trip experiences and subsequent attitudes themselves that were impacting subsequent travel behaviour, as one might expect under the Theory of Planned Behaviour. First, an average score of all of the 11 attribute ratings was calculated for each participant to provide: for first trips, a 'mean first trip rating' (Cronbach's alpha = .85), and for attitudes, an 'overall trip rating' (Cronbach's alpha = .89). Correlation analysis was then undertaken between these mean trip ratings and subsequent transit usage (using the variable of transit usage as a proportion of total travel[27]). As indicated by the findings provided in Table 6-8 (under the heading 'Total sample'), a significant correlation was observed between current transit use and average trip ratings for both first trips and overall trips. These results suggest that both first trip experiences and attitudes affect subsequent patronage of transit services.

However, it was hypothesised that 'choice sets' might be influencing these outcomes. Thus disaggregate analysis was then undertaken to ascertain how transit captivity interacted with the relationship between trip ratings and transit use (refer 'by transit captivity' in Table 6-8). The analyses indicated that the relationship between first trip experiences and subsequent transit usage was more highly correlated for those with ongoing access to cars. This suggests that first trip experiences are less important for those who have to use, or are 'captive to', public transport.

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26 Note that respondents could select multiple reasons for not using transit again.

27 This was achieved by creating a new variable in which reported days of travel by transit was divided by total days of travel reported (including 'no travel')

Table 6-8: Correlation between mean first trip ratings and percentage of travel by transit (total and by transit captivity)

	Total sample	By transit captivity (car access)		
	n= 203	*No car access (n = 45)*	*Occasional car access (n = 67)*	*Always car access (n = 91)*
Average first trip rating	0.17*	0.14	0.00	0.33**
Average overall trip rating	0.22**	0.07	0.03	0.34**

Note: **p<0.01 and *p<0.05.

6.4.6 Qualitative results

In addition to the quantitative findings presented thus far participants were asked to identify any other aspects of their first trip that stood out to them (refer to Questionnaire in Appendix 11 for precise wording). As discussed in the Methodology chapter, there were two methods of data analysis used for the qualitative comments gathered through the University Access Survey. One method was putting all of the comments into internet-based software to form 'Word Clouds'. Word Clouds are images that indicate the frequency of words used by making them larger than less frequently used words.

A word cloud was made for the University Access Survey comments (Figure 6-3). The largest words, "bus", "train", Monash", transport" and "station" were fairly straight-forward words that one would expect for describing travel to Monash University. Perhaps more noteworthy was the frequency of use of negative emotional words such as 'confusion' 'frustration', 'anxiety' and 'nervous' alongside words like 'first', 'time', 'driver', 'people', 'crowded', and 'long' which are suggestive of summary of the sources of negative emotions. This qualitative analysis supports the quantitative finding that unfamiliar public transport travel had a lower 'emotional state rating', that is, had a higher level of anxiety.

Figure 6-3: Word cloud of qualitative comments

The comments were then further analysed by categorisation to reveal common themes and characteristics about the unfamiliar transit travel. A summary of the findings is provided in Table 6-9. This includes a column depicting whether comments are positive or negative and it is evident that substantially more negative comments are reported than positive. Comments provide further support for the quantitative dataset, but also expose other important characteristics of unfamiliar public transport travel. It is apparent from this summary of comments that particular sources of stress for unfamiliar journeys included the trips ends (walking from public transport service to final destinations), lack of integration between services, crowding, anxiety about missing services/stops, and other factors.

Some of the comments also indicated that participants compare their first public transport trips to university with other modes of travel to the campus, suggesting the impact of first trip experience in determining future mode choice. Another interesting feature of the qualitative comments was respondents' descriptions of adaptations they made following their first trips such as purchasing different tickets, taking different services, choosing a different mode to travel and even moving house. This finding was consistent with the adaptations that people described in the Interviews research method. However, the University Access Survey comments revealed that some respondents have still not fully adapted their travel optimally despite repeated use of services. For example, some people are paying more for tickets than they need to (by purchasing a two-zone

ticket when only a one-zone ticket is required). Another interesting aspect of the comments related to people describing how the life event of starting a new course or job impacted their first trip experiences. Many respondents explained that they were particularly nervous, especially about being late, while travelling due to starting an academic course or new job. This is an important feature of unfamiliar travel and one which could affect experiences of services.

Table 6-9: Summary of qualitative comments about the first trips

Positive or Negative	Key Themes	Count
-	Lacking of integration between services (wayfinding)/at trip ends	29
-	Connections inconvenient / too many	21
-	Slowness/time inefficiency compared to driving/biking	18
-	Lacking of integration between services (vehicular) /long wait	18
-	Crowding	14
-	Frustration	13
-	Low frequency / poor travel options / particularly for a big university	13
-	Anxiety about missing services/stops	12
-	Ugly stations / unsafe off-peak / graffiti / odours / noise	12
-	Confusion about ticketing	11
-	Information issues (signage, trip planner issues, flaws, insufficient)	10
-	Late	9
-	Later adaptations to services (including not using again)	9
-	Lack of autonomy	8
-	New activity = anxiety	8
+	Follow others	6
-	Public transport more challenging than expected	6
+	Public transport good / convenient	6
-	Made mistakes	6
-	Driver impersonal behaviour	5
-	Isolation/anxiety about finding way back	5
-	Unsafe (due to crowding/driver behaviour)	3
-	Ride discomfort (jolting/ hot)	3
+	Drivers helpful	3
+	Allowed extra time for problems	3
-	Stranger interaction anxiety	2
-	Elements	2
+	Novel environment positive	1

6.5   Discussion

The University Access Survey provided a number of insights to address Research Questions 2 and 3.

In terms of Research Question 2, "what experiences are associated with first trips on public transport", first and subsequent public transport experiences were observed to differ significantly, with first trips being more negative, particularly in terms of wayfinding, emotional state (anxiety) navigating transfers and ticketing (Figure **6-2**). This was apparent in both the quantitative analysis and also in the qualitative analysis. This is consistent with the testimonies documented in the Interviews Chapter and also consistent with literature (Stradling 2002; Dziekan and Dicke-Ogenia 2010). The qualitative comments suggest that the negative affect could be partly attributable to issues with 'trip ends' from where one alights from their services, anxiety about missing stops, confusion about ticketing, poor information the anxiety associated with life events that can surround unfamiliar travel. This is an important finding indicating that there is a strong contrast in unfamiliar trip experiences and familiar travel. The qualitative comments also reveal a number of strategies that respondents employ in undertaking first trips to the university, such as for example, following others. This finding is consistent with the Interviews Chapter which also indicated that there are a number of strategies employed for unfamiliar public transport travel aimed at minimising trip anxiety.

In order to address RQ2b, "How do unfamiliar travel experiences vary with circumstances?" a number of factors that had the potential to impact first trip experiences were also investigated including: previous visitation to the university, and travel companionship (Figure 6-4). These two variables proved insignificant in impacting mean trip experience when all of the attribute ratings were looked at together but when the trip attribute ratings were examined independently there were some interesting findings. Having visited the campus previously was associated with significantly higher (or better) emotional states than for those who had not visited the campus previously, suggesting that previous exposure increases familiarity, decreasing the emotional burden of undertaking unfamiliar public transport travel. Travel companionship was found to significantly negatively affect attribute ratings for navigation and ticketing; however the difference was not in the direction expected. This may be due to negative influence of companion travellers. It would be useful to undertake further research to affirm is this a common finding.
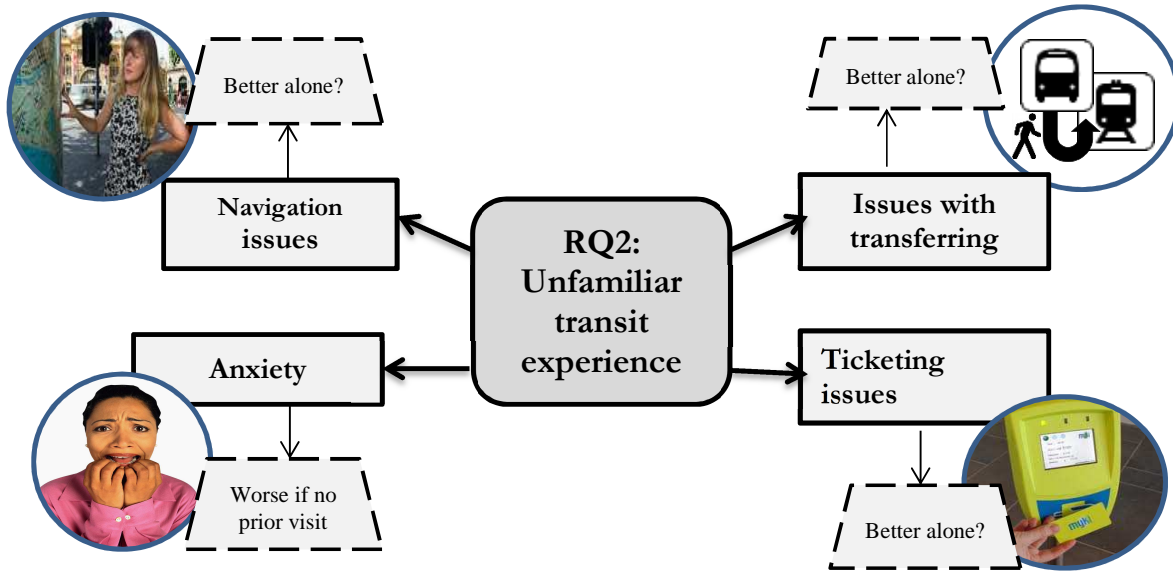
Figure 6-4: Findings related to Research Question 2, experience of unfamiliar transit services

In terms of Research Question 3, (how do first trips impact attitudes and subsequent behaviour?), previous research about the primacy effect and the influence of first impressions was supported with the findings from the University Access Survey. Unfamiliar public transport travel was observed to be fairly memorable, as evidenced by the large number of respondents that could recall their first trip to the campus by transit. It also appeared to be influential, as observed by the significant correlations between first trips and reported overall experiences, though the direction of influence is uncertain, a fundamental limitation of this research method. This issue may be exacerbated by the reliance on recall, which may have affected which aspects of trips were recalled; particularly as many of the first trips occurred years earlier.

In terms of the behavioural component of research question 3, non-captive transit riders (those with access to a car), an important segment for expanding transit markets, were less likely to continue using transit if their first impressions were negative. This finding supports the Theory of Planned Behaviour by highlighting the importance of attitude in influencing subsequent behaviour, while controlling for choice set (which might be termed 'perceived behavioural control') in the TPB model. However the prevalent TPB model does not account for past experiences as influencing the three predictors of intention (attitude, social norms and perceived behavioural control) and thence behaviour, despite support for this mechanism in psychology's ubiquitous concept of 'Learning Theory' (though it should be noted that some authors have proposed revised TPB models to account for trip experiences e.g. Bamberg et al. 2003). Thus this research method provides support for a revised model of TPB (Figure 6-5) with the inclusion of experience as a predictor of attitude.

The influence of first trip experiences on the other predictors of 'intention' in TPB, 'subjective norms' and 'perceived behavioural control', were not directly investigated) in the University Access Survey.
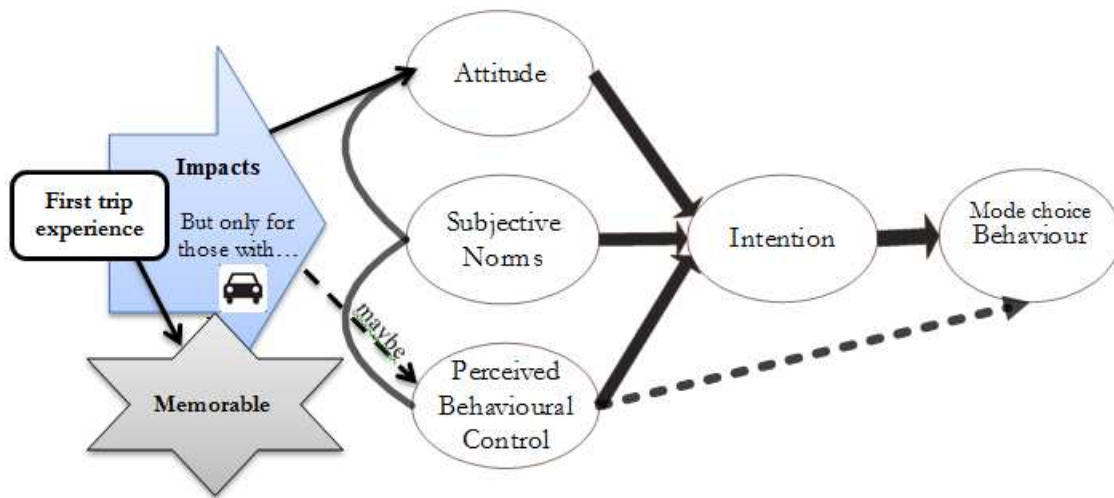
Figure 6-5: Findings related to Research Question 3 in context of TPB: first trip experience impacts attitudes / behaviour for those with mode choices

The finding that first trips seem more influential for non-captive travellers is worth considering further. It was found that for 'captive' transit users, first impressions are less important to mode choice because captive users do not have a choice in mode anyway. Interestingly this finding is somewhat inconsistent with previous research by Thøgersen (2006) which found that car ownership reduces the influence of attitudes. Thus further research related to ascertaining the influence of private vehicle access, travel experiences and the impact on travel behaviour would be useful. It is worthwhile to consider how prevalent transport captivity is to evaluate the importance of this issue. Previous research notes that captivity varies by geographical location, but also by what threshold is used to classify captivity. Van Exel and Rietveld (2001, p.245) estimate that "a significant proportion of travellers (10–20%), mainly commuters, elderly and disabled, is captive to their customary mode of transport, and has no other option than to stay home." This would infer that 80-90% of travellers would thus be likely to have first trips affect future mode choice. However authors also note that captivity is not necessarily limited to car access by also can be restricted by awareness, knowledge and perceptions about transport choices leading to a choice subset referred to as the 'subjective choice set' or 'consideration set.' These authors argue that such perspective factors affect attitudes about transport, and therefore mobility, more than objective factors or urban form (Gronau 2010; Olaru et al. 2011) but also that subjective choice sets can be affected by experiencing alternatives (Van Exel and Rietveld 2009). Thus the research contained in this chapter,

in combination with previous research suggests that first trips may impact future subjective choice set. Ergün (1999, p.3) explain that, "selection and use of a certain alternative, a repeat of this choice and the associated learning process, will cause the formation of attitudinal traits such as habits, choice-, brand-, or national loyalty, and resistance to switch. These traits, in turn, play a role in defining choice sets and captivity to a choice in future choices." It seems plausible, therefore that first trip experiences would be integral to this learning process and therefore to the eventual composition of choice sets. Gronau (2010) argues that public transport users who consciously choose to use public transport rather than travel by private cars (non-captives), must be studied to better understand travel behaviour choice.

Overall the influential role of first trips stress the importance of reducing the anxiety and confusion experienced during first trips to assist in improving overall impressions of public transport. In particular the findings from the University Access Survey suggest that wayfinding, emotional state, transferring, and ticketing are particularly important aspects of transit to consider in trying to attract and retain additional transit service users.

Although presented as the sixth chapter, chronologically, this research method was the first of the thesis research to be undertaken and revealed some unexpected findings and missed opportunities. For example, participants reported some variation in services used for first trips compared with most recent trips. It would have been valuable to request that respondents specify these differences. This may have offered insights into how trips have changed and the possible influence of differences in modes or services. Such limitations in the research design were also useful to influencing the design of subsequent research methods in order to increase efficacy and validity of the data collected. For instance, the Journey Planner Follow-up Survey, which will be discussed in the next chapter, asked more specifically about which modes were used.

Another limitation of the research method was that participants were not randomly selected, but rather consisted of a population that accesses Monash University. It is anticipated that the results will contain some biases including:

- University students/staff may be more oriented toward research and task planning so may have been advantaged in preparing for their unfamiliar transit travel.
- Trip purpose: For this research, the trip purpose was exclusively focused on a journey to university which may also be associated with certain biases in navigating the transport network. In particular, it could be argued, that traveling to the university for the first time may be easier to navigate than travel to other destinations, given that one can often follow a

crowd of people who look like students. However, this ease of wayfinding possibility is likely (at least partially) counteracted by the fact that the trip purpose would likely include many international and/or out-of-town students new to Melbourne, who would hence find navigating the system particularly challenging. This is because, without background knowledge of the geography of a city, it is more difficult to find one's way. Also, this trip purpose may have yielded a particularly high proportion of people taking unfamiliar transit travel related to the life events of starting a course or new job.

Finally, the fact that many participants reported using different services on their first trips than for the subsequent trips limits the reliability of the findings in this chapter somewhat. As the differences in the services themselves may explain some of the differences in attribute ratings.

Despite these limitations, the findings from the University Access Survey still offer a number of useful insights and as noted previously, these limitations offered some useful guidance to the other research methods contained in this thesis. The applications of the research findings from the University Access Survey are discussed, along with the findings from the other research methods in the Discussion chapter (Chapter 8). Overall the University Access Survey was useful in addressing Research Questions 2 and 3, illustrating some of the negative affect and other attributes associated with unfamiliar transit travel as well as providing some evidence that first trips may impact attitudes and subsequent travel behaviour, consistent with learning theory, the primacy effect and TPB. Still due to the some of the limitations associated with the research method, additional research into first trips was warranted and undertaken.

The next chapter, Chapter 7, documents the Journey Planner Poll and Follow-up Survey, a research method which addresses all three research questions using a unique and innovative research methodology. This research method also enabled reporting of journey experiences closer to the time that they were undertaken.

7   Journey Planner Poll and Follow-up Survey

7.1   Introduction

The previous sections of this thesis have provided a number of useful insights about unfamiliar public transport travel and have addressed all three of the research questions. This final research method chapter explores the nature and impact of unfamiliar public transport trips using a popular Journey Planner website poll along with a post-trip follow-up survey emailed to participants. This method was chosen because it could reach a wide catchment of people and provide 'before and after' information which would be otherwise difficult to obtain.

This research method has yielded a number of publications in relation to the research method itself and about unfamiliar public transport travel. This includes two journal articles:

> Schmitt, L, G. Currie, and A. Delbosc (2014a). "Lost in transit? Unfamiliar public transport travel explored using a journey planner web survey." Transportation. 1-22.

> Schmitt, L, S. Harris and G. Currie (2014c). "Adapting an online transit journey planner into a low-cost travel survey tool." Transportation Research Record: Journal of the Transportation Research Board 2405(-1): 8-15.

In addition three conference papers were also published:

> Schmitt, L., S. Harris, and G. Currie (Schmitt, 2014b). Integrating an Online Travel Survey into a Transit Website Journey Planner – Approach and Lessons. Presented at Transportation Research Board 93rd Annual Meeting.

> Schmitt, L. and S. Harris (2013d). Understanding Market Segments Captured through Data Collection using a Transit Passenger Information Website. Presented at Australasian Transport Research Forum 2013 Brisbane, Australia, The Planning and Transport Research Centre (PATREC).

> Schmitt, L., G. Currie and A. Delbosc (2013b). Exploring Unfamiliar Public Transport Travel using a Journey Planner Web Survey. Presented at Australasian Transport Research Forum 2013, Brisbane, Australia.

This chapter begins by stating the aims of the Journey Planner Poll and Follow-up Survey. This is followed with a description of the research method. In section 7.4 the results are then presented in a series of sub-sections which are structured to reflect the overarching aims associated with this research method as discussed in section 5.2. The results are followed by a

discussion and conclusion section (7.5) which provides a summary of the key findings, draws a number of inferences from the results, and discusses the limitations of the research method.

7.2   Aims

This stage of research aimed to address all of the main research questions and many of the sub-research questions introduced in Chapter 3:

RQ1: Under what circumstances do first trips occur?

- RQ1a: How prevalent are first trips?
- RQ1b: Are life events associated with first trips?
- RQ1c: Which life events in particular are associated with first trips?
- RQ1d: Do first trips require more assistance than familiar travel?

RQ2: What experiences are associated with first trips on public transport?

- RQ2a: How are first trips different to other trips?
- RQ2b How do unfamiliar travel experiences vary with circumstances??

RQ3: To what extent do first trips impact attitudes and behaviour related to mode choice?

- RQ3b: Does a first trip create an impression that affects attitudes about public transport in a similar way to the way that primacy effect has been shown to create biased impressions with more simplistic stimuli/meeting people?
- RQ3d: Are first impressions of public transport more or less important for different people? If so, what are the trends?
- RQ3e: Are there any behavioural trends related to first trip experiences?

7.3   Method

The data was collected during October 2012 – January 2013 using a Journey Planner website that Public Transport Victoria (PTV) administers (http://ptv.vic.gov.au/). The website is used by potential travellers to plan their journey by inputting their origin, destination and time of travel. The Journey Planner Poll and Follow-up Survey utilised this website to collect data by first presenting a poll when the possible public transport itineraries are listed. It then invited participants to complete a follow-up survey after undertaking their travel. This was the first time

this website has been used in this way. Because the website is popular; in an average week, the Journey Planner website may be accessed by approximately 750,000 users (Google Analytics, 2013 via pers. comm. with S Harris 22 April 2013), it was anticipated that the poll and survey would be responded to by a wide geographic and demographic population.

Prior to the research being undertaken, approval to undertake the research was obtained from Monash University's Human Research Ethical Committee (MUHREC).

An overview of the research process, from the participant's perspective, is depicted in Figure 7-1. Over a period of six weeks, a random sample[28] of website users was presented with a two-question poll when they used the Journey Planner website. The poll was embedded on the page showing their journey results and included the following two questions:

1. *Will this be the first time that you take this trip on public transport?*
    a. *Yes*
    b. *No*

2. *To what extent does your experience of public transport, on average, meet your expectations of Melbourne's public transport?*
    a. *My expectations are often greatly exceeded*
    b. *My expectations are sometimes exceeded*
    c. *My expectations are typically met*
    d. *My experience sometimes falls short of my expectations.*
    e. *My experience often falls well short of my expectations*
    f. *No basis for judgement/have never used public transport in Melbourne before*

If a person opted to fill in the poll and then pressed the 'submit' button, their answers to the questions along with the Journey Planner itinerary searched were saved. The study was set up so that a new browser window would then appear for the user[29.]

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28 During the study period, for every fourth JP search undertaken was offered the poll, but if completed, a JavaScript cookie was sent to the associated computer so that the person would not be offered the poll again.

29 though it is surmised that in many instances this window would have been blocked by 'pop-up blockers'. Hence for the new browser to appear for many participants, they would have had to notice the blocked pop-up and manually instruct their browser to allow the new window. This issue was revealed during the research method testing phase and was unable to be changed due to the security settings required on the website.
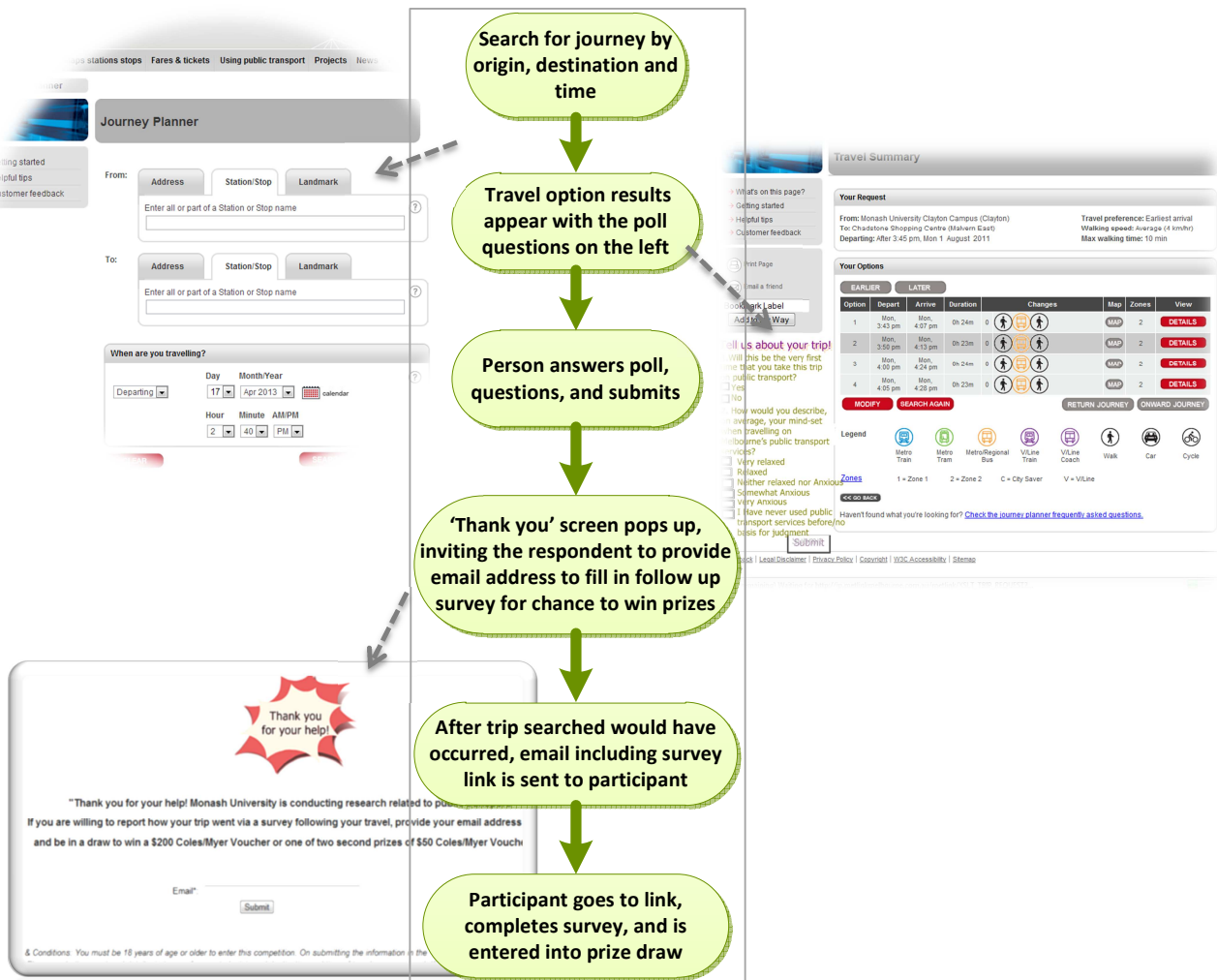
Figure 7-1: Research process from the perspective of a participant

The new browser window thanked the individual for submitting the poll and invited the participant to provide their email address to complete a follow-up survey in exchange for the chance to win a prize of a $200 shopping voucher, or one of two second prizes of a $50 shopping voucher. Appendix 12 shows the 'invitation' text and the associated 'terms and conditions' which were designed to comply with relevant statutes such as the Gambling Regulation Act 2003 and the Gambling Regulation Regulations 2005. The initial poll could be filled in by anyone but in order to fill in the follow-up survey respondents had to be 18 years of age or older. If the participant provided his or her email address in order to participate in follow-up research, he or she was then sent an email with a link to the follow-up survey one day after the itinerary for which they searched, followed by one reminder email which was sent three days after the initial notification email. The text included in this email is depicted in Appendix

13. Upon submission of their completed surveys, email addresses were automatically removed from the survey database and added to a prize pool database.

The follow-up survey was prefaced by an explanatory statement which, along with the survey itself, is provided in Appendix 14. The follow-up survey included questions about demographics, usual travel habits, their recent trip experience, and whether they will use public transport for that trip again. Some of the questions had multiple-choice options and allowed only one answer while other questions were multiple-choice but allowed multiple responses. Characteristics of the trip experience were explored through rating scales (1-5 scale) to explore the attributes depicted in Table 7-1. In analysing these attributes, people who responded with 'don't recall' or 'did not have to transfer' were excluded from analyses.

Table 7-1: Transit experience attributes measured

Attribute	Likert scale	
Ease of navigation (wayfinding on public transit)	1. Extremely difficult to understand	5. Very easy to understand
Ease of ticketing (purchasing)	1. Extremely difficult to understand	5. Very easy to understand
Emotional state during the trip	1. Very anxious	5. Very relaxed
Expected vs actual travel Time	1. Much longer than expected	5. Much quicker than expected
Concern about being late	1. Very concerned about being late	5. Not worried about being late at all
Comfort	1. Very uncomfortable	5. Very comfortable
Ease of transfer (e.g. finding next service)	1. Very confusing	5. Not at all confusing30
Appearance of stations/ stops	1. Very unattractive	5. Very attractive
Sense of security while travelling	1. Very unsafe	5. Very safe
Sense of security while waiting	1. Very unsafe	5. Very safe
Overall convenience	1. Very inconvenient	5. Very convenient
Overall satisfaction	1. Very unsatisfied	5. Very satisfied

7.4   Results

This section provides an overview of the survey results, before examining the findings in detail. An integral part of interpreting these results is understanding how 'first trips' are defined for the poll and follow-up survey as the results presented in the remainder of the chapter are generally disaggregated in terms of whether the participant was taking a first trip or not.

First an overview of the sample is provided (Section 5.4.1 - 7.4.2) which is followed by a discussion of the prevalence of unfamiliar travel (5.4.2) and a review of the circumstances surrounding unfamiliar travel (Section 7.4.4). Section 5.4.4.3 examines the experiential characteristics of first trips, as recalled by the participants. Then, in section 7.4.5.1 the role of certain variables in influencing first trip experiences is examined. Finally results are presented in Sections 0 and 7.4.7 on the impact of unfamiliar travel on attitudes and future travel behaviour.

7.4.1 The sample

The initial poll attracted 3,537 responses which included:

- 2,377 (or 67% of) respondents answered the poll but did not provide an email address (though it is noted that a large number of the respondents may not have noticed that there was a pop-up being blocked)
- 486 respondents completed the poll, provided their email address but never completed the follow-up survey
- 8 respondents completed the poll and started to fill in the follow-up survey but did not complete enough of the questions to be included in the data analysis (the cut-off was at least completing Q3 which dealt with mode use)
- 659 respondents completed the poll, were over the age of 18 and completed the follow-up survey at least to the third question.

Although in principle, this resulted in a sample size of 659, many analyses had smaller sample sizes for the following reasons:

- 5 participants could not recall the journey they had planned and thus were only asked the demographic questions
- 50 participants did not end up taking the journey they had planned and thus were only asked the demographic question

- Most questions included a response option, 'cannot remember'. Instances of 'cannot remember' have been excluded from analyses for each of the subject questions. However the inability to remember is also examined in section 5.4.4.3.

Sample sizes for individual analysers thus varied, but were generally in the vicinity of 600 participants.

7.4.2 Respondent characteristics

The demographic characteristics of the sample, age and gender, were compared against that of Melbourne's population of public transport users.[31] Chi-square tests confirmed that there was a slightly higher proportion of females to males represented in the Journey Planner sample $\chi^2(2) =$ 8.41, $p < .05$. Statistical tests were not undertaken for the age groupings due to slight differences in how ages were grouped in the journey planner survey versus Melbourne's population of public transport users. However it is clear from Table 7-2 that the journey planner sample was younger than the overall public transport population with 61% of the Journey Planner respondents less than 30 years old compared to approximately half of the public transport population.

Table 7-2: Respondent characteristics (gender and age)

Respondent characteristics	Journey Planner population (n=658)	PT population (n=26,303)
	Proportion of Sample (%)	*Proportion of Sample (%)*
Gender*		
Male	46%	48%
Female	53%	49%
No response	1%	3%
Age[32]		
<30	61%	~49%
31-60	36%	~45%
61+	3%	~6%

Note: JP characteristics that were significantly different from the PT population represented by * for p<.05 and ** for p<.01

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31 The population of Melbourne's public transport users was based on 2012 data from Melbourne's annual Origin-Destination survey which involves surveying 30,000 people a year. For the 2012 year, the data was collected from train users and the responses have been weighted by PTV to be representative of the wider PT user population. OD data is collected on weekdays, Monday-Thursday.

32 Age groupings were different between samples so numbers are approximate and statistical tests were not undertaken

Table 7-3 shows a number of respondent characteristics in terms of employment, marital status, household type and income.

Table 7-3: Respondent characteristics (employment, marital status, household and income)

Respondent characteristic	Proportion (%)[33] (n=658)
Employment	
Working full time	43%
Studying full time	29%
Working part time	17%
Unemployed / seeking work	6%
Retired	3%
Studying part time	2%
Marital status	
Single	59%
Married / defacto	38%
Separated	2%
Divorced	2%
Household type	
Living at home with parents	25%
Living with friends or flatmates	24%
Couple (with no children living at home)	19%
Couple with children at home	14%
Single person household (including single, divorced and widowed)	12%
Other	5%
Single parent family with children living at home	1%
Income	
$1- $399 per week ($1 - $20,799 per year)	27%
$1,000 - $1,399 per week ($52,000 - $72,799 per year)	15%
$400 - $699 per week ($20,800 - $36,399 per year)	12%
$700 - $999 per week ($36,400 - $51,999 per year)	12%
$1,400 - $1,999 per week ($72,800 - $103,999 per year)	10%
Nil or negative income	5%
$2,000 or more per week($104,000 or more per year)	5%

33 Percentages reflect percentage of respondents that provided an answer to each question. Due to rounding percentages will not always sum to 100%.

Most of the respondents worked full-time (43%) and almost a third studied full-time (29%). In terms of marital status, the largest proportion of respondents identified as being single (59%), followed by 'married/defacto' (38%). Perhaps reflecting the young demographic captured, a large proportion of the sample either lived at home with parents (25%) or with friends or flatmates (24%). The sample had a diverse range of incomes with the largest group (27%) identifying as having a personal income of $1- $399 per week ($1 - $20,799 per year).

The typical mode-use of participants was explored through the question, "in an average week, what percentage, approximately, of your travel (in terms of distance) do you complete by each of the following modes?" In order to interpret the modal split of the sample population, these numbers were grouped so that someone using a mode for 40% or more of their travel in a week was deemed as 'committed to that mode'. The results from this grouping are provided in Table 7-4 and indicated that the greatest proportion of respondents were 'committed' public transport users (66%), followed by 'committed' car drivers (21%).

Table 7-4: Respondent characteristics (mode split of sample population)

Mode	Percentage of sample 'committed' to each mode (%) (n=658)
Public transport	66%
Car	21%
Walk	7%
Bicycle	5%
Taxi	1%
Motorbike	0%

7.4.3 How common were first trips?

Both the poll and follow-up survey contained questions aimed to address research question 1a: *"how prevalent are first trips?"* From the poll, 23% of the 3,537 respondents reported taking trips for the first time. This suggests that among users of internet-based trip planning sites, approximately 1/5 are undertaking an unfamiliar journey (or at least part thereof).

However for the rest of this analysis, first trips will be defined by responses in the follow-up survey.[34] This asked, "Were any parts of your journey on an unfamiliar route?" with three possible responses:

- "yes all of the routes were unfamiliar to me (e.g. I had never used that bus route or train line before)"
- "I had already used some of the routes, but not all of them (e.g. I had used the train service before but not the bus)"
- "No, none of the routes were new to me."

Figure 7-2 shows the percentage of familiar trips compared to first trips which were completely unfamiliar and those that included unfamiliar legs. From these results, it is evident that 75% (n=447) of journeys taken included no new routes, 20% (n=119) of journeys included a familiar leg as well as one 'new' leg and 5% (n=33) of journeys only included 'new' legs.

The proportion of 'first' versus familiar trips was similar between the poll and follow-up survey. The remainder of the chapter defines 'unfamiliar' journeys as ones where at least one leg was 'unfamiliar' to the users i.e. representing 25% of the sample.

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[34] Participants had two opportunities to state whether or not the trips they were planning were new: during the poll and in the follow-up survey. There were some inconsistencies between these two responses. Appendix 15 provides an overview of consistency rates and the potential implications of inconsistencies
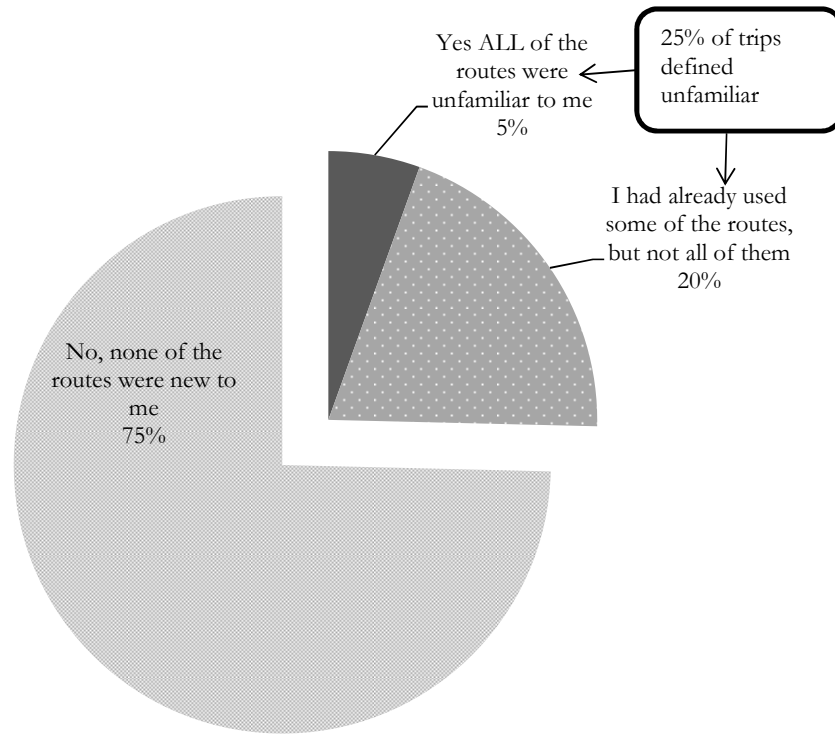
Figure 7-2: First trip prevalence

7.4.4 Characteristics of first trips

In order to better understand the circumstances surrounding unfamiliar trips, characteristics associated with unfamiliar travel are presented in this section.

7.4.4.1 Life events

A number of questions relating to life events (aka 'life events') were included in the follow-up survey to better understand this potentially important contextual circumstance, consistent with exploring the research questions 1b and 1c, *"are life events (a/k/a life events) associated with a high rate of first trips?"*, and "*which life events in particular are associated with a large number of first trips?"*, respectively.

Participants were asked if any major life events had occurred within the last six weeks and then if their travel was related to the life events (Table 7-5). The percentage of unfamiliar users who stated that their travel was related to a life event (18%) was much higher than for familiar users

(9%), with the most commonly identified life event being beginning or switching jobs. These results suggest that there is a tendency for life events to prompt unfamiliar public transport travel, though the majority of unfamiliar travel was not related to a life event.

Table 7-5: Recent life events related to travel

Life event	All	Related to travel undertaken		
	%Total	%Total (n=599)	%Familiar (n=447)	%Unfamiliar (n=152)
Moved home recently	9%	2%	3%	1%
Began/switched jobs recently	13%	5%	4%	8%
Began educational/switched programme	4%	1%	0%	3%
Required healthcare (or someone significant required healthcare)	5%	1%	1%	3%
Changed family status (e.g. moved in with partner, had child, etc.)	1%	0%	0%	0%
Other	2%	1%	1%	3%
% of population selecting any of the life events		10% (n=68)	9% (n=40)	18% (n=28)
None	64%	Not Applicable		

Note: respondents could select more than one life event

7.4.4.2 Time in Melbourne

It was also expected that unfamiliar transit trips would be more likely to occur for those who had more recently moved to Melbourne. Figure 7-3 shows the length of time people had lived in Melbourne by travel familiarity. From this figure it is apparent that unfamiliar travellers tended to be newer to Melbourne than familiar travellers, although the majority of all travellers had lived in Melbourne for more than ten years. Chi-square tests indicate that time in Melbourne was significantly related to whether or not a respondent was undertaking unfamiliar travel, χ^2(5, N=599) = 37.1 p<.01.
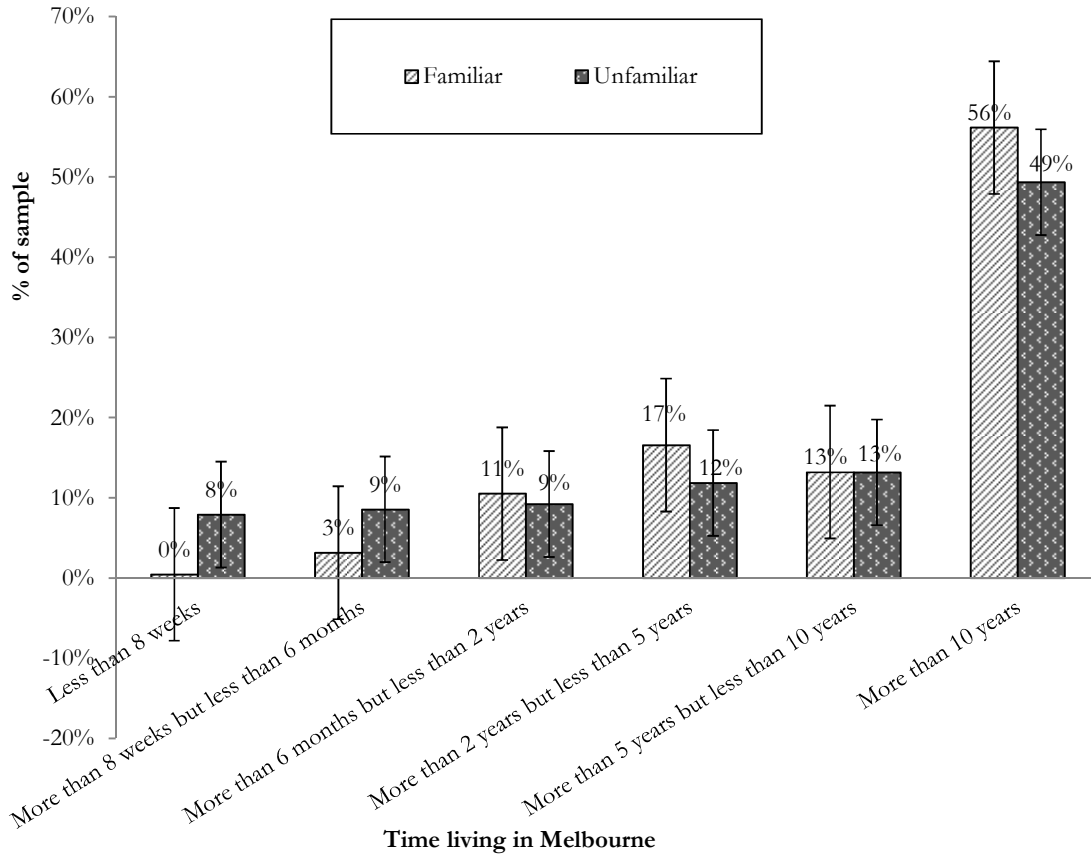
Figure 7-3: Percentage of respondents selecting each length of time for having lived in Melbourne

7.4.4.3 Tools to assist travel

As part of assessing research question 1d, participants were asked, "Do first trips require more assistance than familiar travel?" and participants were invited to select from a list of information sources, (Table 7-6). The most popular tool was printing or noting information from the Journey Planner website (31%). The next most popular tool was using an application (14%), followed by using a website. Use of 'tools' was more common among unfamiliar users (80%) than familiar users (49%). The data suggest that in general preferred the use of online tools rather than asking people for assistance face-to-face.

Table 7-6: Tools that assisted in travel

Possible answers	%$_{Total}$	%$_{Familiar}$	%$_{Unfamiliar}$
I printed/noted down the journey information from the website	31%	28%	38%
I asked other passengers for help	1%	0%	3%
I asked a public transport staff member for help	3%	1%	7%
I used an app to assist me on my journey	14%	12%	19%
I used a website on my mobile to assist me on my journey	11%	9%	15%
Other	2%	2%	2%
Total Used at least one tool	57%	49%	80%
Did not use a tool	43%	51%	20%

Note: participants could select multiple tools

7.4.4.4 Other trip Characteristics

Table 7-7 explores how familiar and unfamiliar trips, in this study, differed by time of trip, companionship, and trip purpose.

Table 7-7: Trip characteristics (by percentage of respondents)

Characteristic	%Total	%Familiar	%Unfamiliar
Time of day			
Peak (Monday –Friday either 7:30 -9:30 or 3:30 – 6:30)	42%	41%	43%
Off-peak	58%	59%	57%
Travel companionship			
I was travelling by myself	90%	92%	84%
I was travelling with someone who HAD NOT taken public transport for this trip before	3%	1%	9%
I was travelling with someone, but I DO NOT KNOW whether or not they had taken the trip before	1%	0%	1%
I was travelling with someone who HAD taken public transport for this trip before	7%	7%	7%
Trip purpose			
Employment	35%	38%	27%
Leisure/errands/shopping/fitness-related	24%	20%	35%
Education	19%	20%	15%
Visiting friends and relatives	12%	12%	11%
Other	6%	7%	5%
Healthcare (for self or other)	4%	4%	3%
On holiday/visiting Melbourne	1%	0%	3%
Previously been to location by other travel means			
Never (my first time travelling to this destination was this trip on public transport)	13%	5%	37%
A few times (1 - 3 times)	18%	12%	36%
Many times (4 or more times)	69%	84%	27%

The proportion of peak and off-peak travel was approximately proportionally equal between the familiar and unfamiliar groups.[35] Unfamiliar travellers were more likely to have a travelling companion and most companions had also not undertaken public transport for the trip before (9%).

Unfamiliar travel was also associated with a larger proportion of trips related to 'Leisure/Errands/Shopping/Fitness-Related' (35%) and less likely for employment (27%) than for familiar travellers (20%, 38% respectively). It may be worth noting that the journeys captured through the Journey Planner survey included a significantly higher proportion of journeys related to: leisure/errands/shopping/fitness-related (24%), personal business/healthcare (10%) and visiting friends and relatives (12%) than the general public transit population, χ^2 (6) = 433.89, p < .01. However this could be partly attributable to the fact that Melbourne's public transport user population data is only collected on weekdays, Monday – Thursday. It may also be that the website is more often used to plan unfamiliar, rather than familiar journeys.

Another factor which would have the potential to influence unfamiliar experiences of public transport is whether or not someone has travelled to a location before (possibly by other means). Perhaps unsurprisingly, in general, familiar travellers were more likely to have previously been to their destinations than unfamiliar travellers, $\chi^2(2)$ = 178.85, p < .01. As also indicated in Table 7-7, 37% of unfamiliar travellers had never been to the destination before, 36% had been a few times, and 27% had been many times before. Thus, even for unfamiliar travellers, a fairly large proportion were familiar with the destination which may have positively impacted wayfinding, making it easier to find one's way at the end of the public transit trip.

7.4.4.5 Modes used for travel

Participants were asked to identify which modes of public transport they used in their travel. Table 7-8 shows the proportion of trips, by mode, used in journeys associated with the sample. The disaggregated results show the public transport modes used for the 'familiar' and 'unfamiliar' populations. However, recall that most of unfamiliar journeys identified in the Journey Planner poll and follow-up survey contained a mix of familiar and unfamiliar modes; thus these results

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35 The peak and off-peak grouping has been somewhat simplistic in that it has not taken into account direction of travel; so counter-peak trips during peak time would still be categorised as peak.

do not specify which of these modes were unfamiliar (that is examined in Table 7-9). However, it is worth noting that familiar users used metro trains more often, whereas unfamiliar users tended to be using buses and trams more often.

Table 7-8: Percentage of respondents using each mode in their journey

Mode	n_{Total}	$\%_{Total}$	$\%_{Familiar}$ Population	$\%_{Unfamiliar}$ population
Metro Train	485	74%	83%	73%
Bus/SmartBus	141	21%	20%	34%
Tram	166	25%	22%	45%
Regional bus	7	1%	1%	3%
Other (included car, walking & SkyBus)	7	1%	1%	1%

Note: Because journeys often involve multiple modes, percentages will not add up to 100%.

Participants were then asked to identify which services used, by mode, were unfamiliar to them. These unfamiliar services used are presented by mode in Table 7-9.[36] The results indicate that unfamiliar travel was split with 38% occurring on trains, 33% on trams, and 27% on buses. Thus, alongside the data presented in Table 7-8, it appears that a large number of the unfamiliar journeys included a segment on a familiar train service. The implication of these results is that there is a higher degree of familiarity with rail than bus or trams.

Table 7-9: Trip composition of unfamiliar journeys

Mode	$N_{unfamiliar}$ used mode	$N_{unfamiliar}$ used mode & it was new	% of unfamiliar travel
Metro Train	111	56	38%
Tram	68	48	33%
Bus/SmartBus	52	39	27%
Regional bus	4	2	1%
Other (included car, walking & SkyBus)	2	1	1%

36 During the phase of data checking and cleaning it was observed that some participants did not identify using a mode but then indicated that the same mode was an unfamiliar mode that they used. The results presented in Table 7-9 have been through a process of data cleaning which is described in more detail in Appendix 15.

7.4.5 Experience of unfamiliar travel

In order to address Research Question 2, "What experiences are associated with first trips on public transport?" means scores from a number of trip attribute ratings were compared between familiar and unfamiliar travellers (Figure 7-4).
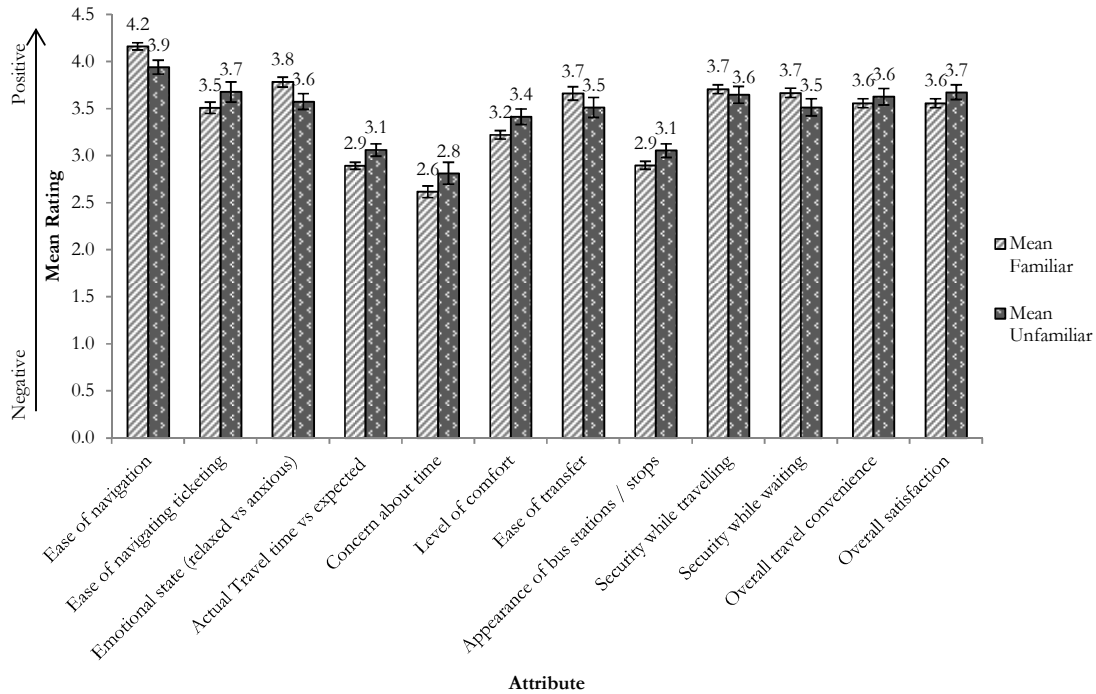
Figure 7-4: Attribute ratings, disaggregated by familiarity

An independent samples t-test was undertaken between the familiar and unfamiliar groups for each of these attributes. The results of this analysis are presented in Table 7-10 and indicate that unfamiliar users rated 'navigation (wayfinding on public transport)' significantly lower than familiar users did, $t(595) = 2.78$, $p<.01$, and 'emotional state during the trip' (level of anxiety) significantly lower than familiar users, $t(590) = 2.03$, $p<.05$. Conversely, unfamiliar users rated 'expected vs actual travel time' significantly higher, $t(584) = -2.28$, $p<.05$, and 'level of comfort' higher, $t(594) = -2.11$, $p<.05$. The other experiential ratings did not significantly differ between familiar and unfamiliar users.

<div align="center">**Table 7-10: Public transport experience, by familiarity measured**</div>

	Familiar		Unfamiliar		
Attribute	**Mean**	**SD**	**Mean**	**SD**	**Result**
Navigation (wayfinding on public transport)	4.2	0.82	3.9	0.91	t(595) = 2.78**
Ease of ticketing (purchasing)	3.5	1.23	3.7	1.23	t(530) = -1.35
Emotional state during the trip	3.8	1.11	3.6	1.03	t(590) = 2.03*
Expected vs actual travel time	2.9	0.77	3.1	0.80	t(584) = -2.28*
Concern about being late	2.6	1.31	2.8	1.42	t(594) = -1.55
Level of comfort	3.2	0.94	3.4	1.02	t(594) = -2.11*
Ease of transfer (e.g. finding next service)	3.7	1.16	3.5	1.15	t(371) = 1.16
Appearance of stations/stops	2.9	0.92	3.1	0.88	t(591) = -1.82
Sense of security while travelling	3.7	0.98	3.6	1.09	t(234) = 0.60
Sense of security while waiting	3.7	1.04	3.5	1.12	t(592) = 1.53
Overall convenience of the travel	3.6	1.01	3.6	1.08	t(595) = -0.72
Overall satisfaction with the journey	3.6	0.99	3.7	0.97	t(595) = -1.25

Note: **$p<0.01$ and *$p<0.05$

Note: all 'don't recall' options and 'did not have to transfer' responses have been excluded. For the attribute "sense of security while travelling" The relatively small sample size associated with this variable is because Levene's Test for Equality of Variances was significant, so statistics for "equal variances not assumed" is presented.

7.4.5.1 Variables that may have affected first trip experiences

The previous section explained how familiarity impacted travel experience. However, it may be that other factors are also impacting trip experiences which may mask differences between familiar and unfamiliar trip experiences. This section examines the degree to which a number of factors may have impacted travel experiences through regression modelling.

From section 7.4.4, it was apparent that first trips differed from familiar travel on a range of characteristics. Table 7-11 summarises seven key variables that may be influencing trip experience in addition to whether or not the trip was familiar. Six of the seven variables were coded into dichotomous variables and entered along with the scale variable, "background use of PT" into backward stepwise regression models. One model was run for each of the twelve experience responses.

One factor which was significantly different but which is not included in Table 7-11 is public transport modes used for travel. In section 7.4.4 we saw that a greater proportion of unfamiliar travellers were undertaking travel that involved trams and buses/SmartBuses than for familiar travel. Because this factor is a bit complex to analyse, with many people taking multiple modes in a trip, analysis instead focussed on whether or not people had to transfer. It was also hypothesized that regular transit users would have different unfamiliar trip experiences to non-

regular transit users. This factor was investigated through use of percentage of weekly travel by transit as predictor variable in the regression model.

The results from the multiple regression models (Table 7-12) indicate variation in which factors seemed to affect different attribute ratings. When multiple influences are considered, trip familiarity was only a significant influence on emotional experience: being unfamiliar caused a more negative emotional state rating. This suggests that for many aspects of the travel experience, familiarity was less important than other characteristics such as trip purpose. However unfamiliarity does have an important, additional impact of passenger emotions which is consistent with past research. In addition to emotional state, unfamiliarity was important to but not significant at the $p<.05$ level to: navigation (wayfinding), sense of security, and expected versus actual travel time; the latter being a positive influence and the former two attributes being a negative influence. Interestingly, variables closely related to familiarity, including 'time living in Melbourne' and having 'previously been to a destination' were significant for a number of attribute ratings.

It should be noted that although the regression models were statistically significant, the R^2 values were extremely low (.009 .047), which means that the most import influencer on trip experiences were not captured by the models.

Table 7-11: Regression variables that may be influencing trip experience

Attribute		Original finding	Dichotomous recoding & sample size	
Unfamiliarity		***N/A***	***Were familiar (n= 447)***	***Unfamiliar (n=152)***
Time living in Melbourne		Unfamiliar travellers were more likely to have lived in Melbourne for less time than familiar travellers	Those who had lived in Melbourne for <6 months (n=43)	Those who had lived in Melbourne for >6 months (n=615)
Travel related to life events		Travel was more likely to be associated with a life event for unfamiliar travel than familiar travel	Those whose travel was related to a life event (n=68)	Those whose travel was not related to a life event (n= 527)
Previously been to destination		Unfamiliar travellers were much less likely to have previously been to their destination before compared with familiar travellers	Those who had never been to the destination before (n=75)	Those who had been to the destination before (n=517)
Travelled companionship		Unfamiliar travel had a higher % of travel undertaken with someone else, though many of the companions were also unfamiliar with the services	Those who were travelling alone (n=539)	Those who were travelling with someone else (n=62)
Trip purpose	*Healthcare*	Unfamiliar travel was less likely to be associated with employment than familiar travel and more likely to be associated with leisure/errands/shopping/fitness and holiday/visiting Melbourne	*Those whose travel was in relation to:*	*Those whose travel related to:*
			Healthcare (n=21))	Not healthcare (n=574)
	Education		Education (n=114)	Not education (n=481)
	Leisure, shopping, errands, and/or fitness)		Leisure/shopping / errands/fitness) (n=141)	Not leisure/shopping / errands/fitness) (n=454)
	Visiting friends/ relatives		Visiting friends/ relatives (n=69)	Not visiting friends/ relatives (n=526)
	Employment		Employment (n=210)	Not employment (n=385)
Transfer or not			No transfer (n=224)	Transfer (n=374)
Background use of PT			Scale variable used, percentage of weekly travel by transit as the predictor	

Note: **p<0.01 and *p<0.05

Note: For the sake of simplicity, 'other' was not included in the model with very few people having selected this as a trip purpose nor "on holiday/visiting Melbourne" as only 4 participants selected the latter as their trip purpose.

Table 7-12: Public transport experience, by variables and familiarity

Independent Variable ↓	Attribute (*Standardised Betas*)											
	Ease of Navigation (N=586)	*Ease of ticketing (purchasing) (N=521)*	*Emotional state (N=579)*	*Expected vs actual travel time (N=575)*	*Concern about being late (N=583)*	*Level of comfort (N=585)*	*Ease of transfer (N=366)*	*Appearance of stops (N=584)*	*Sense of security: travelling (N=588)*	*Sense of security: waiting (N=582)*	*Overall convenience of the travel (N=585)*	*Overall satisfaction (N=585)*
Unfamiliar travel	-0.08†	x	-0.12**	0.08†	x	x	x	x	x	-0.08†	x	x
Lived in Melbourne more than 6 months	x	-0.09†	-0.09*	-0.09*	-0.12**	-0.07†	x	-0.10*	-0.11**	-0.10*	-0.08†	-0.07†
Travel related to life events	-0.10*	x	x	x	x	x	x	x	x	x	x	x
Previously been to destination	x	x	x	x	x	-0.08†	x	x	x	-0.08†	-0.09*	-0.11**
Had travel companion	x	x	x	x	0.08*	x	x	x	x	x	x	x
Trip purpose (health)	x	-0.10*	-0.11*	x	x	x	x	x	x	x	x	x
Trip purpose (education)	x	x	-0.13**	x	x	x	x	x	x	x	x	x
Trip purpose (employment)	x	-0.08†	-0.08†	x	x	x	x	x	x	x	-0.07†	-0.14**
Trip purpose (leisure/shopping/ errands/fitness)	x	x	x	x	0.24**	0.08†	x	x	x	x	x	x
Trip purpose (visiting friends/ relatives)	x	x	x	x	0.13**	x	0.13*	x	x	x	x	x
Journey included transfer	-0.09*	x	x	x	-0.13**	x	x	x	x	-0.15**	-0.20**	-0.14**
Frequent user of PT	x	0.09*	x	-0.10*	x	x	x	x	x	x	x	x
Adjusted R²	**0.023**	**0.021**	**0.028**	**0.022**	**0.096**	**0.017**	**0.014**	**0.009**	**0.011**	**0.035**	**0.049**	**0.047**
F	**5.53****	**3.76****	**4.34****	**5.27****	**13.56****	**4.30****	**6.28***	**6.07***	**7.29****	**6.34****	**8.62****	**8.20****

Note: **p<0.01, *p<0.05, and †= p< .10, Standardised Beta values only provided for variables retained in final models.

7.4.5.2 Qualitative comments on emotional state

Following the 'emotional state' rating scale question, a subsidiary question was asked, "what factors contributed to your above rating of emotional state (e.g. circumstances surrounding travel)?" which offered an open-ended response for respondents to provide an answer. These responses were reviewed and separated into ones that mentioned familiarity, unfamiliarity, or 'other' responses. The 'other' comments were varied, relating to things such as sense of security, other people on train, or circumstances like being late for an appointment.

Table 7-13: An excerpt of comments left about factors affection emotional state (spelling errors retained)

Factors contributing to emotional state rating		
Familiarity	**Unfamiliarity**	**Other**
"Familiar trip home"	*"Like I dont use smart phones, so always I am unaware of bus stops."*	*"Overcrowding, poor ventilation, cold temperature on board"*
"As a frequent user of public transport I always feel relaxed when using it"	*Not a familiar line so had to watch out for stops. No announcements & visual cues not working. Was busy preparing for presentation & nearly missed my stop."*	
"Take this route regularly. Read a book"		*"I needed to get to work in time so I was a little anxious."*
"on time and familiar"	*"Overall fine, but I was unsure of location of Syndal station."*	
"I have been used to public transport and was not afraid of being lost my way"	*"At the time of travel, southbound trams on St Kilda Road were stopped, so I had to check for alternative routes to make the journey and to guess which route would be the quickest. I ended up starting my journey going in the opposite direction than originally planned (tram down St Kilda Rd to Flinders St then train to Glenferrie, instead of tram 72 down Commercial Rd then tram 16. It was somewhat distressing as I was unfamiliar" with my destination (Glenferrie Oval), but found a simple route without too much trouble.*	
"Familiarity with the journey (knowing where I was going and where to get off etc)"		
"The line and journey were familiar so I was pretty relaxed but the general appearance of train carriages is usually a let down …".		*"Other travellers, lack of information of delays, old train used"*
"Have used metro trains extensively so was not concerned taking this trip."		
"I'd taken the route before"	*"It was an unfamiliar place and I thought I might get lost"*	
"Just going to work, nothing out of the ordinary"	*"At what bus stops to stop...missing the bus stop"*	
"The trip was completely routine and so not worrying at all"	*"Unknown route, didn't know which side to get off the train. Peak hour so train was congested."*	

While the vast majority of responses to this question did not relate to familiarity (75%), it was interesting how many responses were about familiarity. Of unfamiliar travellers, 24%

commented about unfamiliarity while 15% of familiar travellers commented on familiarity. This was particularly interesting because particularly given that participants were not explicitly asked about familiarity but rather was just asked a more general question of what factors contributed to their emotional state rating. In general, higher-rated emotional states were associated with familiarity whereas anxiety was associated with unfamiliarity. Interestingly, the 'unfamiliar' comments tended to be longer than the 'familiar' comments.

An excerpt of some of each type of these comments, split by familiarity is provided in Table 7-13. In addition to the categorisations, in light of research questions 1b and 1c, "*are life events (a/k/a life events) associated with a high rate of first trips?*" and "*which life events in particular are associated with a large number of first trips?*", respectively) it is worth mentioning that many comments were about anxiety due to the travel being associated with life events.

7.4.6 Effect of travel on attitudes

In the previous sections the circumstances surrounding unfamiliar travel and unfamiliar travel experiences were explored. This section explores whether the experience on first trips impacted attitudes toward public transport, in order to address Research Question 3, "*to what extent do first trips impact attitudes and behaviour related to modal choice?*"

7.4.6.1 Recall rate

As discussed in the review of literature, studies of the primacy effect have shown higher rates of recall for first impressions which is typically attributed to higher rates of cognitive awareness for novel stimuli. As such, it was hypothesised that people would remember unfamiliar trips more clearly than familiar trips. In order to test this hypothesis, the number of 'cannot recall' responses of trip attribute ratings were thus summed up and compared. The results, which are presented in Table 7-14, indicate that there was little difference between familiar and unfamiliar travellers though unfamiliar travellers did have a slightly higher tendency to remember their journeys. An independent samples t-test proved that this difference was not significant $t(400) = 1.51$, $p>.05$. Overall the recall rate was high, so this finding could be expected. The high recall rate could possibly be attributed to the close proximity between the trip undertaken, knowledge that the participants would be answering a survey about their trip and close proximity between travelling and responding to the survey (96% of respondents filled in the survey within one week of undertaking their travel).

Table 7-14: Recall of trip experiences, by familiarity.

Number of "Cannot Recall" responses	Familiar (%)	Unfamiliar (%)
0	94%	96%
1	6%	4%
2	0%	0%
3		0%

7.4.6.2 Shifts in attitudes

As a measure of attitudes, participants rated whether their expectation toward public transport are met both before their trip (in the poll) after their travel (in the follow-up survey). Before and after attitudes were significantly correlated (r(650) = .72, p<.01), indicating that pre-trip attitudes seemed to influence after-trip ratings. A paired samples t-test also suggested that there was a small but statistically significant positive shift in attitude in the sample as a whole (M = -0.08, SD=0.73, p<.01.

When disaggregated by familiarity, the results of this analysis (Figure 7-5) show that familiar travellers were less likely to have their attitudes shift in either direction than unfamiliar travellers, who seem to be split in terms of whether their attitudes shifted positively or negatively. However, chi-square tests indicated that this trend was not statistically significant, χ^2 (1, N=594) = 1.98 p=0.16.
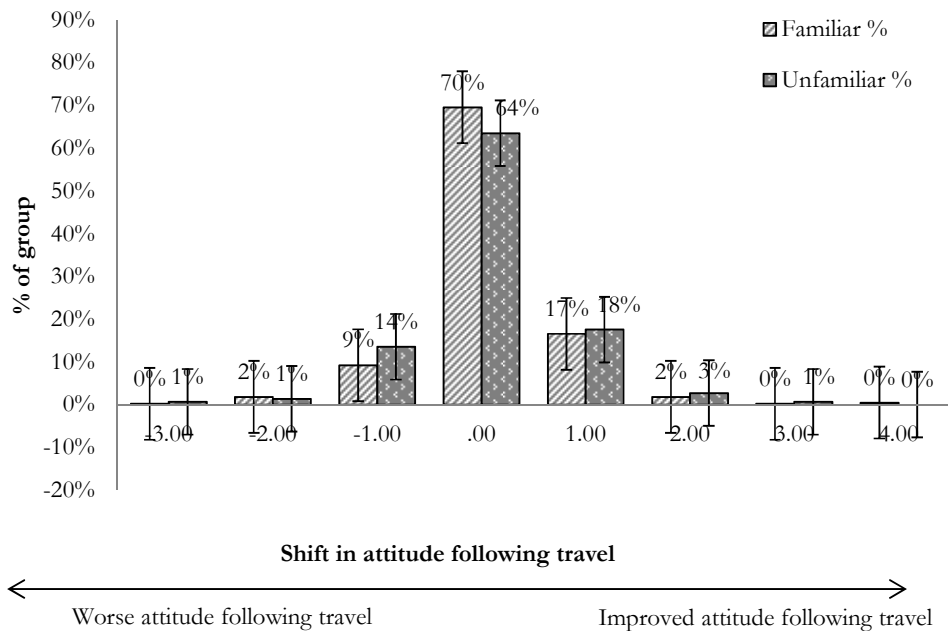
Figure 7-5: Shift in attitude following travel

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7.4.7   Impact of first trips on behaviour

This section explores the results associated with whether unfamiliar trips impact behaviour related to modal choice in order to address research question 3f, "Are there any behavioural trends related to first trip experiences?"

As indicated in Table 7-15, most travellers (97% of familiar travellers and 75% of unfamiliar travellers) said that they would use public transport for their trip again, but the proportion of a travellers stating that they 'would not' or 'did not know' if they would use a service again was larger in the unfamiliar traveller sample. A Pearson's chi-square indicated that familiarity was significantly related to intention to use transit services again, $\chi^2(2) = 40.23$, p<.01.

Table 7-15: Intention to use service again, by familiarity

Will use service again?	Familiar (%)	Unfamiliar (%)
Yes	97%	75%
No	1%	7%
Don't know	2%	17%

Note: Participants who said that they would not be using transit again for that journey because they were unlikely to be travelling to that destination again were excluded from this analysis. Also those who responded "do not know" to their likelihood of re-using a service are presented in this table, but were excluded from this chi-square analysis.

In order to better ascertain how travel experiences impacted intention to use services again, independent samples t-tests were undertaken to determine whether people who had more positive travel experiences were more likely to say they would use public transport again (Table 7-16). In general, higher attribute ratings were associated with intention to use services again, especially for unfamiliar travellers. For unfamiliar travellers, t-tests indicated ratings of 'emotional state during the trip', 'comfort', 'ease of ticketing (purchasing)' and 'overall satisfaction' were all significantly more positive for those who said they would use the service again. In contrast, for familiar travellers only 'overall satisfaction' ratings differed between those who would use the service again and those who would not. This suggests that the trip experience has a greater impact on future behaviour for unfamiliar travellers than for familiar travellers.

Interestingly, 'soft' variables such as 'comfort' and 'emotional state' were more influential than expected travel time and concern about being late. However for this analysis, there were very few travellers who reported that they would be unlikely to use services again so the results should be interpreted with some caution.

Table 7-16: Mean trip attribute ratings based on intention to use service again, by familiarity[37]

Attribute	Familiar		Unfamiliar	
	Yes (n=429)	No (n=3)	Yes (n=113)	No (n=9)
Ease of Navigation (wayfinding on public transit)	4.2	3.3	4.0	3.8
Ease of Ticketing (purchasing)	3.5	2.5	3.8*	2.8*
Emotional State during the trip	3.8	4.3	3.7**	2.8**
Expected vs Actual Travel Time	2.9	3.0	3.1	2.7
Concern about being late	2.6	3.0	2.8	2.8
Comfort	3.2	3.3	3.5**	2.6**
Ease of transfer (e.g. finding next service)	3.7	3.0	3.5	3.2
Appearance of stations/ stops	2.9	2.7	3.1	2.8
Sense of security while travelling	3.7	4.3	3.6	3.1
Sense of security while waiting	3.7	4.0	3.5*	2.7*
Overall convenience	3.6	2.7	3.7	3.0
Overall satisfaction	3.6*	2.3*	3.8*	2.8*

Note: **p=<0.01 and *p<0.05

7.5   *Discussion and conclusions*

This research method involved using a popular travel planning website to conduct research by offering a poll before a journey and then a follow-up survey after travel was undertaken. The results from this study are summarised in Table 7-17.

7.5.1   RQ1: under what circumstances do first trips occur?

The results suggests that approximately one-fifth of the participants surveyed were undertaking an unfamiliar transit trip, which is relatively high given the amount of literature suggesting that most travel is habitual (Verplanken and Aarts 1999; Thøgersen 2009). However, this could be partly attributed to the recruitment mechanism (engagement through a Journey Planner website). Also, a large number (n=119) of the unfamiliar journeys included a familiar leg in addition to the familiar leg.

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[37] Participants who said that they would not be using transit again for that journey because they were unlikely to be travelling to that destination again were excluded from this analysis. Also those who responded "do not know" to their likelihood of re-using a service have been excluded.

Consistent with literature about life events suggesting that it might prompt reassessment of travel options and hence non-habitual travel (e.g. Davidov 2007; Verplanken et al. 2008; Sharples 2009; Van Exel and Rietveld 2009) this study found that unfamiliar travel was more commonly associated with life events than familiar travel. The research also revealed a number of notable other circumstances surrounding unfamiliar travel:

- having lived in Melbourne for less time
- travelling with another person, whom were also unfamiliar with the subject transit services
- travelling for leisure/errands/shopping/fitness rather than employment
- not having previously been to a destination.
- using buses and trams more often. Unfamiliar travel was split with 38% occurring on trains, 33% on trams, and 27% on buses.
- Use of tools to assist in travel

Understanding these circumstantial trends also provides context for examining trip experiences.

Table 7-17: Summary of findings

	Research Question	Evidence	Notes
1	**Under what circumstances do first trips occur?**	Unfamiliar travel was commonly associated with: • life events, particularly beginning/switching jobs • having lived in Melbourne for less time • travelling with another person, whom were also unfamiliar with the subject transit services • leisure/errands/shopping/fitness instead of employment • not having previously been to a destination. • using buses and trams more often. Unfamiliar travel was split with 38% occurring on trains, 33% on trams, and 27% on buses.	
1a	How prevalent are first trips?	From the poll, 23% of the 3,537 respondents reported taking trips for the first time. 20% (n=119) of journeys included a familiar leg as well as one 'new' leg and 5% (n=33) of journeys only included 'new' legs	
1b	Are life events (a/k/a life events) associated with a high rate of first trips?	18% of unfamiliar travellers stated that their travel was related to a life event while only 9% of familiar users travellers reported this. The qualitative comments included depictions of life events as causes of anxiety.	Tendency for life events to prompt unfamiliar public transport travel.
1c	Which life events in particular are associated with a large number of first trips?	The most commonly identified life event associated with unfamiliar travel was beginning or switching jobs.	
1d	RQ1d: Do first trips require more assistance than familiar travel?	Use of 'tools' was more common among unfamiliar users (85%) than familiar users (62%).	The most popular tools were use of the PTV website, followed by use of an application.
2	**What experiences are associated with first trips on public transport?**	**24% of unfamiliar travellers provided qualitative comments about unfamiliarity compared to 15% of familiar travellers**	

	Research Question	Evidence	Notes
2a	How are first trips different to other trips?	'Navigation (wayfinding on public transport)', 'emotional state during the trip' (level of anxiety) were rated significantly lower for unfamiliar travellers, 'expected vs actual travel time' and 'level of comfort' were rated higher Note: When multiple influences were considered, unfamiliarity was less important to attribute ratings than other factors, except for emotional state. However, variables closely related to familiarity, including 'time living in Melbourne' and having 'previously been to a destination' were significant predictors for a number of attribute ratings.	
3	**To what extent do first trips impact attitudes and behaviour related to modal choice?**		
3b	Does a first trip create an impression that affects attitudes about public transport in a similar way to the way that primacy effect has been shown to create biased impressions with more simplistic stimuli/meeting people?	Recall rates were not significantly different between familiar users and unfamiliar users. Unfamiliar travellers were more likely to have their attitudes shift following travel, but this was not significant.	Unfamiliarity appears to be somewhat important to impressions, but not to the extent required to be statistically significant.
3f	Are there any behavioural trends related to first trip experiences (e.g. adverse first trips associated with lower rates of continued patronage for that trip purpose)?	Unfamiliarity was significantly related to intention to use transit services again: For unfamiliar travellers, t-tests indicated ratings of 'emotional state during the trip', 'comfort', 'ease of ticketing (purchasing)' and 'overall satisfaction' were all significantly more positive for those who said they would use the service again. In contrast, for familiar travellers only 'overall satisfaction' ratings differed between those who would use the service again and those who would not. This suggests that the trip experience has a greater impact on future behaviour for unfamiliar travellers than for familiar travellers.	For this analysis, there were very few travellers who reported that they would be unlikely to use services again so the results should be interpreted with some caution.

7.5.2 RQ2: what experiences are associated with first trips on public transport?

Trip attributes that were rated significantly more negative for unfamiliar travellers than familiar travellers were 'navigation (wayfinding on public transport)' and 'emotional state during the trip' (level of anxiety). Conversely the trips ratings for 'expected vs actual travel time' and 'level of comfort' were higher than for familiar travellers. The former two findings, that unfamiliar travel can be challenging in terms of navigation and causing negative emotions, are consistent with the limited research about unfamiliar travel (e.g. Dziekan and Dicke-Ogenia 2010). However our previous research did not find any of the attributes to be rated significantly higher for unfamiliar travellers whereas the present study did. Further research is clearly needed to see if this is a result of the research method used, or whether other characteristics of the trips are influencing these experiences. For example, trips to work (more common for familiar travellers) may be less comfortable due to crowding and workers may be more sensitive to travel time than travel for leisure/shopping (which is more common for unfamiliar travellers).

Meanwhile the regression analysis indicated that when multiple influences were considered, except for 'emotional state' unfamiliarity was less important to attribute ratings than other factors for most attributes of trip experience measured. However, the regression analysis also showed that variables closely related to familiarity, including 'time living in Melbourne' and having 'previously been to a destination' were significant predictors for a number of attribute ratings.

The open-ended responses suggested that familiarity was an important component to emotional state experience with 25% of respondents mentioning familiarity or unfamiliarity as part of the explanation for their emotional state, even though the question did not specifically ask about this as a trigger. Unfamiliarity was more often mentioned (24% of unfamiliar travellers brought it up) than familiarity (15%). This finding was consistent with our hypothesis that unfamiliarity is an important factor to trip experiences.

7.5.3 RQ3: to what extent do first trips impact attitudes and behaviour related to modal choice?

Recall rates were not being significantly different between familiar users and unfamiliar users which was counter to the hypothesis that the primacy effect may occur with unfamiliar travel. However recall rates were very high generally, likely due to the short time lapse between travel and survey completion

This research also found a significant correlation between the pre-trip attitudinal rating and the post-travel attitudinal rating (suggesting the persistence of attitudes); however it also found the difference between the two to be significant. The latter finding suggests that the travel experience may be important to attitudinal shifts. While it appeared unfamiliar travel was associated with higher rates of changed attitude ratings following the travel (50%) than for familiar travellers (30%) the relationship was not found to be statistically significant. Thus, it may be that unfamiliarity is associated with more pliable travel attitudes in relation to recent experiences, but this requires further investigation. It is also worth noting that the wording of the attitudinal question, (which was preferred by the research partner, PTV), was not straight-forward as it measured expectations rather than satisfaction. Further research using different question wording is recommended.

The finding that attribute ratings were higher for travellers who stated that they intended to use services again than those who did not, suggests that positive trip experiences impact intention to re-use services, particularly in the case of unfamiliar transit travel. The key attributes where this was most evident included 'emotional state during the trip', 'comfort', 'ease of ticketing (purchasing)', and 'overall satisfaction'. This provides support for the hypothesis that experiences during unfamiliar travel can have an impact on intention to use a service again, highlighting the importance of improving the travel experience of unfamiliar travellers.

7.5.4 Limitations

There are also some research limitations worthy of consideration. Although the number of survey responses was quite high, the sample is self-selected and demographically included a very high representation of young participants. The issue of selection bias may be also exacerbated by research suggesting that people are more likely to use travel planning information if they are frequent transit users (Farag and Lyons 2012). Moreover, while the research was designed to evaluate a great variety of travel types and geographies across Victoria, this also meant that there were a large number of variables that could be impacting experiences in addition to trip familiarity.

Despite these limitations, the research offers important information that could contribute to the success of travel behaviour change campaigns and the design of transit systems. It shows that life event events, such as changing jobs, provide a unique opportunity to engage with unfamiliar public transport users. It highlights that some aspects of travel are more negative for unfamiliar travellers and that negative experiences can discourage them from using public transport services again. In particular it suggests that 'soft' factors such as comfort, understanding the ticketing system and being at ease while travelling may be more important to unfamiliar users than traditional metrics such as expected travel time and concern about being late.

8 Discussion and Conclusions

This 'Discussion and Conclusions' chapter brings together the findings from the literature review and four research methods into a synthesised overview and examination of the results. It critically assesses the research methods, offers insights about the direction for future research and discusses the theoretical implications and practical applications arising from the research.

As discussed in the Introduction, in order to grow the public transport market individuals must be encouraged to undertake new and unfamiliar transit travel, including attracting entirely new users, and for occasional users, increasing the frequency of use and widening the spectrum of journey purposes for which transit is used. Despite the need to attract and retain new market segments little is known about unfamiliar public transport use. Behaviour change campaigns and marketing tend to assume that use of public transport will result in more favourable attitudes about the mode (Thøgersen 2009), however little research has actually investigated this. This research tries to fill this gap by examining new public transport travel behaviour as a facilitator of long-term behaviour change. As discussed in the Review of Literature, there is some existing research addressing Research Question 1, notably about life events and ATIS but this research is across a number of studies focussing on elements of circumstances of unfamiliar transit travel rather than a more extensive review of circumstances. Moreover, only limited existing research is directly relevant to Research Questions 2 and 3, notably one study of public transport travel through unknown environments (e.g. Dziekan and Dicke-Ogenia 2010) and wayfinding on public transport (Stradling 2002; Zhang 2002; Woyciechowicz and Shliselberg 2005; Hutchinson 2009). This is despite the fact that existing research about traveller tools notes that new behaviours require increased cognitive effort for information searching and decision-making (Aarts et al. 1997; Van Exel and Rietveld 2001; Klockner and Matthies 2004; Chorus et al. 2007; Klöckner and Friedrichsmeier 2011).

This thesis has attempted to inform this gap in knowledge by exploring 'unfamiliar public transport travel'. The over-arching aim of the research has been:

To explore unfamiliar public transport trips to better understand their circumstances, experiences and significance to mode choice.

This Discussion & Conclusions chapter begins with an overview of key findings for each research question in 8.1: 'Overall findings'. Next a review of the research design is provided including identification of strengths and limitations of each research methods in 8.2: 'Analysis of research design'. The suggested direction for future research is offered in 8.3: 'Future research direction'. In 8.4: 'Implications and recommendations', the implications for research are discussed which is followed by an overview of practical applications and recommendations arising from the research. Finally an overarching conclusion is presented in section 8.5.

8.1   Overall findings

The research undertaken as part of this thesis has explored the potentially important and overlooked issue of unfamiliar transit travel utilising a mixed methods approach to triangulate the results. The main research questions were:

- RQ1: "Under what circumstances do first trips occur?"
- RQ2: "What experiences are associated with first trips?"
- RQ3: "To what extent do first trips impact attitudes and behaviour related to mode choice?"

A number of important findings have been revealed in relation to each of these research questions and will be reviewed in sections 8.1.1 - 8.1.3. In addition, one important finding related to the scope of the research emerged; that is that 'unfamiliar travel' can mean different things to different people. There is a spectrum of unfamiliarity ranging from being completely unfamiliar with a city or country to being unfamiliar with one aspect of a service (such as a new stop or station). The discovery that 'unfamiliarity' means different things to different people highlights the important finding that familiarity is not strictly black and white. Having used a service once before does not necessarily make one 'familiar with the service', for example, in the Interviews a number of people who described using services infrequently still reported unfamiliarity anxiety. Moreover, if one has used a service before, but simply needs to alight at a different stop or station, they may still have difficulty with wayfinding, particularly once disembarked from the vehicle. Catering to unfamiliar users is likely to not only benefit those travelling on first trips, but also sporadic users and even frequent transit users simply using a new service. Despite this, the definition of unfamiliar travel as the 'first time using a particular

service' was generally applied throughout the thesis. However this finding has important implications, illustrating the variability in unfamiliar travellers' needs and contexts.

8.1.1   RQ1, "Under what circumstances do first trips occur?"

A summary of the findings related to Research Question 1, "Under what circumstances do first trips occur?" is provided in Figure 8-1. It was found that compared to familiar travel, unfamiliar travel tends to occur more at off-peak times, with a companion, and not be for commuting. Trip purposes associated with unfamiliar transit travel included: travelling interstate or overseas, visiting friends and family, new services, personal appointments like healthcare, leisure, exploration, events, and shopping. Those who had lived in Melbourne for less time were more likely to be undertaking unfamiliar transit travel. Familiar travel, in contrast, was primarily reported to take place in relation to habitual commuting.

Analysis of the spatial distribution of unfamiliar travel indicated that compared to Victorian residents, visitors were slightly more likely to have travel originating from the Inner City/City loop area. Looking at origins and destinations together, the greatest share of unfamiliar travel was from middle suburbs to the inner rail stations.

In relation to the sub-Research Question 1b, "are life events associated with first trips?" there is ample background research suggesting that they are. Life events, important structural change milestones like moving houses or starting new jobs, have been shown in previous research to prompt reassessment of travel habits potentially prompting unfamiliar public transport travel (Davidov 2007; Sharples 2009; Van Exel and Rietveld 2009; Scheiner and Holz-Rau 2013). This previous research has been supported by the findings in this thesis. In the Interviews, first trips were reported to sometimes occur in relation to life events. The Journey Planner Poll & Follow-up Survey most directly examined life events and found that 18% of unfamiliar travel was related to a life event whereas only 9% of familiar travel was.
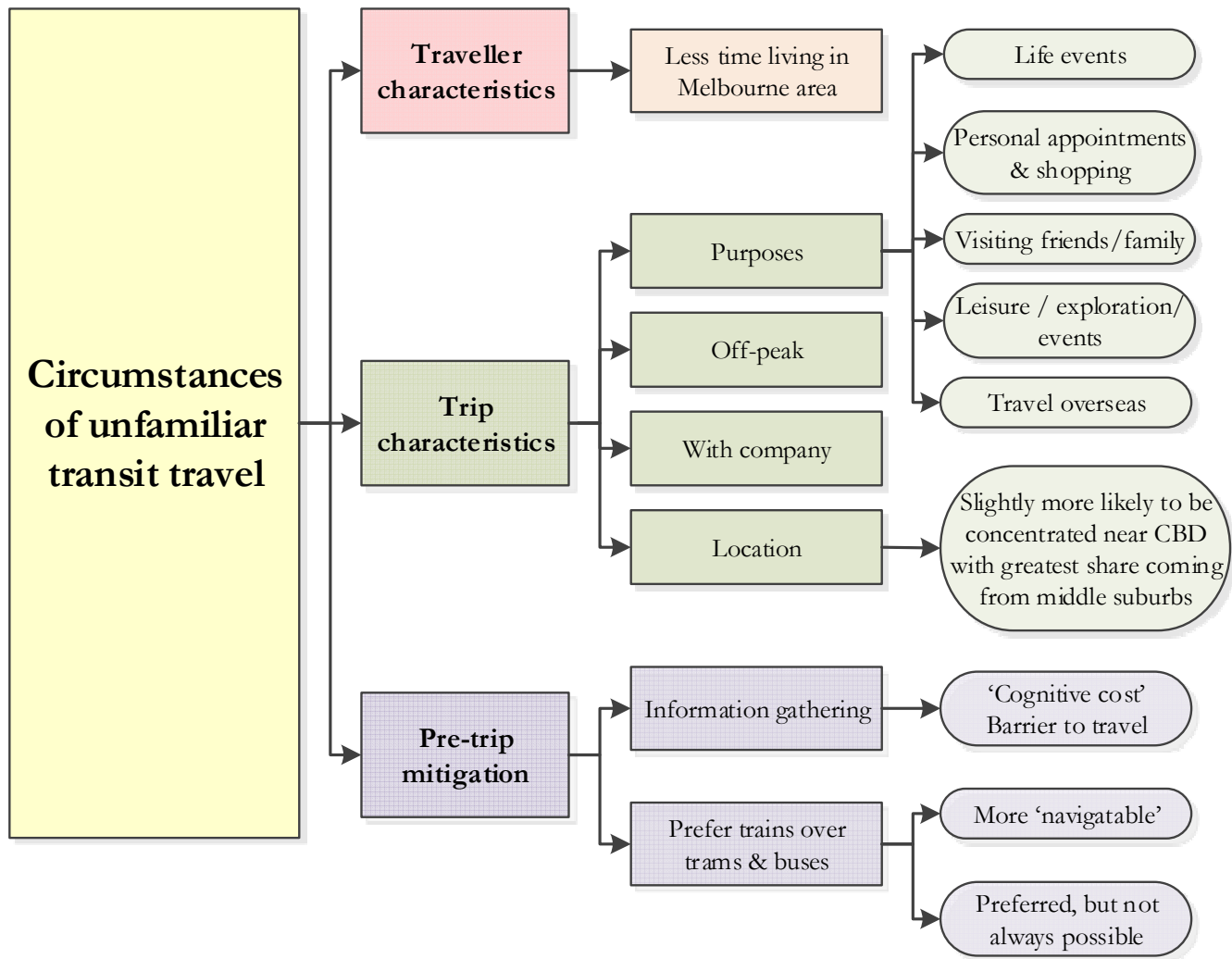
Figure 8-1: Summary of circumstances of unfamiliar transit travel

In terms of which specific life-events prompt unfamiliar public transport travel (Research sub-question 1c), literature suggests life events to prompt changed travel habits to include: moving houses, starting new jobs, obtaining a driver's license, switching schools, changed physical mobility and having children (Davidov 2007; Sharples 2009; Van Exel and Rietveld 2009; Engel et al. 2014). The thesis research did not find such diversity in prompts. Life events mentioned in the University access survey included starting jobs and university courses. In the Journey planner poll and follow-up survey, the most commonly identified life event associated with unfamiliar travel was beginning or switching jobs; thus while this may be relatively rare, this life event seems to be a consistent prompt for unfamiliar public transport travel. In the Interviews, life events prompting unfamiliar public transport travel included starting a new job, interviewing for jobs, starting an educational course, and moving houses/countries. A useful and relatively new finding was some interviewees reporting particular life events, like moving cities, to initiate *a series* of first trips. This finding would seem to be compounded by, or perhaps is the result of, multiple life events occur in clusters (e.g. moving and starting a new job), a characteristic of life events documented in previous research (Scheiner 2014). Furthermore some interviewees explicitly described taking an unfamiliar journey in order to evaluate whether or not to take a job/course and/or test how they would travel for it. In addition, some interviewees described first trips occurring due to others' life events, such as friends being in the hospital, deaths, and specialists' practices moving. These latter aspects of life events prompting travel behaviour changes are not well-documented in existing research. People also discussed the impact that life events had on their emotional state while undertaking unfamiliar travel. This is another finding not well-documented in previous research.

Another important circumstance of unfamiliar transit travel is that it requires more pre-trip preparation and research to reduce anxiety and aid successful travel execution. Across the research methods this pre-trip planning was reported to be somewhat taxing (having a higher cognitive cost), particularly when there was conflicting information. This creates a barrier to undertake unfamiliar travel and has implications for mode choice. In contrast, participants were quite knowledgeable about their familiar journeys, knowing a number of service options for their travel which enabled reduced anxiety and the ability to adapt travel if there were service interruptions, making them more resilient.

In terms of modes used for unfamiliar public transport travel, it was also found that unfamiliar travellers prefer trains over buses and trams due to perceptions of navigability. However in the Journey Planner research method more unfamiliar travel was observed to actually be by buses

and trams, though this could be related to service coverage. It could be that commuting trips (which were observed to be rare for unfamiliar travel) dominate train travel whereas bus/tram may be more common for other trip purposes. One of the Interviewees offers another possible explanation for this contradictory finding. She reported she would be more likely to end up taking unfamiliar travel by bus because she has already used most of the trains/train services in places she is likely to go. It is possible that her situation is not uncommon which might explain why trains did not make up a greater share of unfamiliar transit travel in the JP Poll and Follow-up Survey.

In relation to unfamiliar travel prevalence (RQ1a, Table 8-1), background research indicates that prevalence is likely to be low with most travel undertaken habitually (Verplanken and Aarts 1999; Thøgersen 2009). The Origin-Destination survey most directly examined unfamiliar travel prevalence and showed that unfamiliar travel represented 2% of Melbourne's total metropolitan train travel. While this is a small share it equates to approximately 10,000 journeys per weekday which is a fairly substantial market. However prevalence is likely actually higher because the O-D survey included weekday travel, including peak times and excluded weekend and late night travel and unfamiliar travel has been observed to be more common at off-peak times. In the Journey Planner Poll and Follow-up Survey, it was observed that approximately one-fifth of the participants surveyed were undertaking unfamiliar travel, but this could be partly attributed to the recruitment mechanism as the thesis research also showed that unfamiliar public transport travellers have an increased need for pre-trip information. Also it is worth reiterating that the Journey Planner Follow-up Survey sample included a large number (n=119) of unfamiliar travel that included a familiar trip-leg in addition to the unfamiliar trip-leg.

Table 8-1: Prevalence of unfamiliar travel, across research methods

Research Method				
Review of Literature	*Interviews*	*Origin-Destination Survey*	*University Access Survey*	*JP Poll & Follow-up Survey*
Most travel is undertaken habitually, unfamiliar travel is not prevalent (Verplanken and Aarts 1999; Thøgersen 2009).	Not directly examined but many comments provided useful insights: relatively rare, but some diversity between interviewees. In contrast, the interviewees seemed readily able to identify a number of familiar journeys.	Unfamiliar travel represented 2% of the total train travel, this equated to approximately 10,000 journeys per weekday which is a fairly substantial market. However survey primarily conducted during peak hours, likely underestimating prevalence.	Not examined.	Approximately 1/5 of participants surveyed were undertaking unfamiliar travel, but could be partly attributed to the recruitment mechanism. Also, a large share (n=119) of the unfamiliar travel included a familiar trip-leg in addition to the familiar trip-leg.

8.1.2 RQ2: What experiences are associated with first trips?

Research question 2 seeks to ascertain what experiences are associated with unfamiliar public transport travel. This was primarily investigated by focusing on how first trips are different to familiar journeys. A summary of the results is provided in Figure 8-2.

One of the most consistent findings of this thesis was that the emotional experience of travel differed markedly between unfamiliar and familiar travel. Throughout a number of the research methods, participants reported greater feelings of anxiety during unfamiliar travel. This appeared to be related to difficulties with wayfinding and other 'unknowns' on the journey. Sometimes anxiety was related to the key life events prompting unfamiliar travel, such as anxiety about a new job, a job interview or starting an educational course. Interviewees also occasionally described other sources of anxiety for unfamiliar travel to include: travelling alone, security, lack of autonomy and life events. Previous mistakes and inexperience with modes exacerbated anxiety. These findings related to emotional state were consistent between research methods, but they are also supported, to a degree, by existing literature. For example, Dziekan and Dicke-Ogenia (2010) found that travelling through unfamiliar environments is particularly challenging and stressful due to a perceived lack of control, a lack of information and a process of updating

one's 'cognitive map'. These authors point out the important interaction between wayfinding and emotions. This relationship was reported by a number of the Interviewees who described wayfinding as a source of stress for unfamiliar travel, particularly due to concern about making mistakes and their possible consequences (and indeed a number of mistakes related to wayfinding were reported to occur). Similarly, the University Access Survey and Journey Planner Poll and Follow-up Survey, both found that people experienced more negative emotions and more trouble with wayfinding on unfamiliar trips compared to familiar travel. Interestingly Backer-Grondahl et al. (2009) argue that such anxiety is under-researched but more likely to occur than more commonly-researched travel risks such as fatality.
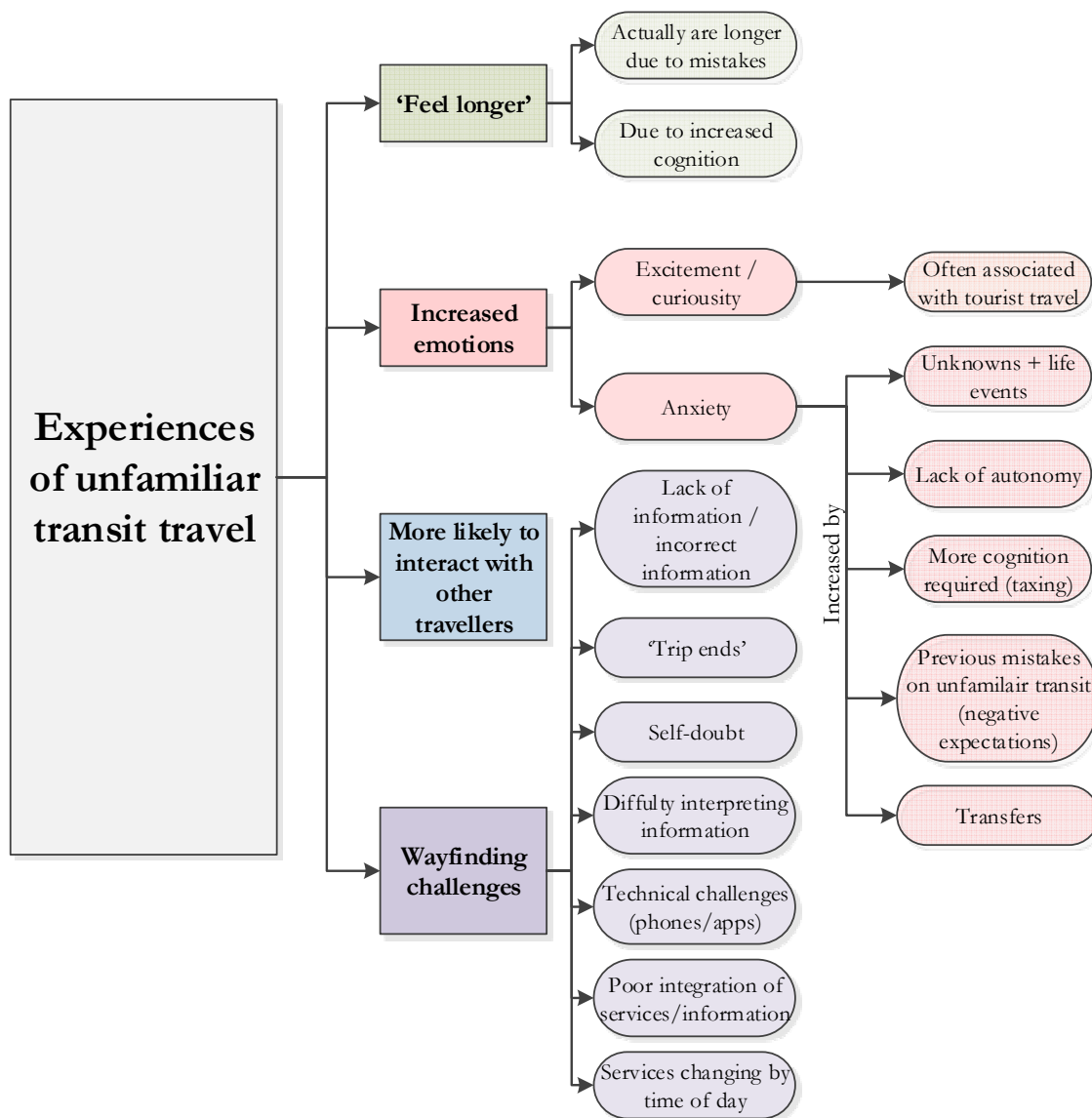
Figure 8-2: Summary of experiences related to unfamiliar transit travel

In contrast, familiar travel tended to be characterised by boredom and less cognition about the travel itself and boredom. People described sleeping, reading and listening to music. One plausible explanation for the observed differences in emotions between unfamiliar and familiar travellers could be related to which of these activities people undertook while traveling. Research by Gatersleben and Uzzell (2007) found that public transport users describe music and literature as sources of pleasure. Thus familiar users, who reported engaging in these activities during trips more than unfamiliar travellers, may have had their emotional state positively influenced by such activities. In contrast, the Interviews highlighted that unfamiliar users worry about making mistakes and the cognitive cost of wayfinding.

It should be noted that not all emotions during unfamiliar travel were negative; these journeys were also reported to sometimes inspire excitement and curiosity, particularly for tourist travel.

In the Interviews, wayfinding was described as looking for signs, landmarks, and at maps; sometimes people would describe second-guessing their navigation while travelling which caused anxiety. A number of specific challenges to wayfinding were uncovered in the research including:

- services changing at different times of day
- mis-labelled stop maps, no route maps on-board transit vehicles
- maps being difficult to interpret or inaccurate
- phones not working and trouble with apps
- figuring out which bus shelter to go to
- different operators of services leading to less integration of information.

Participants also described difficulty with wayfinding at 'trip ends', particularly a lack of maps upon exiting stations, confusion related to coming out of underground stations with multiple exits, and being unable to see one's destination from the street. Darkness was a challenge to wayfinding, particularly for seeing stop numbers and street signs. Despite these challenges to wayfinding, facilitators for wayfinding were also identified during the research some of which are discussed in section 8.4: 'Implications and recommendations'.

An interesting aspect of unfamiliar travel, with the potential to impact perceptions of journey time, is that unfamiliar travel was reported to 'feel longer'. This could be partly attributed to the types of activities that people undertook while travelling; unfamiliar travellers were more cognizant of the travel itself whereas as previously mentioned, familiar travellers undertook other

activities like reading and listening to music. The latter has been found by Li (2003) who terms it 'polychronic' use of time, to pass quicker. Moreover, Coxon et al. (2008) describes how the use of time in such a way increase the perception of value of the transit in the mind of the patrons. However unfamiliar trips may also have actually been longer due to inefficient route or service choices and mistakes made. Most mistakes occurring during unfamiliar travel related to missing one's stop, getting off too early in anticipation of potentially missing a stop, not taking the most efficient route, and going the wrong way toward one's destination after alighting from a service. These types of errors would have the effect of making people's unfamiliar journeys actually longer or at least increased people's perception of how long a journey would take by public transport.

Other experiential variables were not as consistent for unfamiliar travel across the research methods. For example, in the University Access Survey, ticketing was rated significantly more negatively for unfamiliar travel than for familiar travel but the Journey Planner Follow-up Survey found no significant difference.   In the Interviews, unfamiliar ticketing in Melbourne was associated with concerns, such as confusion about where to buy tickets[38]. However, ticketing overseas was not generally reported to be problematic, despite respondents' pre-trip concerns. Generally participants reported that once they had figured out a city's ticketing system they felt confident with ticketing on other unfamiliar services in the city (though were occasionally confused with new modes like buses instead of trains). Integrated ticketing was identified as better for unfamiliar travel as was having less zones and generally systems that allow for people to make mistakes without a financial penalty. People were generally comfortable with buying tickets from vending machines, but sometimes reported that being able to ask a person questions is beneficial for unfamiliar travel. Figuring out where to validate tickets caused some confusion.

In the Interviews, transfers were highlighted by some as a source of anxiety for unfamiliar travel, and thus many reported trying to minimise the number of transfers. This finding was consistent with the University Access Survey in which 'ease of navigating transfers' was rated significantly lower for first trips than familiar travel. However, this finding was not replicated in the Journey Planner Poll & Follow-up Survey, which found no significant differences. Notable sources of transfer anxiety include the lack of integration between services and the potential to make mistakes. Techniques for minimising anxiety related to transferring included following crowds,

[38] in Melbourne the local ticket, myki, is not sold at most stations or on board many services

asking for help, and pre-trip research. Aspects of transit systems that helped with transferring included integrated ticketing and frequent services.

The Interviews also found interactions with other passengers to differ between familiar and unfamiliar travellers. Generally people did not converse with other passengers much for either familiar or unfamiliar travel but some described how when they took unfamiliar travel (particularly overseas rather than locally), they would end up talking to people more. Though people generally discussed avoiding talking to other passengers, this was often identified as a positive attribute of unfamiliar transit travel. This variable was not examined in the other research methods though Gatersleben and Uzzell (2007) report that interactions with other people can be a source of affective pleasure for public transport travellers.

In terms of security, some people in the Interviews stated that they would be more concerned about personal safety during unfamiliar travel. Many stated that reputations of neighbourhoods would influence their perceptions of security. Travelling with others and having it be light outside reduced anxiety about security. Some found the presence of a driver (on buses) to reduce anxiety. However this was not unique to unfamiliar travel as a number of interviewees reported feeling insecure in familiar locations. There were no significant differences in security identified in the other research methods.

In terms of trip satisfaction, two of the research methods (University Access Survey and the Journey Planner Poll and Follow-up Survey) found no significant differences between unfamiliar and familiar travel. In contrast, in the Origin-Destination Survey unfamiliar travellers reported being more satisfied with their recent travel than familiar travellers. However this question was only asked of unfamiliar travellers on their return journeys because those awaiting their first trips would have little basis from which to answer this. Thus only 53 unfamiliar travellers responded to this question and the spatial analysis indicated that unfamiliar travel tended to be more spatially-oriented toward the CBD, where service levels are higher so these findings should be interpreted with some caution. Moreover, previous research by Pedersen et al (2011) found that recall of satisfaction with public transport is negatively biased whereas on-line experienced satisfaction tends to be higher. Interestingly the University Access Survey and Journey Planner Follow-up Survey relied more heavily on recall than the O-D Survey which was conducted on train platforms, thus potentially explaining this discrepancy. However as this is speculative, the overall interpretation of unfamiliar trip satisfaction remains somewhat ambiguous.

A summary of the findings related to analysing the impact of these first trip experiences will now be offered.

8.1.3   RQ3: To what extent do first trips impact attitudes and behaviour related to mode choice?

This was perhaps the most difficult of the three main research questions to answer. However the research collected provides some useful insights to address this question. Key findings related to addressing this research question will be examined shortly, but in summary include:

- Unfamiliar trips seemed to impact attitudes.
- Experiences of unfamiliar travel in other cities was observed to shape attitudes about those cities' transit networks, opinions of home cities' networks, and sometimes the cities themselves.
- Unfamiliar travellers were less certain about whether they would use services again, indicating an impact on subsequent travel behaviour. Trip experience was observed to have a greater impact on future behaviour for unfamiliar travellers, particularly for non-captive users.
- Travellers adapt to optimise both unfamiliar travel and subsequent travel. Adaptations were more pronounced for familiar travellers whereas for unfamiliar travel, adaptations largely related to wayfinding and reducing uncertainty.

One way of trying to ascertain the impact of first trips on attitudes was to evaluate whether recall of unfamiliar travel was disproportionately memorable as would be consistent with the primacy effect. Indeed, some aspects of this thesis provide evidence that unfamiliar journeys are more memorable than familiar journeys. In the Interviews, there was some variability between participants in their ability to recall unfamiliar travel but people seemed more capable of recalling individual journeys for unfamiliar travel whereas familiar travel was recalled more generally. Recall of unfamiliar journeys was particularly high when trips were related to life events, overseas travel, or critical incidents. In the University Access Survey, a large number of respondents could recall their first trip to the campus by transit, which was notable given the long lapses in time since many of the first trips that were identified. Contrastingly, in the Journey Planner Poll and Follow-up Survey recall rates were not significantly different between familiar users and unfamiliar users. Interestingly these trips were overall more recently undertaken, suggesting perhaps that unfamiliar trip memories are less likely to fade over time. Thus overall, the findings somewhat supported the relevance of the primacy effect, though further research would be beneficial.

This thesis also provides some other evidence that first trips impact attitudes. In the University Access Survey, significant correlations were found between negative first trips and negative overall attitudes, suggesting that unfamiliar trips may be impacting attitudes, though this relationship only shows correlation, not causation. In the Journey Planner Poll and Follow-up Survey, unfamiliar travellers were observed to be more likely to change their attitude about public transport meeting their expectations (50%) than familiar travellers (30%); however the relationship was not found to be statistically significant so the impact is not clear. In the Interviews participants did not explicitly describe their experiences as affecting their attitudes about particular services but often described unfamiliar travel experiences affecting their opinions about cities' transit networks more broadly and even their opinions of the cities themselves. Generally participants had positive impressions of transit networks overseas and used their home cities (typically Melbourne in this research) as a benchmark from which to evaluate other cities' transit networks. Thus Interviewees' experiences of unfamiliar travel in other cities was observed to shape their attitudes about the cities and their transit networks which lends support to the hypothesis that first trips would impact attitudes, consistent with the primacy effect.

Unfamiliar travel experiences were also reported to contribute to individuals gaining valuable information about transport services and local geography. These 'lessons' may have had an indirect impact on attitudes and future mode choice behaviour as increased information about choices was acquired. Some of the knowledge gained related to perceptions of distance, perceptions of service quality (often in terms of spatial orientation such as 'services near the CBD are better'), travel times, and perceptions of reliability. In terms of travel times, to a degree it seemed that familiar travel was associated with more reliable and objective travel time estimates, and possibly even better perceptions of travel time reliability than unfamiliar travel which was instead associated with less knowledge and more pliable perceptions. As discussed in 8.1.2, unfamiliar travel times seemed to 'feel longer', consistent with previous research (Nahemow 1971; Oliver 2002) but were also sometimes reported to be corrected by undertaking the travel, consistent with past research by Fujii, et al. (2001).

The thesis research also offers a number of useful findings related whether first trips impact behaviour related to mode choice to (the second part of Research Question 3). In the Interviews, it was observed that there was a mixture of responses when participants were asked if they used services again following their unfamiliar journeys. For a number of interviewees, it seemed that whether or not they used transit again was based on their experience and

perceptions of convenience from their first trips. However, people may not always be conscious of their impressions and the factors underlying them so it was difficult to explicitly discuss and draw conclusions about the impact of their first trips on subsequent behaviour.

As discussed previously, in the University Access Survey, non-captive transit riders, an important segment for expanding transit markets, were less likely to continue using transit if their first impressions were negative. In the Journey Planner Poll & Follow-up Survey, analysis was undertaken to determine whether or not familiarity, on its own, impacted behaviour related to modal choice. Most travellers (97% of familiar travellers and 75% of unfamiliar travellers) said that they would use the subject public transport services again, but the proportion of a travellers stating that they 'would not' or 'did not know' if they would use a service again was significantly larger in the unfamiliar group (even after excluding people who were unlikely to use a service because they were unlikely to visit a destination again). Statistical analysis then indicated that actual travel experiences impacted intention to use services again with more positive (reported) experiences associated with higher intention to use services again. This trend was especially strong for unfamiliar travellers whose ratings of 'emotional state during the trip', 'comfort', 'ease of ticketing (purchasing)' and 'overall satisfaction' were all significantly more positive for those who said they would use the service again. In contrast, 'overall satisfaction' was the only rating to differ significantly for familiar travellers between those who would use the service again and those who would not. This suggests that trip experience has a greater impact on future behaviour for unfamiliar travellers than for familiar travellers. Another interesting finding was that 'soft' variables such as 'comfort' and 'emotional state' were more influential than 'harder' factors such as 'expected travel time' and 'concern about being late'. However for this analysis, there were very few travellers who reported that they would be unlikely to use services again so the results should be interpreted with some caution.

These findings provide support for the hypothesis that experiences during unfamiliar travel can have an impact on intention to use a service again and is supported, to a degree, by previous research about the impact of trip experiences on future travel behaviour more generally. Past research by Backer-Grøndahl et al (2009) found that past experiences with unpleasant incidents was correlated with worry about similar incidents happening in the future. This finding is important as it suggests that if people have negative first trip experiences this may be a barrier to undertaking future other unfamiliar travel by public transport. Indeed the Interviews also found that people who had made mistakes on previous unfamiliar journeys were particularly worried about making mistakes again. However, the role of experience in impacting future travel

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behaviour is not entirely clear in the literature. For example Gatersleben and Uzzell (2007) found significant differences in affective appraisals of travel modes but did not find any significant differences between subgroups in reported intentions to use their chosen mode again in the future.

In addition to impacts on re-patronage, it was found that people make a number of adaptations to optimise their public transport use both in terms of how they undertake unfamiliar travel and for subsequent travel on services. This was primarily uncovered in the Interviews but adaptations were also reported in the University Access Survey and constitute an impact on behaviour albeit not necessarily mode choice. Some participants described adaptations that they made to how they undertake unfamiliar travel; these were largely related to wayfinding and reducing uncertainty. People also described a number of adaptations that they made from the knowledge they gained during their unfamiliar travel experiences. Almost all interviewees described a number of adaptations that they have adopted for familiar travel, these largely relate to optimising timing of travel and comfort on the basis of previous experiences with services. It is worth highlighting that unfamiliar travel would not have the benefit of such optimisation. These findings support previous research that behavioural adaptation to avoid worry is quite common (Backer-Grøndahl et al. 2009). For example, it is common for people to adapt behaviour in an effort to avoid worry by travelling by a different mode or travelling at a different time.

Finally, and related to the previous points, as depicted in Figure 8-3 and Figure 4-4, the research questions were found to be inter-related and interactive with circumstances affecting experiences which in turn impacts attitudes and behaviour (either through adaptations or changed circumstances for future travel). Figure 8-3 shows this relationship simplistically while Figure 8-4[39] shows these adaptations more specifically in the context of a process of familiarisation. The latter highlights that familiarisation is a multi-dimensional process involving per-trip prompts, preparing for unfamiliar travel accordingly, execution of the unfamiliar travel itself which is characterised by heightened cognition and emotions, evaluation, navigation and is more impressionable that familiar travel. Before a trip becomes entirely familiar there is a phase of adaptation and optimisation before he one can entirely "switch off" from the travel itself. An analysis of the research design and limitations is offered in the next section.

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[39] Note that this diagram was presented previously in Chapter 4, Interviews, when it was first conceived.
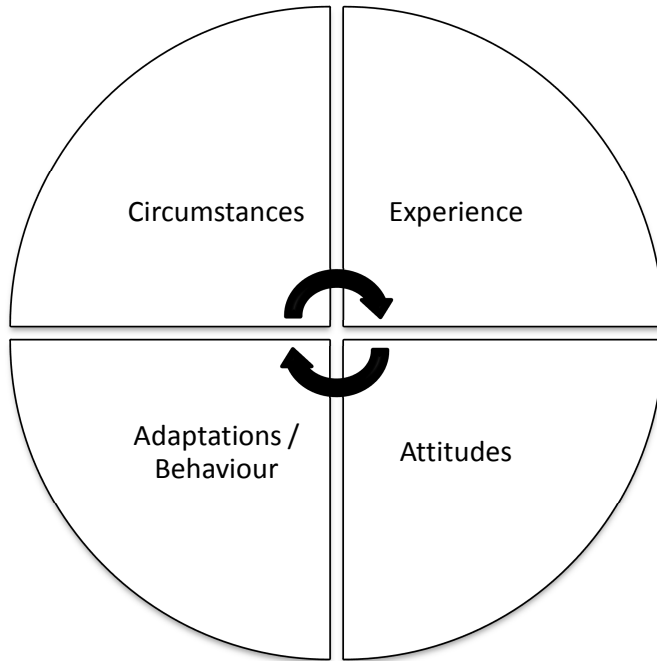
Figure 8-3: The interdependency and cyclical feedback of the RQ's

Trip type	Process	Characteristics

Pre-trip
- Pre-trip preparation
- Circumstances prompting travel

1. Information gathering
2. Prompts:
   - Life events
   - Personal appointments
   - Leisure/recreation/exploration
   - Visiting friends/family
   - Tourism & work travel

Initial trip
- Evaluating the system

Many facets of experiences:
- Cognitive (wayfinding, observing & inquisitive)
- Evaluative
- More emotional (nervous, excited etc)
- Level of uncertainty - requires preparation
- Service operators can affect

Subsequent trips
- Adaptation & optimisation

Adaptations:
- change services (e.g. time of day, trains over buses)
- change circumstances to optimise: ticket option, self-placement, end-of-trip route

Familiar journey
- 'Just travelling'

Journey has become routine:
- Only notice things out of the ordinary.
- Passive (doze, read, music)
- Focus is on activities rather than travel itself
- Reduced process of assessing the system and strategizing

Experience affects likelihood to try other unfamiliar journeys:
- Trip suppression / optimisation (e.g. trains >buses)
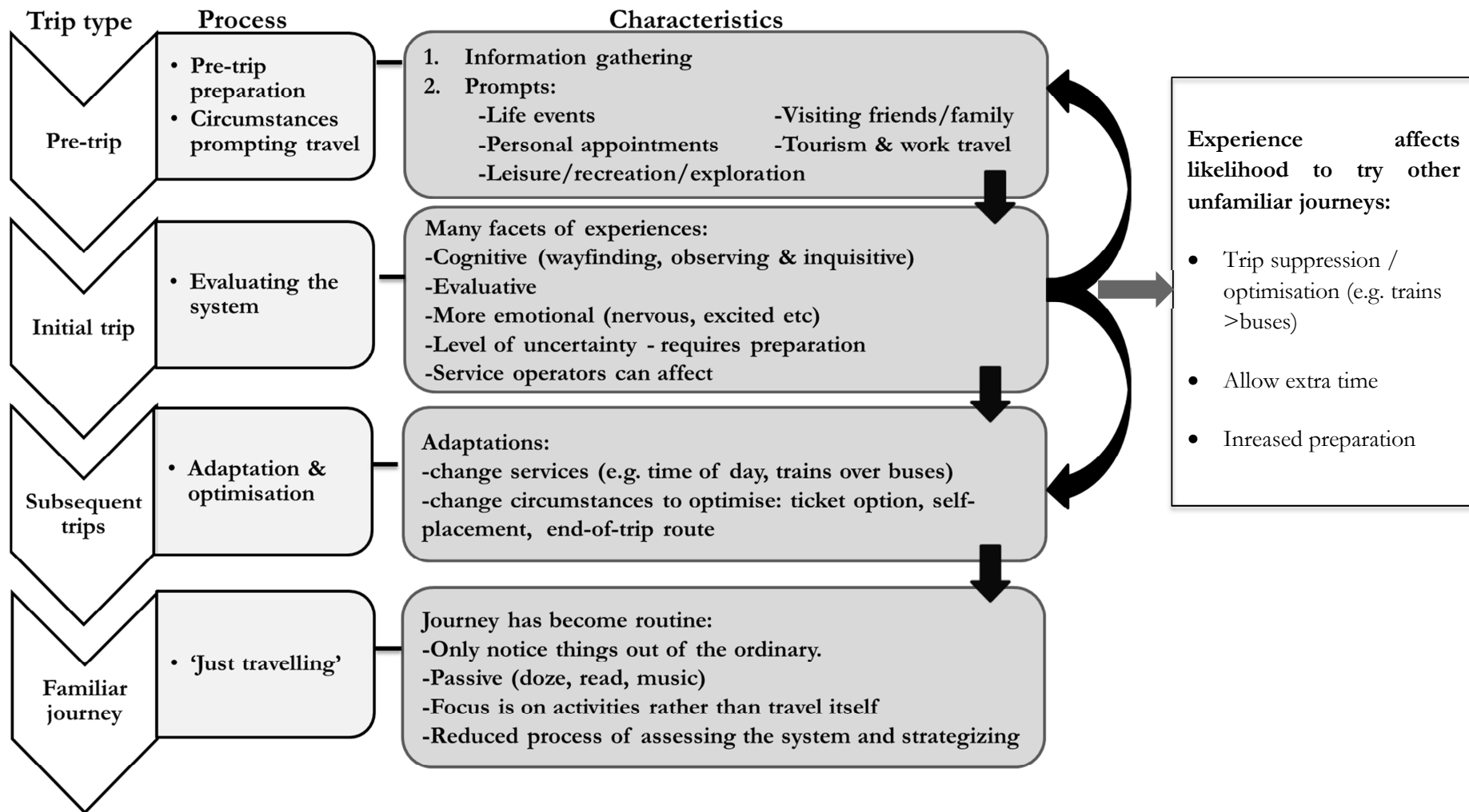- Allow extra time
- Inreased preparation

Figure 8-4: Process of familiarisation and habituation (originally developed in Chapter 4)

8.2 Analysis of research design and limitations

This section offers a reflection on the research design. It considers the methods of research and discusses their advantages and limitations.

Taken as a whole, the research methods employed in this thesis address all of the research questions and provide a number of useful insights. The mixed-methods approach triangulated the results, confirming aspects of the research using quantitative and qualitative research methods examining some aspects of the research from multiple angles. Research Questions 1 and 2 were able to be fairly comprehensively addressed while Research Question 3 may benefit from additional research. Unfamiliar travel is clearly a new area of research, which necessitated the Review of Literature to draw from a wide body of research to inform the development of hypotheses, which were then, in many instances, supported by the research findings.

In the Interviews, Grounded Theory enabled 'bottom-up' collection of rich qualitative data. Undertaking one-on-one interviews provided participants with an opportunity to describe the intricacies of their experiences in great detail and in their own words allowing them to highlight which characteristics were particularly important to them. This exposed some of the subtleties about unfamiliar travel that could not be discovered through the confines of only quantitative, survey-based research methods. Some of the findings uncovered in the Interviews were particularly noteworthy, especially the spectrum of familiarity, anxiety-mitigation strategies, modal preferences, and the learning process associated with unfamiliar travel.

Despite the important and interesting findings from the Interviews, like all research methods, there were limitations. Participants were self-selected from the University Access Survey, from those who agreed to partake in the follow up Interviews. This gave a sample of people who worked or studied at Monash University and included an over-representation of people who use public transport frequently. Even after intentionally selecting for participants who were regular car users, many of the participants seemed to want to use transit and sometimes expressed guilt/reasons for not using transit. Thus the sample may have been biased to people who are more open-minded to public transport than the general population would be. Moreover, because the interviewees were almost entirely university-based, they likely had higher education levels and interest in research methodologies than the general Melbourne population. Thus some caution should be taken in generalising the findings to other populations.

The Origin-Destination survey provided useful information about unfamiliar public transport travel on trains and was robust with its large sample size and non-self-selection. It was also particularly

useful for providing insights about the circumstances surrounding unfamiliar travel, notably the spatial distribution, other trip and socio-demographic characteristics. Of all the research methods included in this thesis, it most directly investigated the prevalence of unfamiliar travel on trains. However, measurement of prevalence was limited by the fact that the survey was only conducted on trains and over-represented peak time periods (Monday – Thursdays from 7am-7pm, thus not including weekends or late nights). Because it was observed that unfamiliar travel is more likely to occur at off-peak times (both in this method and in the Journey Planner poll and survey), the 1% prevalence of unfamiliar travel was likely an under-representation.

The University Access Survey offered a number of useful and interesting insights as well. It was the research method that most directly provided quantitative insights into the primacy and recency effects. It also yielded findings related to the impact of unfamiliar public transport travel on future travel behaviour and highlighted choice sets and public transport captivity as important variables that limit the impact or importance of unfamiliar public transport travel. The research design enabled statistical analysis of the correlation between first trip experiences and overall attitudes about transit and was ordered to hide the intent of the study. Moreover the survey only asked about travel to/from Monash University campus, thus somewhat controlling for service variability with a more limited number of services examined.

Despite these positive characteristics of the research design of the University Access Survey, some research limitations are also worthy of note and may affect the applicability of findings to other contexts. Firstly, while care was taken to design the survey in a way that would minimise response bias, most notably by asking about overall experiences before first trip experiences, it is possible that some response bias occurred. Because the survey relied on cross-sectional responses (as opposed to a longitudinal study), responses about first trips may be influenced by 'recall bias'. That is, people who currently dislike transit may recall their first trip more negatively. The impact of first trip experiences on attitudes is difficult to measure and analyse; the significant correlations between first trip ratings and overall trip ratings does not necessarily imply causation. The direction of causality can only be firmly established through longitudinal research where experiences are measured during first trips and followed up at a later time. However, the correlation between first trip experience and subsequent transit usage (for non-captive transit users) provides at least preliminary evidence that first trip experiences may have a measurable impact on subsequent transit use. Another limitation is that participants were self-selected, being only those that noticed the advertisements and opted to complete the survey. Moreover the sample size was relatively small, limited to university staff and students (primarily postgraduate students), and limited to travel to/from a university. This issue is particularly relevant to the disaggregate analysis which while informative,

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resulted in relatively small subgroup sample sizes, so the findings should be interpreted with some caution.

The Journey Planner Poll and Follow-up Survey addressed aspects of all three research questions through an innovative research method which allowed for pre-trip and post-trip data collection. Using such a popular and commonly-used website like the PTV Journey Planner was advantageous in potentially attracting a wide array of trip types. It was also unique in this thesis research in its allowance for a measure of attitudes before and after a journey in order to directly measure any shifts in attitude resulting from the journeys. Also, unlike the Interviews and University Access Survey, the trips being evaluated were generally more recently undertaken.

Some methodological limitations of the Journey Planner Poll & Follow-up Survey are also worth considering. The study relied on a transit passenger information website for participant recruitment, and as such, the prevalence of unfamiliar travellers was higher than for the other quantitative research methods. Also, both familiar and unfamiliar travellers would have obtained information to plan their trip which may have reduced anxiety and cognitive costs. Thus the findings in this study should be interpreted with these factors in mind. It would be beneficial for future research about unfamiliar travel to more comprehensively examine the effect of information acquisition and tools. Another point worth considering is that although the number of survey responses was quite high, the sample was self-selected and included a very high representation of young participants. The issue of selection bias may be exacerbated by research suggesting that people are more likely to use travel planning information if they are frequent transit users (Farag and Lyons 2012). Moreover, while the research was designed to evaluate a great variety of travel types and geographies across Victoria, this also meant that there are a large number of variables that could be impacting experiences in addition to travel familiarity.

8.3   Future research directions

While the research undertaken during this thesis has greatly increased the amount of information available about unfamiliar public transport travel, there are also opportunities for further research and clarification of some findings that were inconsistent between research methods.

In relation to the research questions, Research Question 1 was well-addressed by the research methods and requires less additional research than the other two research questions. However, further spatial analysis of unfamiliar travel on other modes and further from the CBD would be

useful to examine. Finally, it was found that people sometimes take unfamiliar transit travel due to other people's life events which is not well documented in existing research. This could be further investigated. Similarly the relationship between life events and the impact on emotions was an important and interesting finding which has not been documented much before and could also benefit from further exploration.

In relation to Research Question 2, emotional state was observed to be significantly different between unfamiliar and familiar travel. However it was also observed that different activities are undertaken on unfamiliar and familiar travel and previous research has found that activities undertaken on public transport like reading and listening to music can be sources of pleasure (Gatersleben and Uzzell 2007). Further research is needed to further validate how these differences in activities contribute to the differences in emotional state observed between unfamiliar and familiar travel and how such positive sources of pleasure can be further facilitated for unfamiliar travel. Furthermore, it would be valuable to undertake research with non-users of public transport to ascertain if unfamiliar transit travel is actually intimidating enough to actually dissuade some people from public transport altogether, suppressing first trips from even occurring. Such cases would not have been fully captured by the research methods contained in this thesis, though there were cases in the Interviews of people reporting driving instead of using buses in outer suburbs due to low service level expectations.

Given that Evans and Carrere (1991) argue increasing perceived behavioural control can mitigate transport anxiety (albeit in relation to driving buses), it would be interesting to research unfamiliarity across different modes. For instance the autonomy of car-based travel is touted by drivers to provide positive affect (refer Mann and Abraham 2006) so it would be interesting to learn if unfamiliar car travel is more palatable than transit travel due to perceptions of increased perceptions of autonomy and how walking and cycling fit in.

In the Journey Planner Survey it was found that unfamiliar travellers rated some travel attributes (level of comfort, expected vs actual travel time) as significantly more positive than familiar travellers, which differed from some of the other research methods. Further research would clarify if this is a result of the research method used, or whether other characteristics of the travel/traveller are influencing these experiences. For example, travel to work (more common for familiar travellers) may be less comfortable due to crowding and workers may be more sensitive to travel time than travel related to leisure/shopping (more common for unfamiliar travellers). Also the research method utilised a travel planning website, thus the journeys had pre-trip planning which may have influenced some aspects of the travel experiences.

The mode-specific differences reported in the Interviews would also be worthwhile to examine further. Modal preferences were reported in relation to all three of the research questions: people tried to influence their circumstances of unfamiliar travel (RQ1) by not taking buses, sometimes even going to different destinations which are serviced by more preferable modes of public transport. This was sometimes reported as occurring in relation to negative previous experiences (RQ2), thus providing some evidence that unfamiliar travel experiences may impact attitudes about modes (RQ3) and subsequently travel behaviour (RQ3). However this phenomenon was not examined as thoroughly in the other research methods and thus would benefit from further examination.

It would also be useful to collect data in a way that would enable more sophisticated behavioural modelling, such as, dynamic choice modelling which can account for temporal differences (refer Ramadurai and Srinivasan 2006) which Hensher (1994) suggests would benefit tourism research. Decisions related to transport projects are often made on the basis of models outputs in relation to demand and expected travel times and inaccuracies in predicting travel demand are problematic. Overly high projections of demand can lead to adverse economic repercussions. Conversely, underestimated projections of public transport demand in Melbourne, for example has led to recent issues with crowding. It is possible that this research will serve as the foundation for refining of choice models to better reflect human behaviour and target improvements.

Finally, there are some other opportunities for further research related to Research Question 3. The Journey Planner Poll and Follow-up Survey results suggested that unfamiliar travel seemed to shift attitudes more than familiar travel did. However this 'pliability' was not found to be significant, so further before-and-after trip research would be beneficial. In the University Access Surveys, a significant correlation was found between first trip attribute ratings and overall attribute ratings which suggests that first trips may impact attitudes; however correlation does not imply causation, so further research would help substantiate these findings. One way that this could be further investigated is by a research method 'sending' participants on a number of trips and recording their experiences in real time. In order to optimise the research utility, a wide spectrum of pre-trip and post-trip attitudinal questions should be asked as well as hypothetical questions about re-patronage. This method would also enable a more thorough investigation of trip experiences. This would be aa prime opportunity to further investigate the interesting trend related to satisfaction in the OD survey more comprehensively, perhaps with the satisfaction with travel scale posed by Friman et al. (2013). Such research could be particularly beneficial if eye-tracking software was fitted on participants. This could serve to inform where unfamiliar travel cues like wayfinding signs would be optimally deployed.

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8.4   Implications and recommendations

There are a number of important research implications and practical applications that arise from this research.

8.4.1   Research implications

The research and associated publications inform the research gap about circumstances prompting unfamiliar journeys, experiential characteristics of the new trips, and the impact of the journeys. The research findings have generally been consistent with previous research of relevance. However, there was previously limited research directly on this subject, so this thesis and the associated publications have contributed greatly to parties with an interest in research about unfamiliar public transport travel. Moreover previously there was limited research related to the primacy effect of environmental stimuli, so this research also informs that gap.

In terms of the Theory of Planned Behaviour (TPB), the research supported the TPB but also showed previous experiences and Learning Theory to be an important predecessor to the TPB, shaping the three variables that predict behavioural intention. Figure 8-5 illustrates the potential adaptation that could thus be made to the TPB in light of these findings. The research also informs research related to mode choice and mode specific factors, particularly in the realm of different modes of public transport for unfamiliar transit travel.
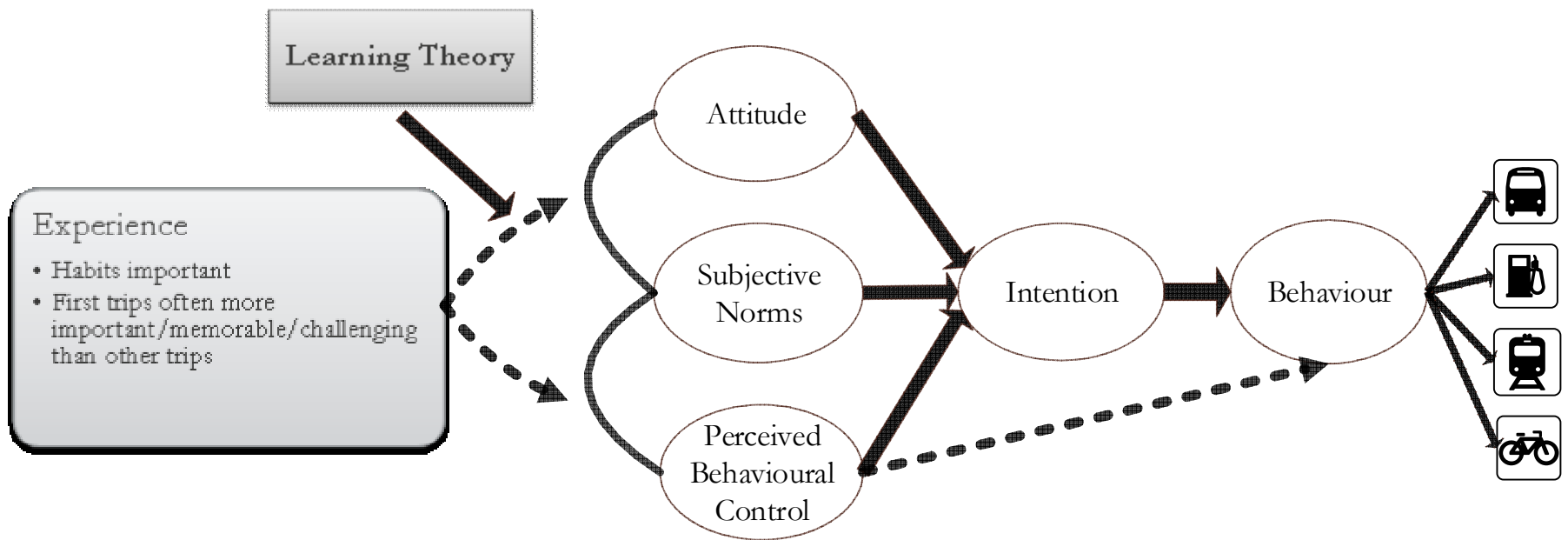
Figure 8-5: Research in the context of the Theory of Planned Behaviour (adapted from Ajzen 1991) (originally presented in Chapter 2)

As discussed in section 8.3, this thesis has substantiated and expanded existing research about life events. Notable contributions to knowledge about life events were that unfamiliar travel occurs in relation to other people's life events, that they can cause a series of trips, and that they can influence emotional state of unfamiliar transit travel.

8.4.2 Implications for practice

The findings of this thesis provide of range of suggestions that can be applied by planners, operators and others to improve public transport travel for unfamiliar travellers. Unfamiliar travel has been observed to influence attitudes and subsequent travel behaviour, at least to a degree. Unfamiliar journeys also tended to be recalled fairly well suggesting that the primacy effect may be occurring so it is vital to encourage positive first trips. Thus it is important for practitioners to implement measures that make unfamiliar travel experiences as positive as possible and reduce anxiety. The findings have also highlighted when first trips are more likely to occur and characteristics of the experiences, information that may be valuable in ensuring positive first trips.

The research highlighted some of the challenges of creating positive first impressions in the unfamiliar travel context. There is a marked difference in journey experiences between unfamiliar and familiar travel with unfamiliar users tending to me more anxious. This finding, seen in the context that numerous studies suggest that public transport is generally associated with more negative affect than private car use, primarily due to a number of psychological stressors that often accompany public transport use (Ellaway et al. 2003; Mann and Abraham 2006; Gatersleben and Uzzell 2007), suggest that transit travel is already emotionally challenging. Thus unfamiliarity amplifies such challenges with its inherent uncertainty. This may be partly due to the increased cognitive effort required for unfamiliar public transport that may not necessarily be required for other modes (Gatersleben and Uzzell 2007). This point further emphasises the need for unfamiliar trips to be made as positive as possible. The research showed that people try to reduce uncertainty by seeking out information prior to and during unfamiliar travel. This highlights the opportunity to provide reassurance and adequate information to support unfamiliar transit travel, potentially mitigating the associated anxiety. Indeed, prior research such as Hutchinson (2009) contends that wayfinding on public transport systems is associated with an intensified need for good, easily accessible, and legible information. Increasing perceived control has also been argued to mediate stress related to public transport use (Evans and Carrère 1991). From this context, a number of specific practical recommendations arise to support increasing transit patronage. These consist of four themes of practical applications which will now be discussed.

- Focused market segments

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- Development & implementation of transit traveller aides
- Improved transport systems and transport planning practices
- Managing transit operators

These recommendations will soon be discussed further; however it also worth emphasising that on top of these measures, public transport must also be practicably competitive with car-based travel in terms of the typical transport planning metrics like speed and travel time. This is fundamental to its attractiveness and indeed such service attributes were often highlighted as affecting behaviour in the research methods.

8.4.2.1 Focused market segments

The findings related to RQ1 have provided a comprehensive understanding of the context of unfamiliar travel. Understanding *when* first trips occur enables more targeted marketing and the exploitation of these opportunities to ensure the travel is positive. From their research exploring perceptions of public transport service quality, Beirão and Sarsfield Cabral (2007, p.478) suggest that "policies which aim to influence car usage should be targeted at the market segments that are most motivated to change and willing to reduce frequency of car use" in order to be more successful. Table 8-2 identifies first trip market segments to focus on and opportunities to support each segment.

The thesis research re-affirmed previous studies that life events, such as changing jobs, provide a unique opportunity to engage with unfamiliar public transport users. Thence there is an opportunity for transit authorities to work more closely with organisations that tend to prompt large amounts of unfamiliar travel related to life events. For example as captured in Table 8-2, universities and large businesses attract large numbers of people travelling for the life events of starting educational courses or jobs. Transit agencies can work with these organisations to develop resources to inform unfamiliar users and make their new travel as seamless as possible. More specifically, public transport agencies can work with universities to provide appropriate public transit information at enrolment days including, potentially, personalised travel planning and implement high quality wayfinding to/from transit services which serve campuses. Transit agencies can work with large employers in a similar way, perhaps with provision of a 'welcome pack' or establishing a workplace travel coordinator to assist new employees. In addition, an incentive of one week of free public transport travel during students/employees' first week of commuting might further incentivise trying public transport. Likewise there is an opportunity for transit agencies to work with real estate agencies to provide 'welcome packages' of information such as personalised travel planning to businesses and residents when they move. This could be particularly fruitful for re-locating

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businesses to offer transit information to pass on to their customers and clients when they move. Given the research highlighted that unfamiliar travel often occurs in relation to others' health-related life events, hospitals and funeral homes would also be worth working with to improve marketing of local public transport (perhaps on websites and in foyers).

Table 8-2: Opportunities for practical application of the research – Focussed market segments

	Opportunity	Description & suggested implementation
Focused market segments	*University students & staff*	Provision of public transit information and personalized travel planning at enrolment and orientation days Implement high quality wayfinding information to/from transit routes which serve campuses Provision of discount/welcome pass for public transport travel to first year university students/new employees
	Businesses (new staff)	Provide employees with transit information in welcome packs, offer personalised travel planning information by a workplace travel coordinator Provision of discount/welcome pass for public transport travel new employees
	New homes & relocated businesses	Work with real estate agents to disseminate 'welcome packs' with information about local transit services, get real estate agencies to encourage businesses to disseminate public transport agency to customers& clients when they move
	Hospitals & Funeral homes	Identify opportunities for information dissemination (websites, foyers, others?)
	Large events (sporting etc.)	Increased services and information availability around large events, including transit information on event websites
	Tourists	Make wayfinding information as ubiquitous possible, especially for 'trip ends', from stations to final destinations, particularly in areas likely to attract tourists. Provide real time directional information on-board as many services as possible. Offer integrated casual ticket option.

The fact that sporting events were a major demand generator for unfamiliar Victorian residents suggests that sporting events, and other large events like concerts, serve as unique opportunities to attract new local users, further justifying the need for increased services and information availability around large events. It may be that transit agencies can work with event organisers to integrate public transport information onto websites and also increase services in a more targeted way.

It would also be sensible to ensure that visitors to cities perceive public transport as a viable option for their local travel, particularly as the research indicated that their experiences can affect their

attitudes about cities more generally. Thus it may be that there would be wider economic benefits to tourism markets by providing new-user friendly transit systems and the associated support services. The analysis of spatial trends provides an indication of where increased information provision should be prioritised in Melbourne, at least, in the Inner City, Inner Suburb, and Middle Suburbs. The finding that unfamiliar travellers who were visitors had more often walked to stations to undertake their travel than familiar users or domestic unfamiliar travellers further emphasizes the importance of ample tourist information and tourist destination wayfinding signs to and from services. Tourists may not have access to apps that could assist with wayfinding and trip planning because devices (if they have them) may not work abroad, they might lack awareness of local apps to use. In addition, the research showed that unfamiliar transit travellers who were visitors to Melbourne were sometimes older and some studies suggest that older transit passengers are less likely use Advanced Traveller Information Systems (ATIS) (Farag and Lyons 2012). Thus it is possible that ATIS may not have the same market penetration among visiting unfamiliar travellers for the local population. This may be of particular concern for visitors to cities who may lack the background spatial and system knowledge that residents might have.

8.4.2.2 Development & implementation transit traveller aides

Another theme of practical recommendations relates to the development and implementation of transit traveller aides. Modern personal information aides like apps, websites, and GPS were identified as helping unfamiliar travellers. There is an opportunity to work on city-wide ATIS to support navigation, reducing uncertainty and provide reassurance (Table 8-3). Many cities have Transit Passenger Information Websites and apps that support transit travel planning. Some cities are fortunate to have the availability of apps that offer advanced trip planning and on-board Global Positioning System (GPS)-based navigational tracking to assist unfamiliar public transport travellers. Some of these advanced tools can even alert travellers when they are nearing their stop while they do other activities on their smartphones (e.g. refer Google 2011). However such systems are not available in all cities, for example, this feature of 'Google Maps' is not available in Melbourne. Such technological assistance is encouraged. Cities without systems like these should take steps to facilitate their implementation. Ideally these could even be designed to direct travellers through transfers, which were identified as particularly challenging for unfamiliar travellers.

The thesis research found an increased need for information for unfamiliar travel whereas familiar travel had the benefit of informed adaptations to optimise travel. There may be opportunities to support new users by providing tools that facilitate and fast-track optimisation, such as for example, developing an 'app' that would rely on individuals entering helpful transit information to assist other travellers. This crowd-sourced 'app' would allow members of the public to input tips for transit

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travel. This may be somewhat similar to websites/apps like "Trip Advisor" that allow people to provide reviews on businesses. For example, someone could enter their end-of-trip-destination and find out the ideal place to sit on the train for a quick exit and about other services that they could use to complete their journey which may help those accidently boarding "express" services (that skip stops) or in instances of service disruptions, or other useful information. Transit agencies could even monitor the app to facilitate prioritisation of improvements and information needs. For example, many of the described adaptations related to timing of services, so in theory, if people described such adaptations in the crowd-sourced app, it might impact future timetable development by the authority in the long term. Meanwhile in the short term unfamiliar travellers can adapt their travel to the timing of services.

Table 8-3: Opportunities for practical application of the research – navigational aides

	Opportunity	Description & suggested implementation
Development & implementation of transit traveller aides	**GPS navigation for public transport use**	Some cities have apps that offer sophisticated transit trip planning and on-board GPS tracking to assist travellers. Some advanced tools can even alert travellers when their stops are coming so that they can relax on the journey (e.g. refer Google 2011). Such technological assistance is encouraged. Cities without systems like these should take steps to their implementation.
	Crowd-sourced app of public transport tips	Development of a crowd-sourced that travellers enter in 'tips' to help new users 'adapt' quicker. Work with technology developers to create
	(Continue to) provide high quality information on-board and at stations/stops	While smartphones are becoming increasingly popular, travellers (particularly older people and tourists) may not have smartphones or devices that work without Wi-Fi, so traditional information forms should continue to be provided. Interviewees identified on-board, real time directional information such as 'the next stop is…' to be particularly beneficial (this was a point of distinction for unfamiliar travel between SmartBuses and normal local buses) so should be provided wherever practicable to assist navigation.

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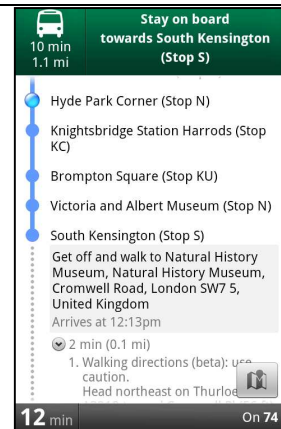
While both of these technological ideas could certainly assist unfamiliar transit travellers, they may not benefit travellers without smartphones or who have tablets that require Wi-Fi (unless there was an option to store data on devices so that no Wi-Fi___33 connection was required), this may be particularly relevant for tourists who may not have 'smart' devices that work in other countries and older travellers who previous research has indicated are less likely to have access to personal ATIS (Farag and Lyons 2012). Thus traditional information forms should continue to be provided. In particular a number of participants highlighted that real time spatial information such as; 'the next stop is…' has helped them with unfamiliar transit travel on trains and SmartBuses in Melbourne. Previous research has indicated that real-time information reduces uncertainty and passenger waiting time perceptions (e.g. Dziekan and Kottenhoff 2007). These two aspects of trip experiences are particularly important and sensitive for unfamiliar travel, so real-time information can provide reassurance to reduce uncertainty, anxiety and perceptions of long waiting times. Thus this type of information as well as wayfinding should continue to be provided or be installed at transit stops, stations and on-board services wherever practicable.

8.4.2.3 Improved transport systems and transport planning practices

The research also presents a number of implications for transport planners more generally. There are a variety of opportunities to improve transport planning practices (Table 8-4).

Firstly, in most countries transport planners rely on a set of best practice standards or guidelines. These should be upgraded to integrate best practices for unfamiliar public transport travel. For example, design features that support unfamiliar travel to be intuitive for navigation, ticketing, provision of information and to provide positive reassurances for new users (e.g. reiteration of information) should be integrated into best practice guidelines. Such design features include:

- stop numbers (on the journey planner site and on signs)
- directional signage
- real time information boards (e.g. 'next stop is')
- route maps on-board and at stops/stations (including better maps on buses)
- services differentiated by colour
- one-stop shuttles
- good labelling of services
- end-of-trip destination information outside transit stations
- good integration between transit modes

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The research indicated that, in Melbourne at least, there is a strong preference for unfamiliar travel by train over buses (and to a degree trams). Thus transit systems should be designed and managed more like trains. More specifically, routes could be more linear rather than 'windy'. The presence of permanent tracks could be somewhat mimicked by the provision of bus lanes, priority measures and generally more in line with Bus Rapid Transit (BRT) principles. This would also address the perception of buses, and to a degree, trams, as being slow and impacted by traffic. Finally, Melbourne's SmartBuses were identified to be better for wayfinding than other buses due to the presence of real-time navigational information on board. Thus such systems should be implemented wherever practicable.

Table 8-4: Opportunities for practical application of the research – improved transport systems and transport planning practices

	Opportunity	Description & suggested implementation
Improved transport systems and transport planning practices	***Update best practice guidelines***	Updated local standards or guidelines to integrate the best practices for unfamiliar public transport travel as identified in this research (refer to text for detail). Buses (and to a degree trams) need to be designed and managed to be more like trains. Offer short term/casual ticket options to facilitate unfamiliar travel and promote positive affect. Review wayfinding guidance standards?
	Minimum service standards	The research showed that unfamiliar travel is more likely to be at off-peak times, highlighting the necessity of provision of a viable minimum standard of frequency.
	Mode specific factors to be integrated into transport analyses	Preferences for trains and unfamiliar travel 'feeling longer' are unlikely fully captured in current methods of transport analyses comparing different transit modes which typically only consider real travel time savings and overlook perceived travel time savings.
	Inform travel planning and behaviour change professionals and programmes	Promote specialists' understanding of the anxiety associated with unfamiliar transit travel and the spectrum of tools that can facilitate Inform development of travel planning guidelines and behaviour change programmes

The finding that tourists' use of transit systems can affect their opinions of cities more largely justifies the need for systems that cater for unfamiliar users. For example, in Melbourne, there is not a casual ticket option for travellers, they must purchase a 'myki', often in advance, and cannot always 'top it up' at stations or on board, particularly trams. This is a barrier to unfamiliar travel and a factor likely to spawn negative unfamiliar travel experiences, potentially having an adverse impact on attitudes about the transit services or cities more widely.

The research showed that unfamiliar travel is more likely to be at off-peak times. This finding highlights the need to provide a viable minimum standard of transit frequency to benefit unfamiliar travellers. The traditional emphasis of planning services for commuters may be inadvertently negatively impacting potential new patrons who were observed to often travel at off-peak times. While it may be difficult to justify frequencies of services at off-peak times, a viable minimum frequency of services must be maintained.

In terms of mode choice for unfamiliar travel, interviewees suggested that trains are preferred, followed by trams, and then buses. In addition to the implication for designing transit services to be more like trains, there is another implication arising from this finding. This mode specific factor is unlikely to be fully captured in current methods of transport analyses comparing different transit modes. Typical transport assessments often only consider *real* travel time savings and overlook perceived travel time savings. This undervalues priority improvements because they may increase perceptions (if not the reality) of travel times. Similarly the fact that trips *feel longer* for unfamiliar travel is certainly not taken into account. Routes that have higher numbers of unfamiliar travellers could have very different benefit cost ratios counted into mode specific analyses if perceived travel time were to be measured.

Finally professionals who work specifically on behaviour change programmes and producing travel plans would benefit from understanding the anxiety associated with unfamiliar transit travel and the spectrum of tools that can facilitated unfamiliar public transport travel. There may be opportunities for this thesis research to inform development of any travel planning guidelines and programmes like Australia's TravelSmart.

8.4.2.4   Managing transit operators

Interviewees also noted that drivers and conductors that were willing to provide assistance were much appreciated and impacted impressions of systems. It is thus vital to encourage pleasant and helpful drivers. This could perhaps be achieve by incentivising drivers who have less complaints made about them per hour of work and perhaps even using 'secret shopper' evaluations.

Table 8-5: Opportunities for practical application of the research – managing transit operators

	Opportunity	Description & suggested implementation
Managing transit operators	Drivers were identified as an important source of information and impressions that can influence first trip experiences.	In order to promote pleasant and helpful drivers, customer feedback should be encouraged and incentives offered to drivers who are rated highly.

8.4.2.5 Beneficiaries of practical applications

Any party with an interest in increasing public transport mode share would benefit from adoption of these initiatives. This may include organisations with an interest in reducing parking demand, those promoting healthy lifestyles, environmentalists, city planners, transport planners, politicians and transit operators. The research results also support the work of personalised travel behaviour change programmes, such as the Australian TravelSmart programme, which seek to reduce private vehicle dependence by providing assistance and tailored information to individuals. Finally unfamiliar travellers would benefit from adoption of these measures with reduced anxiety. This could even indirectly benefit society more widely with increased transit patronage and lower automobile dependence.

Thus overall there are numerous opportunities for implementation of practical measures to facilitate unfamiliar transit travel including targeted marketing segments, development of technological navigational assistance tools, updating best practice guidelines for transport planners and even to manage transit operators in a way that incentivises behaviour that supports unfamiliar travellers. Implementation of such measures has the potential to assist in transit market growth, benefiting a variety of agencies.

8.5   Conclusions

This thesis has explored unfamiliar transit travel. Both the Review of Literature and the research findings confirmed the importance of this topic. The circumstances of unfamiliar transit travel have been confirmed and pulled together in a cohesive way. Unfamiliar travel experiences were observed to be associated with anxiety and difficulty in navigation. The experiences were observed, to a degree, to impact attitudes and future mode choice in a variety of ways. There are a number of opportunities to attract and support unfamiliar transit travel in a way that will support growth of the public transport market and help reduce automobile dependence.

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Appendix 1   Interviews: Invitation to Potential Participants

Title: Public Transport User Survey Follow Up Interviews

Hello,

You may recall participating in my 'public transport user survey' which I conducted between August 2011 – March 2012. Within this survey you indicated a willingness to potentially participate in follow up research and provided your contact information accordingly.

I am now writing to invite you to participate in follow-up research.

The research involves meeting with me to undertake a 45 minute semi-structured interview about your experiences using public transport.

You will be compensated for your time with a cash payment of $30 which will be provided to you at the completion of the interview. Attached is an 'explanatory statement' with further details about the study. It should be noted that your interview will be recorded for the purpose of transcribing the information, but the written transcription will not be stored with your contact details

It would be most appreciated if you could take a moment to respond to this email and advise whether or not you would be willing to participate in the study. If you are indeed willing to participate, in your response could you please indicate when and where you can meet?

1.   For which of the following timeslots would you be available? (Choose all that apply, or indicate order of preference with 1 one being first choice)
•   Monday 30th of July: 9:00am – 12:00pm
•   Tuesday 31st of July: 2:00pm – 5:00pm
•   Wednesday 1st of August: 9:00am – 12:00pm
•   Wednesday 1st of August: 5:00pm – 8:00pm
•   None of the above works for me but I may be available the following week at (specify date and time)_____

2.   In which of the following locations would you be willing, or prefer to meet? (Choose all that apply, or indicated order of preference with 1 one being first choice)
•   Monash University Hargrave-Andrew Library (Clayton Campus)
•   Monash University Sir Louis Matheson Library (Clayton Campus)
•   State Library of Victoria Melbourne CBD

- Monash Caulfield Library

Please note that spaces in this study are limited. Priority will be given to those who respond quickly.

All respondents willing to partake in the study will be contacted within one week of their response to confirm their allotted time and location.

Thank you again for initial indication of willingness to potentially participate in this study.

Kind Regards,

--

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Melbourne Victoria Australia
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Appendix 2   Interviews: Explanatory Statement

Explanatory Statement - Public Transport User Survey Follow-Up Interviews

August 2012

My name is Lorelei Schmitt and I am conducting research in the Department of Civil Engineering towards a PhD at Monash University under the supervision of Professor Graham Currie. This means that I will be writing a thesis which is the equivalent of a 300 page book and several journal articles.

The aim of this study is to explore users' experiences of public transport and factors surrounding use of public transport. The findings from this study will help with our understanding about public transport experience, and in particular, about specific requirements that new users may have.

Participation in this study involves completing the consent form, participating in an audio-recorded semi-structured interview for 35 minutes and then filling in a very short questionnaire about your demographics. The semi-structured interview will ask you about your experience of public transport and your travel habits. Altogether the process should take 45 minutes to complete. Following your interview your audio-recording will be transcribed. Your questionnaire, audio recording and subsequent transcript will be identified by an anonymous code (e.g. 'Participant 1') and will not be linked to your contact information or name. Thus you will be unable to access or correct your information following the interview. This is to protect anonymity.

We do not anticipate any distress or inconvenience resulting from your participation in this study. If, however, you have any questions or concerns please contact the Chief Investigator (contact details below). Being in this study is voluntary and you are under no obligation to consent to participation. Signing the consent form implies that you have consented to be part of this study. If you do consent to participate, you may choose to withdraw at any time and request that data already submitted be destroyed. However, compensation will only be provided to those that complete the interview and subsequent questionnaire.

Monash University may collect Personal Information from you. This includes (but is not limited to) information about your:

- Historical, recent and future travel behaviour

- Opinions about travel services and travel planning
- Circumstances surrounding recent travel
- Age
- Gender
- Time living in Melbourne
- Suburb resided in
- Income bracket

Monash University will only use this information for research purposes. Monash University will only use Personal Information for a purpose other than that for which it was collected (a secondary purpose), if the secondary purpose directly relates to the primary purpose for which it was collected. Monash University will not transfer a person's Personal Information to another individual or organisation; though it should be noted that the de-identified data may be provided to the research partner, PTV.

Storage of the data by Monash University collected will adhere to the University regulations and will be kept on University premises in a locked cupboard/filing cabinet for 5 years.

A report of the study may be submitted for publication or at conferences, but individual participants will not be identifiable in such reports. If you would like to be informed of the aggregate research findings or discuss any aspect of this study, please contact Chief Investigator:

Graham Currie

██████████████
████████████████████

If you have a complaint concerning the manner in which this research, CF12/1973 – 2012001081, is being conducted, please contact:

Executive Officer
Monash University Human Research Ethics Committee (MUHREC)
Building 3e Room 111
Research Office
Monash University VIC 3800
Australia
███ ████████████
███████████████████
███ ██████████████

If you are feeling distressed and want help after completing this questionnaire please contact:

Community Services Monash University on 1300 361 008 OR Lifeline on 13 11 14

You can also contact the Victorian Privacy Commissioner for more information or to raise certain complaints about privacy matters and regulation in Victoria.

Victorian Privacy Commissioner
PO Box 5057
Melbourne VIC 3001
███████████████████
█████████████
████████████████████████

Appendix 3   Interviews: Follow up Email to Participants That Do Respond to Invitation

Title: University Access Follow Up Interviews

Dear [Insert Name Here]

Thank you for your speedy response and expressed willingness to participate in my upcoming study about public transport travel.

Based on the timeframe availability that you indicated I have scheduled your semi-structured interview to take place on [Insert Day Here], [Insert Date Here], at [Insert time here] at the [Insert Location here] (meet in the foyer). If this time and location is suitable, please accept this invitation and it will be added to your calendar. I surmised that this time might be okay based on your response, but if it is not, please let me know and we can adjust accordingly. You should receive a reminder 30 minutes prior to the appointment.

If the above time does not suit your or if it becomes unsuitable, please let me know as soon as possible whether you would like to re-schedule or withdraw from the study If you would like to reschedule, please advise me of 2 or 3 times that would suit you.

In addition, please find attached an explanatory statement for the study. Please read this before you arrive, otherwise this information will be available at the interview. Should you have any further questions regarding location, details of the study, or other queries, please do not hesitate to contact me.

It would be most helpful if you are on time. It is suggested that you arrive at least five minutes prior to your scheduled time. To reach me on the day of your interview (for any reason), please text me at 04 261 367 64, but please be aware that I will be unable to reply whilst interviewing others, so replies may be delayed.

Thank you again for your willingness to participate in this study. Such participation is fundamental to providing high quality research that may eventually benefit the design and management of our public infrastructure and hopefully improve people's day-to-day travel.

Kind Regards,

--

Lorelei Schmitt
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Monash University 3800
Melbourne Victoria Australia
PH +61 3 9905 1848
Fax: +61 3 9905 4944

Appendix 4   Interviews: Follow up Email to Participants that Do Not Respond to Invitation

Title: University Access Follow Up Interviews

Dear [insert name here],

I wrote you recently to invite you to participate in research related to your experience of public transport. I have not received a response from you and thus am providing you with one reminder e-mail about the study. If you do not respond to this e-mail, you will not receive any further communication from me related to this research.

You may recall participating in my 'public transport user survey' which I conducted between August 2011 – March 2012. Within this survey you indicated a willingness to potentially participate in follow up research and provided your contact information accordingly.

I am now writing to invite you to participate in follow-up research.

The research involves meeting with me to undertake a 45 minute semi-structured interview about your experiences using public transport.

You will be compensated for your time with a cash payment of $30 which will be provided to you at the completion of the interview. Attached is an 'explanatory statement' with further details about the study. It should be noted that your interview will be recorded for the purpose of transcribing the information, but the written transcription will not be stored with your contact details

It would be most appreciated if you could take a moment to respond to this email and advise whether or not you would be willing to participate in the study. If you are indeed willing to participate, in your response could you please indicate when and where you can meet?

1.   For which of the following timeslots would you be available? (Choose all that apply, or indicate order of preference with 1 one being first choice)
* Monday 30th of July: 9:00am – 12:00pm
* Tuesday 31st of July: 2:00pm – 5:00pm
* Wednesday 1st of August: 9:00am – 12:00pm
* Wednesday 1st of August: 5:00pm – 8:00pm

- None of the above works for me but I may be available the following week at (specify date and time)_____ _____.

2.   In which of the following locations would you be willing, or prefer to meet? (Choose all that apply, or indicated order of preference with 1 one being first choice)
- Monash University Hargrave-Andrew Library (Clayton Campus)
- Monash University Sir Louis Matheson Library (Clayton Campus)
- State Library of Victoria Melbourne CBD
- Monash Caulfield Library

Please note that spaces in this study are limited. Priority will be given to those who respond quickly.

All respondents willing to partake in the study will be contacted within one week of their response to confirm their allotted time and location.

Thank you again for initial indication of willingness to potentially participate in this study.

Kind Regards,

--
Lorelei Schmitt
PhD Candidate
Institute of Transport Studies (Monash)
Dept of Civil Engineering; Building 60
Monash University 3800
Melbourne Victoria Australia
PH +61 3 9905 1848
Fax: +61 3 9905 4944

Appendix 5   Interviews: Consent Form

Title: University Access Follow Up Interviews

NOTE: This consent form will remain with the Monash University researcher for their records.

I understand I have been asked to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records.

I understand that:	YES	NO
I will be interviewed by the researcher	☐	☐
I agree to allow the interview to be audio-taped	☐	☐
I will be asked to complete questionnaires asking me about my demographic information and travel habits	☐	☐

and

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

and

I understand that any data that the researcher extracts from the interview/questionnaire for use in reports or published findings will not, under any circumstances, contain names or identifying characteristics without my signed consent below.

and

I understand that no information I have provided that could lead to the identification of any other individual will be disclosed in any reports on the project, or to any other party

and

I understand that data from the interview / transcript / audio recording / questionnaire will be kept in secure storage and accessible to the research team. I also understand that the data will be destroyed after a 5 year period unless I consent to it being used in future research.

and

I do/do not give permission to be identified by a pseudonym/ understand I will remain anonymous at all times in any reports or publications from the project.

Participant's name: _____

Signature: _____ Date:_____

Appendix 6   Interviews: Semi-Structured Questions

Title: University Access Follow Up Interviews Semi-Structured Interview Questions

I'm going to ask you some questions regarding your personal travel experiences. There are no right or wrong answers, or expectations of answers. Please answer all questions as best and most truthfully as you can. If you are confused about any of the questions, please say so and I'll try to explain the question or, if you need the question repeated once again or several times, feel free to request this.

Semi-Structured Interview Questions (35 minutes max)

1.   Can you think of travel which you take repeatedly, or have taken repeatedly, which uses public transport for at least part of the journey?

Possible prompts (if needed): You might like to consider travel to work, school, going out for concerts, events, going to the pub, or a friend's house

2.   Now I'd like you to describe this trip to me. Talk me through it like you're writing a story. I want to know why you travel(led) this way and what the trip is(was) like. Include characteristics like the sights and sounds present, or people you regularly see. Also, I'd like to know about any emotions/thoughts that often occur for your during this travel. You may close your eyes if you like.

Possible prompt (if needed)

- *Begin with the origin from which you start and describe your entire journey until you get to your destination.*

- *Are there any activities that you regularly do while undertaking this travel?*

- *Are there any emotions or experiences that you associate with this travel?*

Possible Subsidiary questions:

- *Which services/modes (if you can recall) did you/do you use to undertake this travel?*

- *How often do you take this trip? Or how often were you making this trip?*

- *Over how many years (approximately) have you been undertaking/did you undertake this travel?*

- *Why do you/did you undertake this travel?*

- *Why do you/did you choose to use public transport as opposed to other modes for this trip?*

- *Do you typically (or did you typically) travel with anyone else for this travel or alone?*

- *Do you still make this trip by public transport? Why/Why not?*

3.   Now, take a moment and think, can you remember your first time taking the above trip by public transport? ….Okay. Now, can you please talk me through that first time trip? Please include details about sights, sounds, and other things you may have noticed on your trip (Alternatively, if participant cannot recall their first time travelling by public transport to that destination, ask, "could you please talk me through an unfamiliar trip by public transport to another destination?"). You can close your eyes if that helps

Possible subsidiary questions:

- *Begin with the origin from which you start and describe your entire journey until you get to your destination.*

- *What circumstances led to you undertaking this travel by public transport?*

- *Were you engaged in any particular activities during this travel (e.g. looking out the window, reading maps, on mobile phone?)*

- *Are there any emotions or experiences that you associate with this travel?*

- *Which services/modes (if you can recall) did you use to undertake this travel?*

- *Was there anything you found pleasantly surprising about this travel?*

- *Was there anything that you found particularly challenging about this travel?*

- *How long ago did this trip take place?*

- *Why did you undertake this travel, for what purpose?*

- *Had you travelled by another means for this purpose before or not?*

- *Why did you choose to use public transport as opposed to other modes for this trip?*

- *Were you travelling on your own or with someone you knew for this travel?*

- *Did you ask any passengers around for assistance while travelling?*

- *(If applicable) Do you still make this trip by public transport? Why/Why not?*

4.   Can you think of another time you undertook unfamiliar public transport travel? Perhaps to go to a friend's party, a special event, when starting a new job or travelling somewhere else? (If so), can you please describe that trip in as much detail as you can recall?

Possible subsidiary questions:

- *Begin with the origin from which you start and describe your entire journey until you get to your destination.*

- *What circumstances led to you undertaking this travel by public transport?*

- *Were you engaged in any particular activities during this travel (e.g. looking out the window, reading maps, on mobile phone?)*

- *Are there any emotions or experiences that you associate with this travel?*

- *Which services/modes (if you can recall) did you use to undertake this travel?*

- *Was there anything you found pleasantly surprising about this travel?*

- *Was there anything that you found particularly challenging about this travel?*

- *How long ago did this trip take place?*

- *Why did you undertake this travel, for what purpose?*

- *Had you travelled by another means for this purpose before or not?*

- *Why did you choose to use public transport as opposed to other modes for this trip?*

- *Were you travelling on your own or with someone you knew for this travel?*

- *Did you ask any passengers around for assistance while travelling?*

- *(If applicable) Do you still make this trip by public transport? Why/Why not?*

Additional subsidiary questions for Stage 2 Interviews:

- *Was it light or dark out when you made this journey and did that matter?*

- *Were there any adaptations that you've made in how you take this journey that have helped optimise it (e.g. sitting in certain part of the train etc)?*

- *Do you have any general comments about what it's like when you undertake unfamiliar public transport travel? Do you think it's hard/easy? That Melbourne's system is easy/hard to use?*

- *Does different language affect undertaking unfamiliar travel?*

- *Does currency affect your experiences with ticketing for unfamiliar travel?*

Appendix 7   Interviews: Post-Interview Questionnaire

1.   How long have you lived in/been in the Melbourne area (if you have come and gone, please answer for your time in total)?

a.   Less than 8 weeks

b.   More than 8 weeks but less than 6 months

c.   More than 6 months but less than 2 years

d.   More than 2 years but less than 5 years

e.   More than 5 years but less than 10 years

f.   More than 10 years

2.   In an average week, what percentage of your travel (in terms of time) do you take by each of the following modes? Please consider all travel (other than air travel) undertaken.

Mode	Percentage of travel
Car/motorbike	%
Bicycle	%
Walking	%
Public transport	%
Other (Please specify)_____	%

3.   How satisfied are you, overall, with Melbourne's public transport services?

a.   Very satisfied

b.   Satisfied

c.   Neither satisfied nor unsatisfied

d.   Unsatisfied

e.   Very unsatisfied

f.   Have never used public transport services before

4.   Which gender are you?

a. Male

b. Female

5. What is your postcode? (If from another country state country only)_____

6. Which of the following age brackets do you fall within?

a. 18 – 24

b. 25 – 30

c. 31 – 40

d. 41 – 50

e. 51 – 60

f. 61 or older

7. Which of the following best describes your personal income before tax (including wages/salaries, government benefits, pensions, allowances and other income)?

a. $2,000 or more per week($104,000 or more per year)

b. $1,400 - $1,999 per week ($72,800 - $103,999 per year)

c. $1,000 - $1,399 per week ($52,000 - $72,799 per year)

d. $700 - $999 per week ($36,400 - $51,999 per year)

e. $400 - $699 per week ($20,800 - $36,399 per year)

f. $1- $399 per week ($1 - $20,799 per year)

g. Nil income

h. Negative income

i. Prefer not to answer

Appendix 8   Interviews: Demographic Characteristics of Interviewees

Alias	Time living in Melbourne (cumulative)	Mean % of travel by Car/motorbike	Mean % of travel by Bicycle	Mean % of travel by Walking	Mean % of travel by Public transport	Overall satisfaction with Melbourne's PT	Gender	Postcode	Age	Annual pre-tax income
A	More than 10 years	20	0	50	30	Neither satisfied or unsatisfied	Male	3124	61 or older	$72,800 - $103,999
AA	More than 5 years but less than 10 years	0	0	70	30	Very satisfied	Male	3175	31-40	$104,000 or more
B	More than 10 years	75	0	5	20	Unsatisfied	Female	3136	51-60	$36,400 - $51,999
BB	More than 10 years	10	0	2	88	Satisfied	Male	3204	41-50	$52,000 - $72,799
C	More than 10 years	60	0	0	40	Satisfied	Female	3152	18-24	$1 - $20,799
CC	More than 10 years	75	0	10	15	Very unsatisfied	Female	3165	51-60	Prefer not to answer
D	More than 10 years	0	0	5	95	Neither satisfied or unsatisfied	Male	3130	51-60	$104,000 or more
DD	More than 2 years but less than 5 years	0	0	10	90	Satisfied	Female	3145	31-40	$20,800 - $36,399
E	More than 10 years	30	0	10	60	Satisfied	Female	3195	61 or older	$36,400 - $51,999

Alias	Time living in Melbourne (cumulative)	Mean % of travel by Car/motorbike	Mean % of travel by Bicycle	Mean % of travel by Walking	Mean % of travel by Public transport	Overall satisfaction with Melbourne's PT	Gender	Postcode	Age	Annual pre-tax income
F	More than 10 years	80	10	0	10	Neither satisfied or unsatisfied	Male	3192	18-24	$1 - $20,799
G	More than 5 years but less than 10 years	5	10	15	70	Satisfied	Female	3141	31-40	$72,800 - $103,999
H	More than 10 years	80	0	5	15	Satisfied	Female	3124	51-60	$36,400 - $51,999
I	More than 10 years	9	0	39	52	Satisfied	Female	3066	31-40	$52,000 - $72,799
J	More than 10 years	0	10	5	85	Neither satisfied or unsatisfied	Male	3166	25-30	$20,800 - $36,399
K	More than 2 years but less than 5 years	1	0	90	9	Satisfied	Female	3000	18-24	Nil income
L	More than 2 years but less than 5 years	0	0	20	80	Satisfied	Female	3000	18-24	Nil income
M	More than 10 years	90	0	8	2	Satisfied	Female	3803	25-30	$52,000 - $72,799
N	More than 6 months but less than 2 years	40	0	40	20	Unsatisfied	Male	3168	25-30	$20,800 - $36,399
O	More than 2 years but less than 5 years	80	0	20	0	Satisfied	Female	3166	31-40	$1 - $20,799
P	More than 10	80	0	0	20	Satisfied	Female	3195	31-40	$52,000 -

Alias	Time living in Melbourne (cumulative)	Mean % of travel by Car/motorbike	Mean % of travel by Bicycle	Mean % of travel by Walking	Mean % of travel by Public transport	Overall satisfaction with Melbourne's PT	Gender	Postcode	Age	Annual pre-tax income
	years									$72,799
Q	More than 6 months but less than 2 years	95	0	3	3	Satisfied	Female	3145	31-40	$72,800 - $103,999
R	More than 5 years but less than 10 years	10	0	70	20	Satisfied	Female	3166	25-30	$36,400 - $51,999
S	More than 10 years	20	0	20	60	Satisfied	Female	3012	41-50	$72,800 - $103,999
T	More than 6 months but less than 2 years	0	75	15	10	Satisfied	Male	3060	25-30	$1 - $20,799
U	More than 10 years	10	0	10	80	Satisfied	Female	3040	51-60	$36,400 - $51,999
V	More than 10 years	90	0	10	0	Satisfied	Female	3083	31-40	Nil income
W	More than 10 years	90	5	5	0	Unsatisfied	Female	3198	51-60	$52,000 - $72,799
X	More than 10 years	14	29	29	29	Unsatisfied	Female	3163	51-60	$72,800 - $103,999
Y	More than 10 years	10	0	10	80	Satisfied	Female	3204	18-24	$1 - $20,799
Z	More than 5 years but less than 10 years	10	0	70	20	Very satisfied	Female	3121	31-40	$20,800 - $36,399 s

Appendix 9   Rail Origin-Destination Survey:
2012 Questionnaire

PUBLIC TRANSPORT VICTORIA PT

Date [/ / 2012]   **Interviewer** [   ]

Station [   ]   **Platform no.** (or numbers if isla[   ]

Interview start time 24 hr (hrs/m[:   ]

Q1 How did you get to this station?

1   Walked all the way

2   Car (parked at station) Driver

3   Car (parked at station) Passenger

4   Car dropped off

5   Cycled

6   Tram   (last tram)   [_____ (route/suburb)]

7   Train   (initial station)   [_____ (station)]

8   Bus   (last bus)   [_____ (route/suburb)]

9   Other

Q2 Could you please touch a point on this map that is the nearest point to where you started from…?

      Q2a Is this "home"?

1   Yes

2   No

Q3 At which station will get off the train you are about to board?

      [_____ (station)]

Q4 How will you get to your final destination from that station?

1	Walk all the way
2	Car (parked at station) Driver
3	Car (parked at station) Passenger
4	Car pick up
5	Cycle
6	Tram (next tram)	(route/suburb)
7	Train transfer	(END station)
8	Bus (next bus)	(route/suburb)
9	Other

Q5 Could you please touch a point on this map that is the nearest point to your final destination?

Q5a Is this "home"?

1   Yes

2   No

Q6 What is the purpose of this Journey?

1   Work/Business

2   Education

   a.   **Q6a What type of education?**

  i.   Secondary

 ii.   Tertiary – TAFE

iii.   Tertiary – University

iv.   Other (please specify)

3   Tourism/Holiday

4   Leisure activity

5   Personal business – Appointment

6   Shopping

7   Sporting Events

8   Cultural Event

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9   Visiting Friends and Family

Q7 Did you or will you repeat this journey, in the reverse today?

1   1 Yes

Q7a At what approximate time?

| | : | 24hr (hrs/mins) |

Q7b Starting at which station?

| | (Station) |

Q7c Once you get back to this station will you use a different mode to get back to your origin?

1   Yes

Q7d ……which mode?

1   Walk all the way

2   Car (parked at station) Driver

3   Car (parked at station) Passenger

4   Car picked up

5   Cycle

6   Tram   (next tram)

| (route/suburb) |

7   Train transfer

| (END station) |

8   Bus   (next bus)

| (route/suburb) |

9   Other

2   No (skip to Q8)

Q8 What ticket type are you using for this trip?

1   Myki

2   Metcard

3   V/Line

4   Other

Q9 Fare type?

1   Full fare

2   Concession

Q10 On average, how often would you use this service?

8   If more than once a week, how many days a week? (skip to question 11)

9   Once a week (skip to question 11)

10   At least once a month (between 12 and 52 times a year) (skip to question 11)

11   Less often than once a month (2 to 12 times a year) (skip to question 11)

12   Hardly ever (1 or 2 times a year) (skip to question 11)

13   First time (Victorian resident)

14   First time (visit or Victoria

Q10a Which of the following best describes how many times you have used this service?

1   I have never used this service before (today will be my first time) (skip to Q12)

2   I used this service earlier today for the first time and am now on the return journey (go to Q11)

Q11 How satisfied were you with your most recent experience of this service?

3   Very satisfied

4   Satisfied

5   Neither satisfied nor dissatisfied

6   Dissatisfied

7   Very dissatisfied

8   Don't recall

Complete the following demographics AFTER thanking the respondent for their participation

Q12 Age?

1   16-19

2   20-29

3   30-39

4   40-49

5   50-59

6   60-69

7   70+

Q12 Sex

1   Male

2   Female

Appendix 10   University Access Survey:
Explanatory Statement

Explanatory Statement - Public Transport Experience Survey

August 2011

My name is Lorelei Schmitt and I am conducting research in the Department of Engineering towards a PhD at Monash University under the supervision of Professor Graham Currie. This means that I will be writing a thesis which is the equivalent of a 300 page book and several journal articles. We have funding from Metlink for research examining developing Melbourne's public transport market.

The aim of this study is to explore people's user experience of public transport, with an emphasis on their first trip experience. This research is being conducted as part of the requirements to fulfil the candidature of a Doctor of Philosophy degree in the department of engineering. The findings from this study will help with our understanding about public transport experience, and in particular, about specific requirements that new users may have.

I am seeking participants over the age of 18 to participate in this study. Participation involves completing a survey asking you about your experience of public transport and your travel habits. The survey will take approximately 15 minutes to complete. We do not anticipate any distress or inconvenience resulting from your participation in this study. If however, you have any questions or concerns please contact Chief Investigator Graham Currie (contact details below). If you have a complaint concerning the manner in which this research (LR 2011001210) is conducted, please contact the Executive Officer at MUHREC (contact details below).

Being in this study is voluntary and you are under no obligation to consent to participation. Completing the survey implies that you have consented to be part of this study. If you do consent to participate, you may choose to withdraw at any time but the data cannot be withdrawn once you have submitted your responses as your results will be anonymous. At the end of the survey you will have the opportunity to provide contact details if you are interested in participating in future research. This information, if you choose to provide it, will not be stored with your survey results.

Storage of the data collected will adhere to the University regulations and will be kept on University premises in a locked cupboard/filing cabinet for 5 years. A report of the study may be submitted for publication or at conferences, but individual participants will not be identifiable in such reports. If you would like to be informed of the aggregate research finding, please contact Lorelei Schmit ███ ███████ or via ████████████████████

If you would like to contact the researchers about any aspect of this study, please contact Chief Investigator:

Graham Currie
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████████████████

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████████ Officer
Monash University Human Research Ethics Committee (MUHREC)
Building 3e Room 111
Research Office
Monash University VIC 3800
Australia

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If you are feeling distressed and want help after completing this questionnaire please contact: Community Services Monash University on ████████████████████████

Appendix 11   University Access Survey: Questionnaire

___

Title: Public Transport User Experience Survey (University Access Survey)

Please answer all the following questions with respect to your personal experience travelling to and from Monash University campuses.

Please only complete one questionnaire per person.

Travel Patterns

1.   In an average week, please describe by what modes you would usually get to and from Monash? (If it varies depending on day, indicate all that apply to you. If you use different modes for different parts of the journey, answer according to which mode you use for the longest period of your journey).

	Number of days
Car/motorbike	[▼] *Car/motorbike Number of days*
Bicycle	[▼] *Bicycle Number of days*
Walk	[▼] *Walk Number of days*
Public transport	[▼] *Public transport Number of days*
Do not travel	[▼]
	Do not travel Number of days
Other (please specify	*Other (please specify*

2.   Thinking about an AVERAGE WEEK in which you need to travel to Monash, would you have ACCESS TO A CAR to travel to/from Monash (either as a passenger or driver)? (Please do not consider taxi.)

  ☐ *Yes, on all days*

  ☐ *Yes, on most days*

  ☐ *Yes, for some days*

  ☐ *Only occasionally*

  ☐ *No, never*

3.   Have you ever travelled to any of the Monash University campuses by PUBLIC TRANSPORT before?

☐ *No (Skips to Question 49)*

☐ *Yes*

Overall Experience of Public Transport Travel to Monash

We're interested in learning about how you have found travelling to Monash by PUBLIC TRANSPORT. For this first set of questions please think about ALL of the trips that you have taken to MONASH by public transport.

4.   Thinking about ALL of the trips that you have taken TO MONASH by PUBLIC TRANSPORT, how would you rate, on average, the ease of....

	1 (extremely difficult to understand)	2	3	4	5 (very easy to understand)	Don't recall
Navigation	☐	☐	☐	☐	☐	☐
Ticketing	☐	☐	☐	☐	☐	☐

5.   Thinking about ALL of the trips that you have taken to Monash by PUBLIC TRANSPORT, how would you rate, on average your...

	1 (very anxious)	2	3	4	5 (very relaxed)	Don't recall
Emotional state during the trip	☐	☐	☐	☐	☐	☐

6.   Thinking about ALL of the trips that you have taken to Monash by PUBLIC TRANSPORT, how would you rate, on average, your expected travel time compared with your actual travel time

	1 (much longer than expected)	2	3	4	5 (much quicker than expected)	Don't recall
Travel time	☐	☐	☐	☐	☐	☐

7.   Thinking about ALL of the trips that you have taken to Monash by PUBLIC TRANSPORT, how would you rate, on average, your

	1 (very concerned about being late)	2	3	4	5 (not worried about being late at all)	Don't recall
Time consciousness	☐	☐	☐	☐	☐	☐

8.   Thinking about ALL of the trips that you have taken to Monash by PUBLIC TRANSPORT, how would you rate, on average your...

	1 Very Uncomfortable	*2*	*3*	*4*	*5 Very Comfortable*	*Don't recall*
Level of comfort	⦿	▢	▢	▢	▢	▢

9.   Thinking about ALL of your travel to Monash by PUBLIC TRANSPORT; if you have to transfer between different public transport modes when travelling to Monash, how do you rate, on average...

	1 (Very confusing)	*2*	*3*	*4*	*5 (Not at all confusing)*	*Did not have to transfer*	*Don't recall*
Figuring out where to go when you transferred	▢	▢	▢	▢	▢	▢	▢

10.   Thinking about ALL of the trips that you have taken to Monash by PUBLIC TRANSPORT, how would you rate, on average the...

	1 (very unattractive)	*2*	*3*	*4*	*5 (very attractive)*	*Don't recall*
Amenity of stations/bus stops	▢	▢	▢	▢	▢	▢

11.   Thinking about ALL of the trips that you have taken to Monash by PUBLIC TRANSPORT, how would you rate, on average your...

	1 (very unsafe)	*2*	*3*	*4*	*5 (very safe)*	*Don't recall*
Sense of security while travelling/waiting	▢	▢	▢	⦿	▢	▢

12.   Thinking about ALL of the trips that you have taken to Monash by PUBLIC TRANSPORT, how would you rate, on average the...

	1 (very inconvenient)	*2*	*3*	*4*	*5 (very convenient)*	*Don't Recall*
Overall convenience of the travel	▢	▢	▢	▢	▢	▢

13.   Thinking about ALL of the trips that you have taken to Monash by PUBLIC TRANSPORT, how would you rate, on average your...

	1 (very unsatisfied)	*2*	*3*	*4*	*5 (very satisfied)*	*Don't recall*
Overall satisfaction with the services	▢	▢	▢	▢	▢	▢

First Public Transport Trip to Monash

14.   Can you recall your FIRST EVER trip to or from Monash by PUBLIC TRANSPORT?

☐ *Yes*

☐ *I remember it a little bit*

☐ *No, I cannot remember it at all (skips to Question 49)*

First Public Transport Trip to Monash (continued)

15.   How long ago did this FIRST trip to Monash University by PUBLIC TRANSPORT take place?

☐ *Within the last week*

☐ *More than 1 week but less than 1 month ago*

☐ *More than 1 month but less than 6 months ago*

☐ *More than 6 months but less than 1 year ago*

☐ *More than 1 year ago but less than 2 years ago*

☐ *More than 2 years ago*

☐ *Don't recall*

16.   How many times would you say you had visited Monash BEFORE this FIRST PUBLIC TRANSPORT trip by ANOTHER MODE of travel?

☐ *0 (My first time travelling to Monash was by public transport)*

☐ *1-3*

☐ *4-10*

☐ *10-30*

☐ *More than 30 times*

☐ *Don't recall*

First Public Transport Trip to Monash (continued - trip characteristics)

17.   What time of day was it when you made this FIRST PUBLIC TRANSPORT trip?

☐ *Before 7:45am*

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☐ *7:46am – 9:00am*

☐ *9:01am – 4:00pm*

☐ *4:01pm – 6:00pm*

☐ *Later than 6:01pm*

☐ *Cannot remember*

18.   What day of the week was it when you took this FIRST PUBLIC TRANSPORT trip to Monash?

☐ *Weekday*

☐ *Weekend*

☐ *Not sure*

19.   Were you travelling with anyone else?

☐ *No, I was travelling by myself*

☐ *Yes, I was travelling with someone who HAD taken public transport for this trip before*

☐ *Yes, I was travelling with someone HAD NOT taken public transport for this trip before*

☐ *Yes, I was travelling with someone, but I DON'T KNOW whether or not they had taken the trip before*

☐ *Don't recall*

20.   How did you FIGURE OUT how to get to Monash for your FIRST TRIP by PUBLIC TRANSPORT? (Please select all that apply)

☐ *Already knew how to get there*

☐ *Used Journey Planner (from Metlink website)*

☐ *Used other Metlink website resources (Map, Timetable)*

☐ *Used a map (paper copy, google maps etc.)*

☐ *Used timetable (paper copy, at station etc.)*

☐ *Asked others for advice beforehand*

☐ *Asked others for advice whilst travelling*

☐ *Metlink telephone number*

☐ *Cannot remember*

☐ *Other (please specify)*

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21. When you took this FIRST TRIP to Monash by PUBLIC TRANSPORT, could you have made the trip by car, either as a driver or passenger? (Please do not consider taxi in your response.)

☐ *Yes*

☐ *No*

☐ *Unsure/Don't Recall*

First Public Transport Trip (Experience of)

Using the scales below, please check the circle that best represents your experience of your FIRST PUBLIC TRANSPORT trip to Monash.

22. On your FIRST PUBLIC TRANSPORT trip to Monash, how would you rate the ease of....

	1 (very difficult to understand)	2	3	4	5 (very easy to understand)	Don't recall
Navigation	☐	☐	☐	☐	☐	☐
Ticketing	☐	☉	☐	☐	☐	☐

23. On your FIRST PUBLIC TRANSPORT trip to Monash, how would you describe your...

	1 (very anxious)	2	3	4	5 (very relaxed)	Don't recall
Emotional state during the trip	☐	☐	☐	☐	☐	☐

24. Thinking back to your FIRST PUBLIC TRANSPORT trip to Monash, how did your expected travel time compare with your actual

	1 (much longer than expected)	2	3	4	5 (much quicker than expected)	Don't recall
Travel time	☐	☐	☐	☐	☐	☐

25. Thinking back to your FIRST PUBLIC TRANSPORT trip to Monash by public transport, how would you rate, on average, your

	1 (very concerned about being late)	2	3	4	5 (not worried about being late at all)	Don't recall
Time consciousness	☐	☐	☐	☐	☐	☐

26.   Thinking back to your FIRST PUBLIC TRANSPORT trip to Monash, how would you rate your...

	1 (very uncomfortable)	2	3	4	5 (very comfortable)	Don't recall
Level of comfort	☐	☐	☐	☐	⊙	☐

27.   Thinking back to your FIRST TRIP to Monash by PUBLIC TRANSPORT; if you had to transfer between different public transport modes, how would you rate, the ease of...

	1 (very confusing)	2	3	4	5 (not at all confusing)	Did not have to transfer	Don't recall
Figuring out where to go when you transferred	☐	☐	☐	☐	☐	☐	☐

28.   Thinking back to this FIRST PUBLIC TRANSPORT trip to Monash, how did you find the...

	1 (very unattractive)	2	3	4	5 (very attractive)	Don't recall
Amenity of stations/bus stops	☐	☐	☐	☐	☐	☐

29.   Thinking back to this FIRST PUBLIC TRANSPORT trip to Monash, how would you rate your...

	1 (very unsafe)	2	3	4	5 (very safe)	Don't recall
Sense of security while travelling/waiting	☐	☐	☐	☐	☐	☐

30.   Thinking back to this FIRST PUBLIC TRANSPORT trip to Monash, how would you rate the...

	1 (very inconvenient)	2	3	4	5 (very convenient)	Don't recall
Overall convenience of the travel	☐	☐	☐	☐	☐	☐

31.   Thinking back to this FIRST PUBLIC TRANSPORT trip to Monash, how would you rate your...

	1 (very unsatisfied)	2	3	4	5 (very satisfied)	Don't recall
Overall satisfaction with the service	☐	☐	☐	⊙	☐	☐

Other Comments Regarding First Trip Experience

32.   Is there anything that stood out about your FIRST TRIP BY PUBLIC TRANSPORT to Monash to you? For example, were there any emotions you may have felt before, during or after the trip; any features of the public transport environment or services (trains/buses/stops/stations etc.) that you noticed?

[text input box]

Subsequent Travel

Now that you've told us about your first time travelling to Monash by public transport, we'd like to ask you about your MOST RECENT TRIP to Monash by PUBLIC TRANSPORT.

33.   Have you taken PUBLIC TRANSPORT to travel to/from the university campus SINCE your first trip by public transport?

☐ *No (skips to Question 49)*

☐ *Yes, a few times (2 - 5 times)*

☐ *Yes, several times (5 - 20 times)*

☐ *Yes, I travel by public transport very regularly now (most days)*

34.   How long ago was your MOST RECENT trip to Monash University by PUBLIC TRANSPORT?

☐ *Within the last week*

☐ *More than 1 week but less than 1 month ago*

☐ *More than 1 month but less than 6 months ago*

☐ *More than 6 months but less than 1 year ago*

☐ *More than 1 year ago but less than 2 years ago*

☐ *More than 2 years ago*

☐ *Cannot remember*

35.   What time of day was it when you made your LAST (most recent) PUBLIC TRANSPORT trip to Monash?

☐ *Before 7:45am*

☐ *7:46am – 9:00am*

☐ *9:01am – 4:00pm*

☐ *4:01pm – 6:00pm*

☐ *Later than 6:01pm*

☐ *Don't recall*

36.   What day of the week did you take your MOST RECENT PUBLIC TRANSPORT trip to Monash?

☐ *Weekday*

☐ *Weekend*

☐ *Not sure*

37.   For this MOST RECENT PUBLIC TRANSPORT trip to Monash, did you use the SAME public transport service that you used on your FIRST trip to Monash?

☐ *Yes*

☐ *Partially (e.g. the same train line but different bus service)*

☐ *No*

☐ *Don't recall*

38.   When you took this MOST RECENT trip to Monash by PUBLIC TRANSPORT, could you have made the trip by car, either as a driver or passenger? (Please do not consider taxi.)

☐ *Yes*

☐ *No*

☐ *Unsure/Don't recall*

Subsequent Public Transport Travel (Experience of)

Using the scales below, please select the option that best represents your experience on your MOST RECENT PUBLIC TRANSPORT trip to Monash.

39.   On your MOST RECENT PUBLIC TRANSPORT trip to Monash, how would you rate the ease of....

	1 (very difficult to understand)	2	3	4	5 (very easy to understand)	Don't recall
Navigation	☐	☐	☐	☐	☐	☐
Ticketing	☐	☐	☐	☐	☐	☐

40.   On your MOST RECENT PUBLIC TRANSPORT trip to Monash, how would you describe your...

	1 (very anxious)	2	3	4	5 (very relaxed)	Don't recall
Emotional state during the trip	☐	☐	☐	☐	☐	☐

41. Thinking back to your MOST RECENT PUBLIC TRANSPORT trip to Monash, how did your expected travel time compare with your actual...

	1 (much longer than expected)	2	3	4	5 (much quicker than expected)	Don't recall
Travel time	⊙	⊙	⊙	⊙	⊙	⊙

42. Thinking back to your MOST RECENT PUBLIC TRANSPORT trip to Monash by public transport, how would you rate your...

	1 (very concerned about being late)	2	3	4	5 (not worried about being late at all)	Don't recall
Time consciousness	⊙	⊙	⊙	⊙	⊙	⊙

43. Thinking back to your MOST RECENT PUBLIC TRANSPORT trip to Monash, how would you rate your...

	1 (very uncomfortable)	2	3	4	5 (very comfortable)	Don't recall
Level of comfort	⊙	⊙	⊙	⊙	⊙	⊙

44. Thinking about your MOST RECENT trip to Monash by PUBLIC TRANSPORT; if you had to transfer between different public transport modes when travelling, how would you rate your experience...

	1 (very confusing)	2	3	4	5 (not at all confusing)	Did not have to transfer	Don't recall
Figuring out where to go when you transferred	⊙	⊙	⊙	⊙	⊙	⊙	⊙

45. Thinking back to this MOST RECENT PUBLIC TRANSPORT trip to Monash, how did you find the...

	1 (very unattractive)	2	3	4	5 (very attractive)	Don't recall
Amenity of stations/bus stops	⊙	⊙	⊙	⊙	⊙	⊙

46. Thinking back to this MOST RECENT PUBLIC TRANSPORT trip to Monash, how would you rate your...

	1 (very unsafe)	2	3	4	5 (very safe)	Don't recall
Sense of security while travelling/waiting	⊙	⊙	⊙	⊙	⊙	⊙

47. Thinking back to this MOST RECENT PUBLIC TRANSPORT trip to Monash, how would you rate the...

	1 (very inconvenient)	2	3	4	5 (very convenient)	Don't recall
Overall convenience of the travel	☐	☐	☐	☐	☐	☐

48.   Thinking back to this MOST RECENT PUBLIC TRANSPORT trip to Monash, how would you rate your...

	1 (very unsatisfied)	2	3	4	5 (very satisfied)	Don't recall
Overall satisfaction with the service	☐	☐	☐	☐	☐	☐

Demographic Information

49.   Which gender are you?

☐ *Male*

☐ *Female*

50.   Where do you currently live? (Please provide postcode)

[   ]

51.   How long have you lived in the Melbourne area overall?

☐ *Less than 6 weeks / I don't live in the Melbourne area*

☐ *More than 6 weeks but less than 4 months*

☐ *More than 4 months but less than 1 year*

☐ *More than 1 year but less than 2 years*

☐ *More than 2 years but less than 3 years*

☐ *More than 3 years but less than 4 years*

☐ *More than 4 years*

52.   Which of the following age brackets do you fall within?

☐ *17 or younger*

☐ *18 - 21*

☐ *22 - 25*

☐ *26 - 30*

☐ *31 - 40*

☐ *41 - 50*

☐ *51 - 60*

☐ *61 or older*

Willingness to participate in further research

We are interested in learning more about people's experiences using public transport. We will likely be organising discussion groups on the topic. If you are interested in helping us by participating in further research, please indicate your willingness and provide your contact details below.

By indicating your willingness to be contacted for possible participation in follow up research, you do not automatically commit yourself to participate in subsequent research. You may refuse to participate or withdraw at any time, for any reason. In addition, it should be noted that your contact details will not be stored in association with the above responses to the survey, rather they will be held in a separate independent database of potential participants for follow up research.

53.   Would you be willing to be contacted again over the next 12 months should further research in this field be pursued?

☐ *No*

☐ *Yes (please provide contact details)*

54.   Please provide contact details for further research

Please provide contact details for further research Name	
E-Mail	
Mobile Phone	
Preferred Method of Contact	

Closing

This brings you to the end of our survey. Thank you for taking the time to share your feedback.

If you would like to contact the researchers about any aspect of this study, please contact Chief Investigator Graham Currie:

Professor Graham Currie
Bld 60 Monash University
Clayton Victoria 3800
Australia
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If you have a complaint concerning the manner in which this survey (project reference number 2011001210) is being conducted, please contact:

Human Ethics Officer
Standing Committee on Ethics in Research Involving Humans (SCERH)
Building 3e Room 111
Research Office
Monash University VIC 3800
Australia
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Appendix 12   Journey Planner Poll and Follow-up Survey: Invitation to Participate in Follow up Survey and Terms & Conditions of Entry

Initial Invitation to Participate in Follow up Survey

The invitation to provide one's email address to undertake the follow up survey will read, "Thank you for your help! Monash University is conducting research related to public transport. If you are willing to report how your trip went via a survey following your travel, provide your email address below and be in a draw to win a $200 Coles Voucher or one of two second prizes of $50 Coles Vouchers*". The '*' will link to a footnote explaining the terms and conditions of entry, which have been designed in accordance with the Gambling Regulation Regulations 2005 and the Gambling Regulation Act 2003.

Terms & Conditions of Entry

The proposed 'terms and conditions' which will appear as a footnote on webpage inviting participants to provide their email addresses to fill in the follow-up survey which appears after participants submit answers to the poll text is as follows:

Terms & Conditions: You must be 18 years of age or older to enter this competition. Upon submitting the information in the "Tell us about your trip" poll on the PTV Journey Planner website, your travel details, in terms of requested origin and destination and time of travel, were captured. If you agree to fill in the follow-up survey and provide your email address, the travel details and your email address are written to a database. After 24 hours you will receive an email with a link to the survey. Your email address is used to link your journey plan details to your survey results. Upon submitting your completed survey your email address is automatically removed from the survey database and added to the prize draw list. The survey data is therefore de-identified and there is no way of matching your survey answers with your email address. This research design is intended to protect participants' anonymity. Because the information is de-identified, respondents will be unable to access or change any information once it has been submitted

The promoter is Monash University (MU). In order to be eligible for the draw, you must fully complete the follow up survey which will be emailed to you using the email address you provide. All surveys must be received by [Close-off date to be inserted] in order for entrants to be eligible for prizes. The prize draw will take place MU's office, Building 60,Clayton Campus on November 1st, 2012 and the winning email address will be contacted the following day. Survey answers may be linked to email address, previous responses provided, and Journey Planner query searched for the purpose of awarding prizes. Participants' email addresses will not be provided to any external parties and will only be used for the purpose of this promotion. This research is being conducted in part as research for a Doctor of Philosophy degree at Monash University. Any findings from this research may be published but will be done in a way that ensures the anonymity of respondents. A full explanatory statement will be presented to individuals prior to completion of the follow up survey. Individuals may only participate in the draw once; any participants that attempt to enter more than once will be ineligible to win the draw. MU reserves the right to verify the validity of entries and to disqualify any entrant who subverts or attempts to subvert the entry process or who submits an entry not in accordance with these terms & conditions. The grand prize is a $200 Coles voucher. Two second prizes of $50 Coles vouchers each will also be awarded. MU will not be held responsible for the loss, theft or damage to any prize after it has been awarded, or for any injury that results directly or indirectly from this promotion. Winners will be offered the option of receiving their prize by mail or picking up the prize in person as arranged with the promoter. If for any reason this promotion is not capable of running as planned, whether caused by infection by computer virus, bugs, tampering, unauthorised intervention, fraud, technical failures, or any other cause beyond MU's control which corrupt or affect the administration, security, fairness or integrity of the promotion, MU reserves the right in its sole discretion (subject to any written direction given by the Victorian Commission for Gambling and Liquor Regulation) to cancel, terminate, modify or suspend the promotion. MU may in its sole discretion disqualify any individual who tampers with the entry process. MU is not responsible for receipt of incorrect, inaccurate or incomplete information, caused by an entrant or occurring during transmission. Prize winners will be notified by email to the email address provided. MU will make reasonable attempts to contact the prize winners by email. MU's decision is final and no correspondence will be entered into. MU can amend the terms & conditions of the prize draw without prior notice. Unclaimed prizes will be kept for one month after the winners are drawn. If unclaimed after that time another winner will be drawn. By providing your email address you agree to these terms and conditions. Any entry not complying with these terms & conditions is invalid. Any queries arising from the interpretation of these terms & conditions may be raised by emailing: ▮▮▮▮▮▮▮▮▮▮▮▮▮▮

Appendix 13 Journey Planner Poll and Follow-up Survey: Introductory email and reminder email

Journey Planner Follow-up Survey Introductory Email

Those who provide their email addresses were automatically sent a link to a follow up survey one day following the time/date itinerary searched for on Journey Planner when the poll questions were completed. It said:

Hello

You recently planned a journey on the Public Transport Victoria (PTV) website and submitted your email address to take part in a follow-up survey about the trip you took using public transport.

The journey you looked up on the PTV website was:

[Departure Location]

To

[Arrival Location]

If you took this trip please click on the following link to complete the survey:

[Hyperlink associated with session ID to be inserted]

If you are unable to complete the survey in one go please save your answers and return to it by clicking on the above link.

As a thank you for your time you will be entered into a prize draw for the chance to win one of the following prizes:

- *$200 Coles Voucher*
- *$50 Coles Voucher*
- *$50 Coles Voucher*

Thank you for your participation.

Please note participants must be 18 years or older to take part in the survey

Reminder email

In addition, one reminder email was sent three days after the initial notification email and said:

Hello

There is still time to provide feedback on a recent trip you took using public transport. If you have already provided feedback thank you, if not please click the link below to access the survey

[hyperlink associated with session ID to be inserted]

If you are unable to complete the survey in one go please save your answers and return to it by clicking on the above link.

The journey you looked up on the Public Transport Victoria (PTV) website was:

[Departure Location]

To

[Arrival Location]

As a thank you for your time you will be entered into a prize draw for the chance to win one of the following prizes:

- *$200 Coles Voucher*
- *$50 Coles Voucher*
- *$50 Coles Voucher*

Thank you for your participation.

Please note participants must be 18 years or older to take part in the survey

*Note that you must be 18 years of age or older to take part

>

Appendix 14   Journey Planner Poll and Follow-up Survey: Explanatory statement and questions for follow-up survey

Explanatory Statement for Journey Planner Follow-Up Survey

September 2012

I am conducting research in the Department of Civil Engineering towards a PhD at Monash University. This means that I will be writing a thesis which is the equivalent of a 300 page book and several conference papers and journal articles. We have funding from Public Transport Victoria (PTV) for research examining developing Melbourne's public transport market. However, our research is independent from and not controlled by PTV.

Monash University will collect, use, store and disclose personal information and health information in accordance with Information Privacy Principles (IPPs) set out in the Information Privacy Act 2000 and the Health Privacy Principles (HPPs), the Health Records Act 2001 and University regulations. This statement is designed to assist you to understand how personal information and health information related to this research project will be managed. It also tells you how you can seek assurance that your personal information and/or health information is maintained in accordance with the Information Privacy Act 2000 and the Health Records Act 2001.

The aim of this study is to explore users' experiences of public transport. This research is being conducted as part of the requirements to fulfil the candidature of a Doctor of Philosophy degree in the Department of Civil Engineering. The findings from this study will help with our understanding of the public transport user experience, and in particular, about specific requirements that new users may have.

Participation in this study involves completing a survey asking you about your experience of public transport and your travel habits. The survey will take approximately 10 minutes to complete. We do not anticipate any distress or inconvenience resulting from your participation in this study. If, however, you have any questions or concerns please contact the Chief Investigator (contact details below). Being in this study is voluntary and you are under no obligation to consent to participation. Completing the survey implies that you have consented to be part of this study. If you do consent to participate, you may choose to withdraw at any time but the data already submitted cannot be withdrawn or altered.

Upon submitting your completed survey your email address is automatically removed from the survey database and added to the prize draw list. The survey data is therefore de-identified and there is no way of matching your survey answers with your email address. This research design is intended to protect participants' anonymity. Because the information is de-identified, respondents will be unable to access or change any information once it has been submitted.

Monash University may collect Personal Information (including Sensitive Information) or Health Information from a person who agrees to take part in this research. This includes (but is not limited to) information about your:

- historical, recent and future travel behaviour
- opinions about travel services and travel planning
- circumstances surrounding recent travel
- age
- gender
- time living in Melbourne
- suburb resided in
- income bracket

Monash University will only use or disclose the personal information or health information requested for the research purposes. Monash University will only use personal information or health information for a purpose other than that for which it was collected (a secondary purpose), if the secondary purpose directly relates to the primary purpose for which it was collected. Monash University will not transfer a person's personal information or health information to another individual or organisation; although it should be noted that PTV will also hold and have access to the information (as their software is being used to aide collection) but it will not be used for any other purpose than for my research.

Both Monash University and PTV will take reasonable steps to protect your personal information or health information from misuse and loss and unauthorised access, modification or disclosure. Both organisations will also take reasonable steps to destroy or permanently de-identify a person's personal information or health information if it is no longer needed for any purpose. Storage of the data by Monash University collected will adhere to the University regulations and will be kept on University premises in a locked cupboard/filing cabinet for five years.

A report of the study may be submitted for publication or at conferences, but individual participants will not be identifiable in such reports. If you would like to be informed of the aggregate research findings, please contact the Chief Investigator at the email address: ████████████████████████

If you would like to contact the researchers about any aspect of this study, please contact the Chief Investigator at ████████████████████████

If you have a complaint concerning the manner in which this research (LR 2012001081) is being conducted, please contact:

Executive Officer
Monash University Human Research Ethics Committee (MUHREC)
Building 3e Room 111
314

Research Office
Monash University VIC 3800
Australia

██████████████

████████████

███████████████████

You can also contact the Victorian Privacy Commissioner for more information or to raise certain complaints about privacy matters and regulation in Victoria.

Victorian Privacy Commissioner
PO Box 5057
Melbourne VIC 3001

███████████████████

███████████████

████████████████████

Please only complete one questionnaire per person; otherwise you may be disqualified from the draw for prizes.

1.   Which of the following age brackets do you fall within?
a.   17 or younger [all participants that select this answer will be taken to a new window thanking them for their time but telling them they must be 18 or older to participate in the survey]
b.   18 - 24
d.   25 - 30
e.   31 - 40
f.   41 - 50
g.   51 - 60
h.   61 or older

2.   How long have you lived in/been in the Melbourne area (if you have come and gone, please answer for your time in total)?
a.   Less than 8 weeks
b.   More than 8 weeks but less than 6 months
c.   More than 6 months but less than 2 years
d.   More than 2 years but less than 5 years
e.   More than 5 years but less than 10 years
f.   More than 10 years

3.	In an average week, what percentage, approximately, of your travel (in terms of distance) do you complete by each of the following modes?[40]

	Mode						
	Car	Motorbike	Bicycle	Walk	Public Transport	Taxi	Other
0%							
10%							
20%							
30%							
40%							
50%							
60%							
70%							
80%							
90%							
100%							

4.	To what extent does your experience of public transport, on average, meet your expectations of Melbourne's public transport?
a.	My expectations are often greatly exceeded
b.	My expectations are sometimes exceeded
c.	My expectations are typically met
d.	My experience sometimes falls short of my expectations.
e.	My experience often falls well short of my expectations
f.	No basis for judgement/have never used public transport in Melbourne before

The remainder of the survey asks you about travel related to the search query you undertook on PTV Journey Planner recently.

5.	Do you RECALL this search query undertaken on the PTV Journey Planner website? (Please note that the itinerary searched was included in the email you received with the link to this survey, so if you cannot remember it right away, consider looking at the email again before answering)
a.	Yes [If yes, will be forwarded to next question]
b.	No [If no, will be forwarded to Question 4]

6.	Did you end up taking this trip on public transport?
a.	Yes
b.	No [If no, skip to question 4]

---

[40] This question appeared differently in actuality.

7.   How long ago did you take this trip on public transport?
a.   Within last 24 hours
b.   More than 24 hours ago but less than 72 hours (3 days) ago
c.   More than 3 days ago, but less than 1 week ago
d.   More than 1 week but less than 1 month ago
e.   More than 1 month ago
f.   Cannot remember

8.   Were you travelling with anyone else?
a.   No, I was travelling by myself
b.   Yes, I was travelling with someone who HAD taken public transport for this trip before
c.   Yes, I was travelling with someone who HAD NOT taken public transport for this trip before
d.   Yes, I was travelling with someone, but I DON'T KNOW whether or not they had taken the trip before
e.   Cannot remember

9.   Which of the following assisted you during the journey you took? (Please select all that apply)
a.   I printed/noted down the journey information from the website
b.   I asked other passengers for help
c.   I asked a public transport staff member for help
d.   I used an app to assist me on my journey (if select ask following question)
e.   I used a website on my mobile to assist me on my journey (if select ask following question)
f.   I required no assistance
g.   Other (please specify)

10.   Which mobile technologies did you use? (Please select all that apply)
a.   PTV Website (formerly Metlink and Viclink)
b.   PTV mobile phone app
c.   Metlink mobile phone app
d.   TramTracker
e.   Yarra Website
f.   Metro Website
g.   Metro mobile site
h.   V/Line Website
i.   Bus operator websites
j.   Myki Website
k.   Google Maps/Earth
l.   Google
m.   Other (please specify)

11.   Which mode(s) of public transport did you use on your journey? (Check all that apply)
a.   Metro train

b.   Metro bus/SmartBus
c.   Tram
d.   NightRider bus
e.   Regional train (V/Line)
f.   Regional coach (V/Line)
g.   Regional bus
h.   Other, please specify_____

12.   Were any parts of your journey on an unfamiliar route?
a.   Yes ALL of the routes were unfamiliar to me (e.g. I had never used that bus route or train line before)
b.   I had already used some of the routes, but not all of them (e.g. I had used the train service before but not the bus)
c.   No, none of these were new to me [skip to Question 14]
d.   Cannot remember [skip to Question 14]

13.   Which mode(s) were on unfamiliar services (check ALL that apply)
a.   Metro train
b.   Metro bus/SmartBus
c.   Tram
d.   NightRider bus
e.   Regional train (V/Line)
f.   Regional coach (V/Line)
g.   Regional bus
h.   Other, please specify_____

Using the scales below, please circle the number that best represents your experience of the journey that you made using the Journey Planner:

14. How would you rate the ease of....

	1 (very difficult to understand)	2	3	4	5 (very easy to understand)	Cannot remember
Navigation (wayfinding on public transport)	☐	☐	☐	☐	☐	☐
Ticketing (purchasing)	☐	☐	☐	☐	☑	☐

15. How would you describe your...

	1 (very anxious)	2	3	4	5 (very relaxed)	Cannot remember
Emotional state during the journey	☐	☐	☐	☐	☐	☐

16. What factors contributed to your above rating of emotional state (e.g. circumstances surrounding travel)?

---

17. How did your expected travel time compare with your actual

	1 (much longer than expected)	2	3	4	5 (much quicker than expected)	Cannot remember

	1 (very concerned about being late)	2	3	4	5 (not worried about being late at all)	Cannot remember
Concern about being late	☐	☐	☐	☐	☐	☐
Travel time	☐	☐	☐	☐	☐	☐

18. How would you rate, on average, your

19. How would you rate your...

	1 (very uncomfortable)	2	3	4	5 (very comfortable)	Cannot remember
Level of comfort	☐	☐	☐	☐	☐	☐

20. If you had to transfer between different public transport modes, how would you rate, the ease of...

	1 (very confusing)	2	3	4	5 (not at all confusing)	Did not have to transfer	Cannot remember
Transfer (e.g. finding next service)	☐	☐	☐	☐	☐	☐	☐

21. How did you find the...

	1 (very unattractive)	2	3	4	5 (very attractive)	Cannot remember
Appearance of stations/ stops	☐	○	☐	☐	☐	☐

22. How would you rate your...

	1 (very unsafe)	2	3	4	5 (very safe)	Cannot remember
Sense of security while travelling	○	○	☐	☐	☐	☐
Sense of security while waiting	○	○	☐	☐	☐	☐

23. How would you rate the...

	1 (very inconvenient)	2	3	4	5 (very convenient)	Cannot remember

Overall convenience of the travel	⦿	⦿	⦿	⦿	⦾	⦿

24.   How would you rate your...

	1 (very unsatisfied)	2	3	4	5 (very satisfied)	Cannot remember
Overall satisfaction with the journey	⦿	⦿	⦿	⦿	⦿	⦿

25.   Do you have any specific feedback about how easy or hard you found navigating the public transport network for this journey? If so, please describe below.

26.   Is there anything else that stood out about your trip for you? For example, were there any features of the public transport environment or services (trains/trams/buses/stops/stations etc.) that you noticed?

27.   Why were you travelling for this trip?
a.   Education
b.   Employment
c.   Leisure/errands/shopping/fitness-related
d.   On holiday/visiting Melbourne
e.   Healthcare (for self or other)
f.   Visiting friends and relatives
g.   Other (Please specify): _____

28.   Have you taken public transport to travel to/from this destination since?
a.   Yes
b.   No

29.   Do you think that you will use public transport to travel to this destination again?
a.   Yes [skip to question 31]
b.   No

30.   [for those that answered (b) to Question 29], Please describe some reasons why you WILL NOT travel by public transport to that destination again (tick all that apply)?
a.   It is unlikely that I will be going to that destination again
b.   Relative cost compared to other means of travel is too high
c.   It takes too long to travel by public transport
d.   Public transport services do not run frequently enough
e.   Public transport is not safe enough
f.   Public transport stop/station too far from my home
g.   I find the other people using public transport make me uncomfortable
h.   Services are too unreliable
i.   Other modes are more relaxing
j.   Transfer connections take too long
k.   The trip requires too much transferring
l.   Other (Please specify)_____
[Respondents will then be brought to Question 32]

31.   [for those that answered (a) to Question 29, Please describe some reasons why you WILL travel by public transport to that destination again (tick all that apply)?
a.   I have no other means of travelling there (e.g. no access to car)
b.   I will have already paid for the travel (e.g. for monthly passes etc.)
c.   It's the quickest/easiest way for me to get there

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d.   Using public transport allows me time to either get some work done or relax

e.   I care about my environmental impact so feel that taking public transport is a good thing to do

f.   Other (Please specify)_____

32.   Before this trip, how many times would you say you had visited this destination previously (by any mode of travel)?

a.   Never (my first time travelling to this destination was this trip on public transport)

b.   A few times (1 – 3 times)

c.   Many times (4 or more times)

d.   Cannot remember

33.   Have any of the following changes occurred in your life in the last six weeks?

a.   Moved home recently (within area or from another area/state/country)

b.   Began/switched jobs recently

c.   Began educational/switched programme

d.   Required healthcare (or someone significant required healthcare)

e.   Changed family status (e.g. moved in with partner, had child, etc.)

f.   Other: Please describe _____

g.   None of these

[Note survey to be set up so participants can select more than one life event unless they select 'none of these', in which case other life events will become unchecked]

34.   If you did identify having a major life change in the last question, was your recent, previously discussed journey undertaken in relation to this (or one of these) major change(s) in your life (e.g. to/from a new home/hospital/place of work etc.)

a.   No

b.   Yes. Please identify which 'life event' was relevant _____

c.   Not applicable

35.   Which gender are you?

a.   Male

b.   Female

36.   What is your postcode? (If from another country state country only)_____

37.   Which of the following best describes your personal income before tax (including wages/salaries, government benefits, pensions, allowances and other income)?

a. $2,000 or more per week($104,000 or more per year)

b. $1,400 - $1,999 per week ($72,800 - $103,999 per year)

c. $1,000 - $1,399 per week ($52,000 - $72,799 per year)

d. $700 - $999 per week ($36,400 - $51,999 per year)

e. $400 - $699 per week ($20,800 - $36,399 per year)

f. $1- $399 per week ($1 - $20,799 per year)

g.   Nil income

h.   Negative income

i.   Prefer not to answer

38.   Which best describes your marital status?

a.   Single

b.   Married / defacto

c.   Separated

d.   Divorced

e.   Widowed

f.   Prefer not to answer

39.   Which of the following best describes your current household?

a.   Single person household (including single, divorced and widowed)

b.   Couple (with no children living at home)

c.   Couple with children at home

d.   Single parent family with children living at home

e.   Living at home with parents

f.   Living with friends or flatmates

g.   Other

40.   Which of the following best describes your employment status?

a.   Work Full Time

b.   Work Part Time

c.   Unemployed / Seeking Work

d.   Studying Full Time

e.   Studying Part Time

f.   Retired

g.   Home duties

41.   You're almost done! Now please provide your email address again (the one that you used to register for the promotion originally) and we will make sure that you are entered into the prize draw. Please note that your responses to the survey will not be linked to your e-mail address (we store the data separately). Thanks again for your help!

Email Address: _____

Journey planner follow up survey: after survey text

Under 18s

Survey participants that respond that they are 17 years of age or under will be directed to text which reads:

Thank you for your interest in completing the survey; to take part in this survey you must be 18 years or older.

Over 18's – after survey text

The text which is to show once someone has fully completed the survey is:

Thank you for taking the time to fill in our survey.

If you are selected as a winner of the prize draw, we will contact you via email in the next eight weeks.

If you would like to contact the researchers about any aspect of this study, please contact the Chief Investigator at:

███████████████████████

If you have feedback about the way this research (LR 2012001081) is being conducted, please contact:

Executive Officer
Monash University Human Research Ethics Committee (MUHREC)
Building 3e Room 111
Research Office
Monash University VIC 3800
Australia
██████████████████
███████████████
████████████████████

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Appendix 15   Journey Planner Poll and Follow-up Survey: Key elements of data cleanse

Overall public transport familiarity

A cross-tabulation of the poll question regarding first trips and the follow up survey question regarding familiarity was undertaken. The results of this analysis are provided in the table below and indicate some disagreement, in particular, 47 participants stated that it would be the first time taking the trip and then in the follow up survey stated that none of the routes were new to them. This suggests some confusion about the questions. The poll question, "*will this be your first time taking this trip*" lacked a full definition of what was meant by a first trip due to preference for simplicity on the website. The simplistic wording left the question open for interpretation and some may have interpreted it differently than others. It may be that for some people, they considered their travel a first trip because it was the first time using a section of a service that they had actually used before.

The follow up question offered more specificity but asked about 'route familiarity' rather than 'first time taking trip'. This slight change may explain some of the inconsistency in responses. The discrepancy in answers a key challenge associated with this topic: it is difficult to explore because it is difficult to define and thus explore.

For the purposes of processing the results associated with the Journey Planner research method, it was determined that unfamiliarity would be examined moving forward by the follow up survey question rather than the poll grouping as it was surmised that participants may have understood that question better than the poll version as the possible responses were more descriptive.

Consistent reporting of familiarity

Poll – Will this be your first time taking this trip? ↓	Possible responses in follow up survey						Total
	"Yes ALL of the routes were unfamiliar to me (e.g. I had never used that bus route or train line before)"		"I had already used some of the routes, but not all of them (e.g. I had used the train service before but not the bus)"		"No, none of the routes were new to me"		
	n	% of total poll	n	% of total poll	n	% of total poll	n
Yes	21	18%	51	43%	47	39%	119
No	12	3%	68	14%	400	83%	480
Total	33		119		447		599

*Poll responses included are only from those who completed follow up survey

Familiarity by specific mode

Participants were asked to identify which public transport modes they used in their journey and were later asked to identify which of the modes that they used in their journey were unfamiliar to them. Participants were able to select more than one mode for each of these questions. The responses to these questions were cross-checked yielding the data in the table below. This process revealed some discrepancies where respondents indicated a mode as being an unfamiliar mode used but in the earlier question and not identified using that particular mode. This was particularly noticeable with the NightRider bus which seven people said was an unfamiliar mode but nobody indicated using! This may again reflect confusion about the question; it may have been that people were simply indicating that they did not know such a mode existed rather than that it was an unfamiliar mode that they had just used.

Due to these inconsistencies, a number of new variables were then made (one for each mode). The new variables used the information provided from the question which asked participants what modes they had used in their recent journey and then matched instances in which people also identified being unfamiliar with that mode used resulting with a new 'n' for each mode, as indicated in the below table. These actual 'n's for each mode were then used in the data analysis.

Unfamiliar trips by mode

Mode	Initially indicated unfamiliar mode used		Actual n, following matching process
	n	% of total sample	n
Metro train	57	9%	56
Bus/SmartBus	41	6%	39
Tram	51	8%	48
Nightrider bus	7	1%	0
Regional train (V/Line)	7	1%	0
Regional coach (V/Line)	5	1%	0
Regional bus	8	1%	2
Other (included car, walking & SkyBus)	5	1%	1

*Poll responses included are only from those who completed follow up survey