

Exploring First Impressions of Public Transport Services through a University Access Survey

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Abstract

Attracting and retaining public transport ridership is challenging. People's actual experiences and attitudes about public transport are not well understood. First impressions have repeatedly been shown to be integral to attitude development in psychology studies due to a phenomenon called the 'primacy effect'. However this concept has never been applied to the transport context. This paper examines first impressions through a university access survey. The research seeks to better understand unfamiliar trips on public transport services in terms of when they occur, how important they are to patrons, and what experiences they are characterised by. The results suggest that unfamiliar trips on public transport are important to the development of attitudes related to public transport and that the trips themselves are more negative than familiar trips. Furthermore first trips and attitudes about public transport are shown to be significant to mode choice as measured by subsequent public transport usage for those with access to a car but not for captive public transport users. Though the latter disaggregate analysis had relatively small sample sizes. Suggestions are then offered regarding future research, and how the findings could be applied to the transport planning context.

Keywords: first impressions, transport psychology, attitudes, mode choice, travel behaviour, unfamiliar users, primacy effect, captive users, new users

1. Introduction

In order to grow public transport markets, new users must be attracted and retained, but little is known about first trips on public transport. Increasing public transport use is considered desirable for a number of reasons including reducing dependence on the automobile, reducing greenhouse gas emissions and other harmful pollutants, reducing reliance on imported oil, reducing congestion, making public transport services more efficient and competitive, and improving communities (e.g. Knowles 1996; Tertoolen et al. 1998; Klockner and Matthies 2004; Vredin Johansson et al. 2006; Klöckner and Friedrichsmeier 2011). However, attracting and retaining public transport ridership is challenging as it often requires people to break travel habits. It is generally understood that travel patterns and the processes underlying travel decision-making require further exploration (e.g. Venezia 2009). Research in psychology has repeatedly shown that first impressions are important to attitude development (Asch 1946; Underwood 1973; Mower-White 1982; Tetlock 1983; Taylor et al. 1997; Miller et al. 2004; Forgas 2011). However this concept has never been applied to the transport context.

The aim of the present research is:

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

Thus this paper explores the role of first impressions of public transport in shaping attitudes and mode choice by gaining an appreciation of characteristics of first trip experiences on public transport services through a university access survey. For the purpose of this

research, 'first trips' refer to one's first time using a public transport service though it is acknowledged that there may be interpersonal and inter-service variation on exactly what this constitutes, however the emphasis is on the 'unfamiliar' user.

This paper begins by providing a review of literature in the 'Research Context' section which is then followed by a description of the 'Method' used. Next, results are presented which are further considered in the 'Discussion' section. Finally, the 'Conclusion' section provides an overview of the paper and what the key findings from the research are.

2. Research Context

There is no literature specifically focusing on first trips on public transport. Therefore this literature review will draw from the related fields of transport and psychology. It begins by reviewing what information about what characteristics of first trip experiences is documented in academically reputable resources; though it should be noted that the findings are, in many instances, from peripheral discussion in such studies rather than the result of the studies' objectives. Next, research related to the potential impacts of first trips on attitudes and subsequent mode choice is offered including a discussion of a psychological phenomenon called the 'primacy effect' along with findings from transport research.

2.1 The First Trip Experience

In considering what the experience of a first trip may be like, it is first important to recognise that most travel is executed habitually; this is considered by many to be a great barrier to mode shift (e.g. Verplanken and Aarts 1999; Thøgersen 2009). Habits occur when repetition of behaviour is repeatedly partnered with favourable outcomes until eventually the behaviour becomes automated (Aarts et al. 1997; Verplanken and Orbell 2003; Thøgersen 2009). Not only do first trips represent a potential window of transition from habitual travel to new travel behaviours, thus deserving consideration; but as a travel behaviour which is not automated, first trips are likely to be associated with a different experience than an automated behaviour. Research suggests that there is a tendency to devote more attention to an unusual or unknown environment, as is often the case in foreign countries (Nahemow 1971; Kimble 1990). More specifically, unfamiliar travel may require more cognitive effort as a process of information searching and decision-making is undertaken (Aarts et al. 1997; Van Exel and Rietveld 2001; Klockner and Matthies 2004; Klöckner and Friedrichsmeier 2011).

The additional cognitive effort associated with first trips would suggest that they may be more negative for travellers. Indeed some research suggest that unfamiliar trips are plagued by anxiety, for example, 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". Contrary to this potential anxiety associated with first trip experiences, public transport marketing promotions are often justified by the prediction that they will result "in more favourable attitudes towards using public transport" (Thøgersen 2009, p.336). Yet, there is little documentation about the actual experiences of new public transport trips that shape attitudes.

2.2 The Impacts of First Trips on Attitudes & Travel Behaviour

In addition to the gap in research about the experience of first trips, there is also limited information about what the impact of first trips may be in shaping attitudes and thus subsequent travel behaviour.

2.2.1 The Primacy Effect

Research in psychology has repeatedly shown that first impressions are important to attitude development through a phenomenon called the 'primacy effect' (Asch 1946; Underwood 1973; Mower-White 1982; Tetlock 1983; Taylor et al. 1997; Miller et al. 2004; Forgas 2011). The 'primacy effect' is "the tendency to use an initial impression to organize and interpret subsequent information" (1997, p.471). First impressions have been shown to be one of the most robust and reliable factors which distort judgements (Forgas 2011) and have even been examined from a neurobiological-scientific perspective which indicate that first presentations of a stimulus are processed differently in the brain than subsequent exposures (Tulving et al. 1994; DiGirolamo and Hintzman 1997; Miller et al. 2004).

Historically, the study of primacy has concentrated on interactions with people and objects rather than their environments (Nahemow 1971). The focus of the present research is the transport environment and unlike stimuli like objects or people, the environment surrounds a person. This means that there is always peripheral and central information present and more information than can be processed by an individual.

2.2.2 First Trips in Transport Literature

Although the discipline of psychology offers a solid foundation that 'first impressions' are integral to attitude development the explicit application of the primacy effect to travel choices has never been explored through transport research. It is surmised that if the primacy effect is applicable to public transport trips, and that they are important to attitude development, then in accordance with the Theory of Planned Behaviour (TPB), the attitude might impact intention and subsequent travel mode decision-making (e.g. 1991).

The aforementioned tendency to devote more attention to an unusual or unknown environment (Nahemow 1971; Kimble 1990) might affect attitudes about travel choices. Oliver (2002) argues that familiarity influences estimates of distance with the example that one's first day at a university and notes that the perceived size and complexity reduces over time. Similarly she contends that often one's outward journey seems much longer than the return journey and attributes this to a lower inclination to process information with as much intensity as with first exposure. On this basis, one would be less likely to remember information from the return trip, making it seem shorter. This suggests that due to increased attentiveness first trips on public transport might seem longer than they actually are.

Interestingly, and despite this assertion that unfamiliar trips seem longer than familiar trips, some research suggests that novel first public transport trips can correct inflated misperceptions about actual travel time by public transport (Fujii et al. 2001). During a freeway closure, Fujii et al (2001) tested whether experience of using public transport 'corrected' perception of travel times on public transport and found that commute time overestimation was corrected by the experience of using public transport. Furthermore, 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) 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". Indeed, numerous authors suggest that free promotional trials of public transport can be effective in correcting misinformation, increasing quality of knowledge and reducing the gap between public perception and reality (Taylor 2007; Thøgersen 2009; Gould and Zhou 2010).

However it is important to stress that for long term changes in travel habits to occur, as Thøgersen (2009) points out, the new travel behaviour must be perceived as superior to the former. Despite the potential for first trips to inform the users about the system, and

potentially correcting misperceived inflated travel times, section 2.1 revealed some research which suggests that first trips may be particularly negative, which would not be conducive to long term behaviour change. This discrepancy indicates that more research examining the impact of first trips is warranted.

In conclusion there is a lack of research about first trips: in terms of when they occur, what experiences are like, and the role of first trip experiences in impacting travel behaviour. Some of the information which does exist is somewhat conflicting. The primacy effect has been shown to demonstrate that for a number of stimuli, first impressions are important to attitude development, yet this concept has never been applied to a transport context. The research presented in this paper has attempted to address this research gap.

3. Method

First trip experiences and their role in shaping attitudes and behaviour were explored through a web-based university access survey.

3.1. Participants and Procedure

Participants were recruited through a hyperlink advertisement included in a university-generated email distributed to all staff and students under a 'participants sought' banner in the email. The advertisement was available from September 2011 – April 2012. Upon clicking the hyperlink, participants were brought to an information page describing the research and then to the web-hosted survey.

A total of 285 participants began the survey with 249 participants completing all of the questions which they were asked representing an 87% completion rate. Demographically 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.

3.2. Questionnaire

Participants were asked a number of questions pertaining to their use of public transport to and from Monash University, current travel behaviour habits, and other background variables.

First Trip Experience and Overall Attitudes

Participants were first asked to rate their overall experience of travelling to Monash on public transport. This provided a sense of their overall attitudes toward the experience. Eleven experiential factors (e.g. ease of navigation, sense of security etc) were explored using a five-point Likert scale where low numbers indicated negative experiences. The rating scale used for each attribute is depicted in Table 1.

Later in the survey participants were asked to rate their first experience using public transport using the same 11 attributes.

Table 1: Attributes Measured

Attribute	Scale	
Navigation	1. Extremely difficult to understand	5. Very easy to understand
Ticket	1. Extremely difficult to understand	5. Very easy to understand
Transfer	1. Very confusing	5. Not at all confusing
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	1. Very anxious	5. Very relaxed
Convenience	1. Very inconvenient	5. Very convenient
Satisfaction	1. Very unsatisfied	5. Very satisfied

Behaviour

Participants were asked a number of questions about their past and current travel habits. For example, participants described by which modes they 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 including the potential answer, 'did not travel'). In addition, they were asked how long ago their last trip to the university occurred.

Captivity

Participants were also asked how often they have access to a private vehicle for travel to and from the university.¹

4. Results:

Given that much of the literature reviewed suggests higher rates of cognitive awareness during unfamiliar travel, it was predicted that first trips would be associated with relatively high rates of recall in the study. This premise was well supported. Of the 252 respondents that completed the question, 148 (59%) reported 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 occurred², the majority (59%, representing 121 respondents) reported that the trip had occurred more than two years ago and 29 respondents (14%) testified that the trip had occurred between one and two years ago. The remaining 57 respondents (20%) reported that their first trips had occurred within the last year.

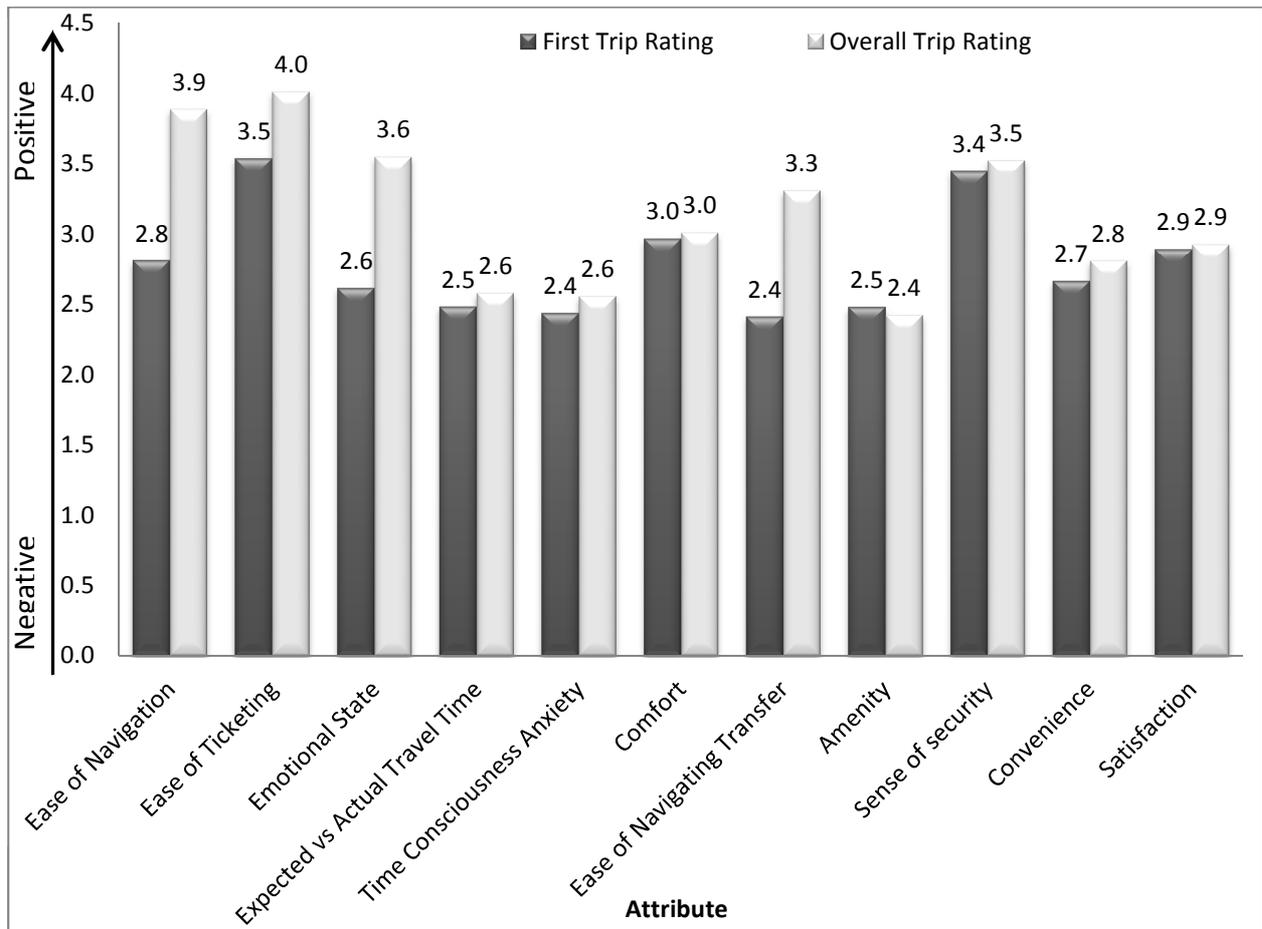
¹ Possible responses included, "Yes, on all days", "Yes, on most days", "Yes for some days", "Only occasionally" and "No, never".

² those that reported not being able to recall their first trip were not asked this question

4.1. Experiential Attitude Ratings

The mean ratings for each of the experiential attributes measured are depicted in Figure 1. For all attributes (except amenity) first trips were rated lower (more negatively) than overall trips, which suggests that first trips tend to be more negative than other trip experiences. In particular, challenges appear to be most pronounced for ‘ease of navigation’ (wayfinding), ‘emotional state’, ‘ease of navigating transfer’, and ‘ease of ticketing’ for first trips.

Figure 1: Mean experiential attribute ratings for first and overall trips



In order to better understand the variability evidenced in Figure 1, means were compared using paired samples t-tests³. Findings from this analysis are depicted in Table 2 (with asterisks denoting significance; *= <0.05 ; **= <0.01) which presents the difference in means between first and overall trips for all attributes. For the attributes ‘ease of navigation’, ‘emotional state’, ‘ease of navigating transfer’, and ‘ease of ticketing’ the mean ratings were significantly lower for first trips than for overall trip experiences by 22%, 19%, 18%, and 9% respectively. The other attributes did not significantly differ.

³ All ‘don’t recall’ and ‘did not have to transfer’ responses excluded from this analysis

Table 2: Differences in mean ratings between first and overall trips for each attribute

Measure	μ First	μ Overall	Diff μ First – μ Overall	% Diff
Ease of Navigation	2.8	3.9	-1.1**	22%
Ease of Ticketing	3.5	4.0	-0.5**	9%
Emotional State	2.6	3.6	-0.9**	19%
Expected vs Actual Travel Time	2.5	2.6	-0.1	2%
Time Consciousness Anxiety	2.4	2.6	-0.1	2%
Comfort	3.0	3.0	0.0	1%
Ease of Navigating Transfer	2.4	3.3	-0.9**	18%
Amenity	2.5	2.4	0.1	1%
Sense of security	3.4	3.5	-0.1	2%
Convenience	2.7	2.8	-0.1	3%
Satisfaction	2.9	2.9	0.0	1%

Note: ** $p < 0.01$ and * $p < 0.05$

4.2. Impact of First Impression on Attitudes

In addition correlation analysis was undertaken to ascertain whether first trips impact attitudes about public transport, as measured by ratings of attributes for overall trip experience. The correlation coefficients are presented in Table 3, with larger numbers denoting stronger correlations and thus indicating a higher importance of first trip shaping attitudes for that attribute. For *all* attributes, the correlation was significant. In particular, the findings indicate:

- A stronger correlation between first and overall trip impressions for ‘security’, ‘amenity’, ‘convenience’, and ‘satisfaction’
- Poorer correlations for ‘ease of navigation’, ‘emotional state’, ‘time consciousness’, and ‘ease of navigating transfer’

Because memories tend to fade over time disaggregate analysis was 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 for those whose first trip occurred more than two years prior to undertaking the survey and then undertaking correlation analysis again for all attributes. These results are also presented in Table 3 and do not indicate a particularly strong trend, though correlation coefficients were 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. Correlation coefficients for participants who travelled between six months and two years ago were higher than for the two years+ group, and in comparison to the most recent first trip makers (< six months ago), most correlation coefficients of this group were lower (for all

attributes except 'convenience'). The results suggest that first trips do indeed impact attitudes but that their importance may slightly diminish over time, although this trend was not that strong and subgroup sample sizes were small.

Table 3: Correlation between first trips and overall trips by attribute ratings

Attribute	Total (n = 203)	Time Since First Trip		
		< 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. n values are approximate as all 'don't recalls' or 'didn't have to transfer' were excluded from analysis of each attribute so n varied for each attribute analysis

4.3. Current Travel Behaviour Analysis

Of all of the responses only six (2%) reported never using public transport to access the university since their first trip. Other subsequent travel included:

- 21 (7%) of respondents used public transport a few times after their first trip;
- 55 (19%) reported that they have used public transport several times since their first trip
- 165 (58%) reported that they travel by public transport very regularly now.

The next stage of analysis focused on deciphering whether or not first trip experiences and attitudes were correlated with subsequent travel behaviour. An average score of all of the 11 attribute ratings was calculated for each participant to provide a 'mean first trip rating', and mean 'overall trip rating' (the latter providing an indication of their overall attitudes). Subsequent public transport usage following first trips was measured by creating a new variable in which reported days of travel by public transport was divided by total days of travel reported (including 'no travel'). Correlation analysis was then undertaken to test the relationship between the average attribute ratings and current usage of public transport. The findings, which are presented in Table 4, indicated a significant correlation between current

public transport use and average trip ratings for both first trips and overall trips. This suggests that both first trip experiences and attitudes affect re-patronage of public transport services.

Because the correlation coefficient was not particularly strong, disaggregate analysis was undertaken to ascertain the role of captivity to modal choice⁴. These results are also presented in Table 4 and indicate that first trip attribute ratings were significantly correlated with public transport use *only* when participants have an automobile. In other words, travel behaviour reflects first trip experiences and attitudes only when someone has a choice set that includes car access.

Table 4: Correlation between mean first trip ratings and percentage of travel by public transport (altogether and by car access)

Attribute	Total n= 203	Access to Car		
		No Car Access (n = 45)	Occasional Car Access (n = 67)	Always Car Access (n = 91)
First	0.17*	0.14	0.00	0.33**
Overall (Attitudinal indicator)	0.22**	0.07	0.03	0.34**

Note: **p<0.01 and *p<0.05.

4.4. Qualitative Results

In addition to these quantitative findings, an open ended qualitative question asked participants to identify any other aspects of their first trip that stood out to them. The majority of the comments provided further support for the quantitative dataset but also exposed some variation in what aspects of the journey were most prominent on participants' first trips. Issues identified by a number of respondents including understanding ticketing, confusion, anxiety or frustration about navigational aids, accessibility issues, public transport driver attitudes, transfers, comparisons with other modes, frustration and mistakes. This subset of data was not fully analysed at the time of writing this paper and thus full analysis has been excluded. However, a 'word cloud', wherein the most commonly used words are depicted larger than less commonly used words, was created⁵ to provide a brief synopsis of the 50 most frequently cited words expressed in comments as provided in Figure 2. The only 'expressive' words depicted included (in order of frequency): 'confusing', 'anxious', 'nervous' 'difficult' and 'surprised' which are almost exclusively negative emotions. 'Clayton' is the name of the suburb in which the University's largest campus is located; Huntingdale is the name of the closest train station (which is not within standard walking distance of the campus, but rather requires a bus) and 'Monash' is the name of the university. Interestingly many more comments were specific to buses than trains.

⁴ Captivity was analysed by grouping responses to the question, "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)?" as follows "Always car access" reflects: "Yes, on all days"; "Occasional Car Access" reflects: "Yes, on most days", "Yes for some days", and "Only occasionally"; "No Car Access" reflects the response "No, never".

⁵ Using the website: <http://www.wordle.net/>



Figure 2: 'Word cloud' of qualitative comments about first trip experiences (created using <http://www.wordle.net/>)

5. Discussion:

The research suggests that first trips are significantly different to other trips, significantly impact attitudes about public transport and can impact public transport use. This was evidenced by the large number of respondents that could recall their first trip to the campus by public transport, by the differences in experiential ratings between first trips and overall trips and through the correlation between attribute ratings for first trips and overall trips. In addition, the research demonstrates that first trips and attitudes both influence mode choices, but only for those that have access to a car in their choice set, an interesting discovery.

However the research is associated with some limitations in its findings and applicability to other contexts. 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 public transport may recall their first trip more negatively.

Another limitation is that the sample size was relatively small and limited to university staff and students. Once responses were excluded due to incompleteness and 'don't recall' or 'didn't have to transfer', the sample was much smaller. This issue is particularly relevant to the disaggregate analysis which while informative, resulted in relatively small subgroup sample sizes, so the findings should be interpreted with some caution. Another issue related to sample size was that the number of participants who only ever used public transport *once* was very low (n=6) so analysis of responses documenting reasons never to use public transport again after a first trip was not considered valid. In retrospect, it would have been prudent to ask those that only ever re-used public transport services a few times, their rationale for not repeating patronage as well.

Although limiting the survey to university staff and students is a limitation, it also likely removes some of the variation that would occur if a broader range of locations were sampled. While people from any of the universities campuses could complete the survey,

there are only a small number of campuses and only a finite number of public transport services supporting these campuses. This may have limited some of the variation that could occur due to different levels of accessibility that would have been associated with a larger catchment of destinations. Another strength of the specific destination was that travel to the university would likely reflect similar trip purposes among the sample, again limiting variability that could be associated with first trip experiences for different types of travel purposes. Also because universities are primarily destinations for adults, most people “first trip” would have occurred as a teenager or adult which likely improved recall and decreased age of acquisition variability.

The research findings will be useful to establishing the direction of future research. More research is needed to better substantiate the current findings and explore some of the peripheral factors such as for example, mode-specific factors, which may affect first trips, but which are not fully understood. This further research may help to eventually provide the foundation to update transport planning practices and transport models to better reflect real human behaviour and experiences. For example, a “first trip factor” could be integrated into transportation funding decision making (i.e. a service that tends to attract a large number of unfamiliar users, such as an airport bus, might be given a greater budget for information dissemination) or through integration into Total Generalised Cost.

6. Conclusion:

This paper described a university access survey of 285 staff and students which was used to better understand whether or not first trips on public transport are important. The results support the hypothesis that a primacy effect would be associated with first trips on public transport and also reveal some of the key experiential attributes associated with unfamiliar public transport trips. Some of the key issues facing first trip users are issues with navigation, transfers, anxiety and ticketing. Experiences of first trips were shown to be correlated with transport attitudes and subsequent travel, though primarily for those who have access to a car.

Future research will be designed to better understand travel for other trip purposes, the role of travel habits in affecting first trip experiences, under what circumstances first trips occur, and further documenting the importance of and characteristics of first trips.

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