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THE SOCIAL CONTEXT OF URBAN TRAVEL BEHAVIOUR

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Degree of Doctor of Philosophy

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ORIGINALITY STATEMENT

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Abstract

The blueprint for achieving a modal shift from car use to public transport and active transport has remained an elusive part of the endeavour towards more sustainable urban transport. This could partly be due to a lack of extensive research into the factors that influence people to use certain modes of transport, but rarely or never use other modes. Until now most research into travel behaviour has been based on economic rationalism and other quantitative studies, which limits the factors that can be considered. To address this gap a framework has been developed to scope the various influences related to transport that people are exposed to in society, referred to as 'social influences'.

This thesis examines how social influences encourage or discourage the use of different modes of transport. This is done by firstly examining the issues, processes and perspectives that currently frame the way transport is considered. It then considers how people are exposed to social influences related to urban transport. This involves researching the determinants of behaviour found in psychological and sociological literature along with developing an understanding of the characteristics of travel behaviour that may affect the perceived importance of different determinants of behaviour. In order to understand how social influences affect these determinants of behaviour, the thesis investigates the way messages are developed, portrayed and interpreted. By combining an understanding of the influence of messages, with the influence of other determinants of behaviour, a framework, which consists of causal links between transport-related messages and travel behaviour, is developed.

This framework is then applied to prominent ways people receive transport-related messages. This includes a focused study of messages within mass media. The development and application of this framework leads to a number of recommendations to assist the design of future policy options for encouraging a greater use of sustainable transport modes, namely public transport and active transport. These include taking into account the way messages portray images of transport use; the prevalence of transport use; the proximity of people to the use of different modes of transport; the framing of transport problems, solutions and responsibility; the portrayal of a sense of fairness and power; and the way messages lead to competency to deal with the complexity and variability of transport. The potential for existing strategies to address these issues is examined, where existing strategies come from sustainable transport or other public health campaigns such as anti-smoking. The work in this thesis is complementary to the development of infrastructure and services for active transport

and public transport. By addressing social influences, it is expected there will be improvements to the support and use of such infrastructure and services.

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Contents

Abstract	3
Acknowledgements	5
Contents	6
Glossary	11
1 Introduction.....	15
1.1 Background.....	15
1.2 Traditional transport policy and planning in Sydney.....	17
1.3 The research question	22
1.4 Previous social science studies examining urban transport.....	24
1.5 Research approach of this thesis.....	29
1.6 The plan of this thesis.....	35
2 Urban transport context.....	37
2.1 The political and cultural context	39
2.2 The material and energy context	45
2.3 The economic and industrial context	49
2.4 The urban planning context	55
2.5 The psycho-social context	59
2.6 The public health context	69
2.7 Summary and implications of contexts for travel behaviour	77
3 Determinants of Travel Behaviour	82
3.1 Introduction.....	82
3.2 Key determinants of behaviour	84

3.3	Implications for travel behaviour	114
3.4	Summary	119
4	Implications of messages	120
4.1	Content of message	120
4.2	Conveying messages	129
4.3	Interpreting messages	131
4.4	Lessons learnt and contributions for methodological framework	144
5	Transport-related messages	148
5.1	Introduction	148
5.2	The messages noticed: travel information diary	150
5.3	Primary sources of messages.....	153
5.4	Secondary sources of messages.....	166
5.5	Summary	180
6	Mass media as a social influence	182
6.1	Introduction	182
6.2	Influence of media messages.....	186
6.3	Media Analysis	191
6.4	News analysis	192
6.5	Advertising	198
6.6	Film analysis	209
6.7	Summary	218
7	Implications for policy.....	221
7.1	Introduction	221

7.2	The policy process	222
7.3	The development and analysis of strategies	230
7.4	Summary.....	248
8	Conclusion	251
8.1	Introduction.....	251
8.2	Development of a framework	251
8.3	Application of the framework	260
8.4	Role of the media	261
8.5	Implications of the framework	263
8.6	Final reflections on my thesis	268
9	References	270

Figures

Figure 2.1	Six contexts of urban transport identified to examine characteristics of transport ..	38
Figure 2.2	Trends in urban transport use in Australia (Cosgrove & Gargett, 2007).....	40
Figure 2.3	Proportion of trips by purpose and mode on an average weekday in Sydney (TDC, 2009).....	44
Figure 2.4	The indirect and direct energy consumption of modes of transport (Lenzen, 1999)	47
Figure 2.5	The greenhouse gas emissions of urban modes of transport. Source: Lenzen (1999)	48
Figure 2.6	Cost for public transport and cars in Sydney (2005/06). Source: (Glazebrook, 2009)	51
Figure 2.7	Cost of local air pollution in inner city and outer city areas of Sydney (Sirikijpanichkul et al., 2006).....	71
Figure 2.8	Pedestrian fatality risk as a function of impact speed of car (WHO, 2004)	73
Figure 2.9	Perceived risk and real fatality risk for modes of transport in Norway (Elvik & Bjornskau, 2005).....	74
Figure 3.1	Plan for investigating determinants of travel behaviour	83
Figure 3.2	System for studying determinants of behaviour with three levels of perspectives ..	84
Figure 3.3	Theory of Planned Behaviour (Ajzen, 1991).....	90

Figure 3.4 Triandis' Theory of Interpersonal Behaviour (Triandis, 1977)	92
Figure 3.5 Value-Belief-Norm Theory (P. C. Stern et al., 1999)	97
Figure 3.6 Priming values affects data acquisition (B. Verplanken & Holland, 2002).....	99
Figure 3.7 Efficacy in attaining desired outcome through behaviour	100
Figure 3.8 Health belief theory - Source: (S. Day et al., 2010).....	104
Figure 3.9 Influence of life changing experiences on car use (Klöckner & Matthies, 2004).....	108
Figure 4.1 A cartoon of Melbourne's traffic as a patient suffering from congestion (Davison, 2004)	125
Figure 4.2 Consideration of relationship dynamics during communication. Source: the author, drawing on Pinker (2007).....	130
Figure 4.3 Factors affecting information behaviour. Source: Adapted from Wilson (1996)	132
Figure 4.4 Information seeking in the context of everyday life (Savolainen, 1995)	138
Figure 5.1 Focus of examination on urban travel behaviour	149
Figure 5.2 Transport-related messages from primary sources.....	154
Figure 5.3 Pathways of influence from experiencing behaviour to subsequent travel behaviour	159
Figure 5.4 Potential pathways of influence from observing the transport system, to subsequent travel behaviour	163
Figure 5.5 Potential pathways of influence from observing transport users, to subsequent travel behaviour	166
Figure 5.6 Secondary information sources that can influence travel	167
Figure 5.7 Potential pathways of influence from sustainability messages which do not promote modal shift	169
Figure 5.8 Potential pathways of influence from sustainability messages with information on the impacts of transport	171
Figure 5.9 Potential pathways of influence from other sustainability messages	173
Figure 5.10 Potential pathways of influence from messages from transport authorities	175
Figure 5.11 Potential pathways of influence information from education system	177
Figure 5.12 Potential pathways of influence from social networks	180
Figure 6.1 The social forces in media organisations (McQuail, 2010)	185
Figure 6.2 Pathways of influence from news articles to travel behaviour	193
Figure 6.3 Pathways of influence from advertisements to travel behaviour	200
Figure 6.4 Psycho-social context in car advertisements on television	202
Figure 6.5 Advertisement for Hyundai Tucson (SMH, 2009a)	204

Figure 6.6 Material and energy context in car advertisements on television.....	205
Figure 6.7 Advertisement for Nissan Murano (SMH, 2009c)	206
Figure 6.8 Economic context in car advertisements	209
Figure 6.9 Pathways of influence from films to travel behaviour	211
Figure 6.10 The two protagonists are disgusted by the bus in Material Girls (Coolidge, 2006).....	213
Figure 6.11 The protagonist is protective of his car in Starsky and Hutch	217
Figure 7.1 Australian tobacco consumption trends (Scollo & Winstanley, 2008).....	224
Figure 7.2 Factors to consider within the development and interpretation of messages.....	225
Figure 7.3 Incorporating innovative policies and improved existing strategies to encourage modal shift.....	238
Figure 8.1 Incorporating innovative policies and improved existing strategies to encourage modal shift.....	264

Tables

Table 2.1 Direct energy consumption of modes of transport in The Netherlands (Bouwman & Moll, 2002)	47
Table 2.2 Direct cost structure of different modes of transport.....	50
Table 2.3 Social costs of cars in Sydney (Glazebrook, 2009)	52
Table 2.4 Factors affecting modal choice amongst travellers in Scotland (Stradling 2003 cited in Crockett and Hounsell 2005)	61
Table 2.5 Travel time by mode in The Netherlands:(Bouwman & Moll, 2002).....	62
Table 2.6 Comparison of effective speed of various modes of transport in Canberra (Tranter, 2004).....	63
Table 2.7 Aspects that affect the experience of a mode of transport	64
Table 2.8 Emissions of local air pollution from on-road transport (Xu, 2007)	70
Table 2.9 Fatalities per 100 million passengers in Britain in 1992 (Litman, 2009).....	75
Table 2.10 Strategies to deal with road safety issues	76
Table 2.11 Characteristics of different contexts related to urban transport	78
Table 3.1 Summary of implications for travel behaviour	115
Table 4.1 Summary of implications for behavioural determinants.....	145
Table 7.1 Comparison of automobility and smoking based on Urry's (2004) features of automobility	223

Glossary

Many of the terms used to explain the mechanisms involved in this study can bring to mind a number of interpretations. It is for this reason, that I have provided a small Glossary of some of the terms used in my work and the intended meaning of them, in the context of my studies.

Affect	The conscious experience of emotion
Agency	One's sense of power and control over a situation
Attitude	A disposition of an individual to evaluate some symbol or object or aspect of their world in a favourable or unfavourable manner (Katz, 1960)
Behavioural determinant (also determinant of behaviour)	Elements with a potential causal effect on behaviour. In this thesis, behavioural determinants refer to elements which can be influenced by messages that an individual receives.
Cognitive dissonance	Occurs when there are conflicting cognitions. It is considered that people are uncomfortable with this. They therefore seek to resolve this conflict when cognitive dissonance arises (Festinger, 1957).
Context (urban transport context)	The issues, processes and perspectives which are related to different ways of investigating urban travel through different disciplines
Descriptive social norms	Through one's perception of how the world works around them, and what other people are doing in this world, people form norms about what is prevalent practice in certain situations, in certain roles and for certain types of people (Griskevicius, Cialdini, & Goldstein, 2008)
Discourse	A specific ensemble of ideas, concepts, and categorisations that is produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities (Low & Gleeson, 2001)
Emotion	Emotions comprise of expressive reactions, psychological reactions and subjective feelings (D. Martin, O'Neill, Hubbard, & Palmer, 2008). They are not only developed by conscious processing, but they can also come from the automatic processing of a situation.

Framing	Where the use of words and ideas within a context creates norms or expectations as to their use and meaning (Lakoff, 2004)
Habit	Learned sequences of acts or scripted behaviour that become automatic responses to specific situations or environmental stimuli, which may be functional in obtaining certain goals (Bamberg, Ajzen, & Schmidt, 2003; B. Verplanken, Aarts, & Knippenberg, 1997)
Implicatures	Meanings which unfold when it is clear that the semantic content of an utterance alone is not a reliable guarantor of the meaning of that utterance in context
Information	The part of messages which are intended to be consciously registered
Information behaviour	How people receive and interpret messages (T. Wilson, 1997b)
Incrementalism	Policies are evaluated by assessing their marginal value rather than understanding set objectives (Lindblom, 1959)
Injunctive social norms	Rules about what is morally approved or disapproved (Cialdini, 2003)
Knowledge	A fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information (A. Ladd & Ward, 2002)
Messages	The interfaces between the various social forces that construct the way the world appears to a person and the psychological forces that determine how the person interprets and processes their surroundings
Metaphor	How ideas are associated with other concepts
Modes of transport	Different facilities that allow for the movement of people in cities
Myth	Any true or fictional story, recurring theme or character type that appeals to the consciousness of a group by embodying its cultural ideals or by giving expression to deep, commonly felt emotions (Chapman and Egger 1983).
Observer	The person who is exposed to an information source
Outcome efficacy	The ability of desired outcomes to result from the completion of a behaviour

Personal norms	Internalised norms that are maintained through internal support mechanisms of the individual (Bamberg, Hunecke, & Blobaum, 2007)
Practices	The 'ordering and orchestrating entities' involved in everyday behaviour (Shove, 2010; Shove & Walker, 2010)
Presupposition	Statements which are not explicitly stated, but are implied as truths in order for what is explicitly stated to have meaning
Primary message	Messages acquired through observing or experiencing a scene or event.
Salience	How noticeable, meaningful, or memorable something is (Entman, 1993)
Secondary messages	Messages acquired from other people (or information systems) who communicate using symbols.
Self-efficacy	One's ability to successfully undertake the behaviour
Shared knowledge	Knowledge created when recipients of information are aware that other people are receiving similar information and assume they have similar interpretations of this information.
Social context	The array of interactions people have with their surrounds, including other people, media and the physical world
Social influences	Part of this social context, describing particular ways that the social context could influence travel behaviour
Social marketing	Socially responsible behaviour change strategies that use marketing techniques, such as customer orientation, market segmentation and analysis (Andreasen, 1994; Craig Lefebvre & Flora, 1988; Thogerson, 2007).
Social networks	A group of individuals who have interpersonal relationships and the ways these individuals are linked
Source of message	That which provides messages through a number of means, including experience, observation, learning or being part of an audience
Subjective norms	Norms which reflect expectations of others in how one should behave
Texts	Visual, auditory, or written data (Wodak, 2008)

Transport option	A path of travel through the urban environment using modes of transport that are available
Transport system	A system which permits a transport user to take a transport option usually comprised of a mode of transport and the systems that support its operation
Transport user	A person who partakes in travel behaviour
Travel behaviour	A range of behaviours related to travel, from choosing where and how to go, to the manner with which people conduct themselves while using transport. In this thesis, travel behaviour refers to the action of using one mode of transport (or in the case of intermodal transport – a number of modes of transport) instead of another
Trust	The firm belief in the reliability, ability or strength of someone or something ("trust," 2010)
Urban transport	Transport taken within cities, usually as part of everyday life
Values	Principles which guide the way people think about different issues and actions

1 Introduction

This thesis aims to understand urban travel behaviour beyond the physical infrastructure and economic rationalist concepts that have been central to its planning throughout the last century. The thesis draws on a number of disciplines and is intended to be of assistance to transport researchers and practitioners who may have had little or no exposure to these disciplines and their connection with urban transport. Travel behaviour has been the subject of transport models, psychological studies and a popular topic of conversation. However, the social context of decision-making to use one mode of transport over another has rarely been accounted for within such investigations. This thesis investigates social factors and psychological processes that potentially influence a person's travel behaviour, in particular choosing to travel by car or by public transport or/and active transport. By gaining a greater understanding of the social context of individuals who use transport in the city, it is anticipated that more comprehensive policies can be developed to address such travel behaviour.

Any attempt to develop a sustainable society has to understand how the relationships between individuals and their social contexts can be changed (Uzzell & Rätzl, 2009)

Such insights complement the promotion of active transport and public transport through infrastructure and service improvements. By addressing social influences, it is expected there will be improvements to the support and use of such infrastructure and services.

This introduction starts with a background of urban transport planning, particularly in Sydney, Australia, where the work for this thesis is based. Issues related to past and present urban transport policy and planning are discussed. This discussion identifies where improvements can be made and where further research is needed. This is followed by the research questions for this thesis. The ensuing discussion includes an inquiry into social influences on travel behaviour as well as the objectives of various sections of this thesis that are required in order to develop the methodology to shed light on this inquiry. The approach taken in this thesis to address this inquiry is discussed, including the contribution of previous social science studies which are related to urban transport. Finally, the outline of the structure of the thesis is detailed at the end of the introduction.

1.1 Background

The growth of cities has seen the development of complex transport systems that have become a dominant element of social life (Illich, 1974). Urban transport has been closely

linked to numerous problems (Litman, 2009) and the complexity of urban transport systems has plagued researchers and practitioners who attempt to find ways to resolve these problems (Vigar, 2002). Furthermore, urban transport systems are evolving, along with the culture within which they are situated; hence the problems and characteristics of urban transport are not constant.

While all modes of transport come with consequences, the negative effects associated with car use have been widely acknowledged (Garling & Steg, 2007). The adverse impacts of cars are exacerbated by their ubiquitous use (TPDC, 2005) and by the way car use has been catered for in urban planning, technological development, patterns of employment, residence, socialisation, education and other lifestyle choices (Sovacool, 2009). The flexibility and speed that cars can provide have become important expectations of urban travel, because technological, cultural and infrastructure development have taken place to support the car more than other modes of transport (Haustein & Hunecke, 2007). Effectively, car dominance has been self-reinforcing, with car use encouraging the growth of the institutions that support car use (Kitamura, Nakayama, & Yamamoto, 1999).

Organisms maximize under constraint and were the automobile an organism we would deem it as having been remarkably successful in carving out an environmental niche and in adapting the behaviour of its host to its requirements. (Garling & Steg, 2007)

The entrenchment of cars in urban transport systems, in combination with the extensive array of problems caused by cars, is one of the key focuses of research in urban transport (Garling & Steg, 2007; Litman, 2009). The prevalence of the car affects, and is affected by, a number of factors within society, which embed it deeply within the culture and function of cities (Greene & Wegener, 1997). Indeed, it can be said that “the car had roads built, not conversely” (Jensen, 1999) and therefore, reducing the use of the car involves altering a number of other facets of the life of the city as well as the city’s physical structure (van den Bergh, van Leeuwen, Oosterhuis, Rietveld, & Verhoef, 2007).

There has been a general appreciation of the need to improve the sustainability of car dependent urban transport systems in large ‘western’ cities such as Sydney. However, there are divergent ideas about how this improvement should be achieved. Research has been divided between work that focuses on reducing the impacts of car use for every kilometre travelled and work that focuses on reducing car use (i.e. reducing the number of kilometres travelled by car) (Litman & Burwell, 2006; Rajan, 2006). There is little doubt that both lines of

research are necessary, but where the emphasis of the research and policy should be is debatable. Is it more appropriate to concentrate efforts on reducing the impact of cars or the number of cars on the road? While technological solutions are more tangible, behavioural change, particularly regarding modal shift from car use to public transport and active transport, offers a wider range of benefits, because it deals with a wider array of transport problems.

There has been a substantial emphasis on reducing the impact of cars, which has come through a faith in technology and regulation (Greene & Wegener, 1997; Jacobson & Delucchi, 2010). This is in line with the reliance on tangible and quantifiable results. It leads to policies that promote safety standards and improved vehicle design, engine efficiency and road design (T. Richardson, 2001). Those who take this approach often express limited confidence in the population's appetite to use other modes of transport, such as public transport or active transport (that is, walking and cycling) (NRMA, 2010). There is little doubt that the pervasive and complex nature of the car-dominated transport system has made the shift to different modes of transport more difficult.

New systems then have to find their place physically, socially and economically within a 'fitness landscape' that is structured by the configuration of existing systems. (Lyons & Urry, 2006)

It is therefore necessary to ensure that all possible policy avenues for aiding the shift away from car use are well researched and incorporated into visions and scenarios for the future of urban transport and urban planning. Without a thorough understanding of the ways cars are embedded in the culture and the function of the city, the possibility of reducing car use cannot be fully realised. However, transport planners have traditionally paid little attention to car culture or the culture around the use of other modes of transport. The reasons behind this lack of consideration are elucidated by the following description of traditional approaches to transport policy and planning.

1.2 Traditional transport policy and planning in Sydney

Focusing on one city facilitates research and increases its potential to be consistent and comprehensive. The most populous city in Australia is Sydney and is the focus of this thesis. However, many of the findings should have relevance to other cities with high levels of car use. Below is a summary of the background of transport policy and planning in Sydney.

Sydney's transport system has been crucial to its ability to function efficiently and competitively and to attract residents and workers. This is because of its low density and the large distances between residential areas and workplaces. With the initial high concentration of workplaces in the city centre, a network of main roads and heavy rail infrastructure was developed with a focus of getting people to and from the city using radial corridors. Previously there were tramways which serviced local travel and connection to the main corridors. However, the tramways were removed in the 1950s and 60s and buses have since been used to service local areas (Howard, 2012).

Travel behaviour has been shown to be influenced by weather, geography and topography (Iftekhar & Tapsuwan, 2010). Sydney has a temperate climate with no extreme weather conditions that completely impede transport movements. However, Sydney's highest temperatures could discourage active transport, and winter months are also less popular for transport modes which involve being unsheltered outdoors (Miranda-Moreno & Nosal, 2011). The topography of the inner suburbs of Sydney is slightly hilly, which can deter people from cycling. It can also make the design of roads and railway lines more difficult, although the geology of Sydney has facilitated tunnelling for transport purposes. Sydney's infrastructure development has been partially governed by natural features, including the ocean, the harbour and the undulating terrain of the Hawkesbury River Region and the Blue Mountains.

Car culture has been incorporated into the Australian way of life just as American car culture has come to be part of the US national identity (Davison, 2004; Seiler, 2008). It is in this context that transport planning and policy has been taken place in Sydney. A range of transport plans have been developed for the Sydney region, particularly since World War 2, mainly focusing on the infrastructure development and more recently on land use as well (Low & Gleeson, 2001). The two major plans for Sydney developed after WWII were the 1948 *Cumberland County Plan* and the 1968 *Sydney Region Outline Plan 1970-2000, a Strategy for Development*. They both stressed radial links and catering for car use with freeway construction (Muhammad & Low, 2006). During this period, new suburbs were being developed with poor access to train lines. The years following these plans led to an increase in car use, with most public and private transport corridors catering for radial movements (Low & Gleeson, 2001).

Until recently, there has been little effort to encourage people to use active transport or public transport in Sydney. Plans for cycling and public transport promotion have mainly consisted of the development of routes and the design of the infrastructure (Low & Gleeson, 2001).

However, in the last ten years there has been more discussion around integrated transport as well as the usability, awareness and marketing of urban transport. There has been recognition of the need to address environmental issues and urban lifestyle options, with a push by local government to address urban amenity, including promoting cycling. Studies have been commissioned (Gehl et al., 2007) and strategies developed (CoS, 2011). While such discourse has begun to increase the acceptability of public transport and active transport, the culture within transport professionals is still dominated by engineering and developing infrastructure, particularly car-based infrastructure (Low, Gleeson, & Rush, 2003).

1.2.1 Limitations of traditional approaches to urban transport

The dynamics of transport systems and the need to support investment and regulation has led naturally to the development of disciplines that study transport issues and the establishment of standard ways to implement solutions. These have been founded typically on scientific or economic principles, which treat the movement of people as predictable elements who make decisions according to set attributes. There is an assumption within the models associated with these disciplines that people will move predictably and that more mobility is desirable (Low et al., 2003). The use of the car has been regarded as progressive and rational, with the need to provide for expanding car use as the primary focus of transport planners and engineers (Hensher, 1979; Kane & Del Mistro, 2003). Transport planning has occurred under the assumption that problems can be solved through a sequence of logical steps, with an orientation towards optimisation, objectivity, quantification of information, and reductionism, which limits the number of elements or variables, especially behavioural elements (Kane & Del Mistro, 2003). Under this way of thinking, one of the main problems transport professionals have studied is congestion (Twiney & Rudd, 2005) and how to manage it through infrastructure provision (Booz|Allen|Hamilton, 2006). Policies that may compromise that approach to reducing congestion, such as giving more road space to public transport or active transport users, have often been overlooked, because they create added burdens for car users (T. Goldman & Gorham, 2006).

There has been a focus on travel times and costs in creating incentives for people to use public transport and active transport. When attempts have been made to reduce car use, efforts have concentrated on the reasons why people would use different modes of transport from an economic rationalist perspective (Steg, Vlek, & Slotegraaf, 2001) using traditional transport planning tools (T. Richardson, 2001). This is also reflected in research which has concentrated on explaining behaviour through cognitive and rationalist models (Steg & Tertoolen, 1999).

However, it is important to understand that transport choices are much more complex than a mere economic decision. Social science, conducted under the assumptions of economic rationalism, has assumed that people neither make foolish decisions nor act without consideration for their own interests. To the contrary, there is an increased acknowledgement that consideration of such 'fools' is important (Caplan, 2007). Furthermore, there is evidence in our society that car use is being promoted by appealing to affective qualities (see glossary) rather than through focussing on functional value (Steg & Tertoolen, 1999). In other words, there are institutions, such as car manufacturers, which recognise and exploit the fact that people are responding to not only economic factors when making choices related to transport.

While inroads have been made to explore a more diverse range of determinants for travel behaviour, there has been a lack of consideration of those that are not instrumental and reasoned, particularly in Australian research (Iftekhhar & Tapsuwan, 2010)

It is, therefore, necessary to step back from the traditional examination through the lens of economic rationalism applied to engineering approaches and to understand the array of non-economic social influences that affect the way people choose to travel. Cultural and social expectations, along with emotional responses, play a key role in determining how people transport themselves (Bamberg et al., 2007). This non-economic approach extends beyond urban transport and also affects more general approaches to sustainable consumption which "fail to account for the role of cultural change in addressing environmental crises" (Kennedy 2011).

It is more tangible for decision-makers and members of the public to see the forecasted benefits from initiatives which are based on economic theory. It is hard to move away from economic rationalism with its quantifiable nature and the relative simplicity of a cost-benefit analysis and modelling. Moreover, the media and other institutions have the power to cast a sceptical light on approaches to policy that are not quantifiable and predictable. They can highlight the uncertainty and the inability to see the results at a glance and measure the progress. Financial institutions also rely on models of future behaviour to decide on their investments. This makes the economic rationalist approach more politically acceptable, which is crucial for implementation (Røe, 2000), but it is inadequate for effectively addressing the transport problem.

Initiatives that focus on directional indicatorsare easily understood by policy makers and the general public, and, in principle, easily conceptualized as specific policy initiatives. However, because they fail to grapple with the complexities and contradictions of sustainable transport and the larger social and economic systems in which transport is embedded, they are prone to tautologies and circularities that either overlook 'unintended' (and potentially unsustainable) consequences, or overstate what can be realistically expected from particular policies. (T. Goldman & Gorham, 2006)

Thus, despite the need for understanding social systems, the widespread use of travel behaviour studies conducted with an engineering-economic approach has stifled the introduction of social theory (Røe, 2000). To correct this narrow approach to travel behaviour, it is necessary to provide insights from social science that are accessible to transport planners and policy-makers. This involves an investigation into how the individual, who uses urban travel, is embedded in their social context, and how their interactions with their social context influence their travel behaviour (Edmonds, 1999).

It is evident that once the use of public transport and active transport becomes more prevalent, this change will remove many of the social and political constraints (Rajan, 2006), but for now it is important to understand how best to tackle them in a climate of car dominance and of complacency. There are opportunities to encourage public transport and active transport that are yet to be fully realised:

...even without making any more changes to the "real world" there are great opportunities to reduce automobile use, by appealing to people who have never considered using a different mode, or do not know how to, or are not aware of the benefits to themselves and to society. (Sorell 2004)

Due to past and present emphasis on short-term marginal improvements rather than long-term plans, behavioural change has often been seen as less effective. While technological solutions become more complicated and costly as they get closer to their targets (as the easy fixes are used up and inherent properties of the practice cannot be dealt with), behavioural change becomes easier, with cultural changes enhancing people's desire to change their behaviour (T. Richardson, 2001). In order to realise the benefits of behavioural change, it is important that the social influences that potentially affect how people travel at present are investigated and policies are developed to address these influences.

1.3 The research question

The broad purpose of this thesis is to better understand how to develop and implement effective policies to promote modal shift from cars to public and active modes of transport. To achieve this, two main lines of inquiry are pursued.

- To understand how the social context of individuals influences their mode of transport choice. This is a commentary on the status quo. A basis for examining how travel behaviour changes could occur is established by identifying influences within this context that are reinforcing current travel behaviour as well as those influences that are encouraging public transport and active transport.
- To explore how this understanding of travel behaviour can be used to improve policies to reduce car use. The premise of this work is that the strategies, which are incorporated into policies, could be more effective if there is increased consideration of the links between an individual's social context and their mode of transport choice.

Other researchers such as Uzzell & Rätzl (2009) and Shove (2010) have also acknowledged the need for a better understanding of the links between social context and behaviour.

Any attempt to develop a sustainable society and sustainable production cannot be brought about by regarding individuals as somehow independent of their social relations or by trying to change their behaviour regardless of the social and economic context in which they live. (Uzzell & Rätzl, 2009)

1.3.1 Concepts and framework

In social science research, the development of novel ways of examining an issue requires the use of various concepts, some of which may not have been previously developed (Webb, 1995). This thesis attempts to develop a new way of examining transport issues and travel behaviour. It is therefore important to have well-developed definitions of the terms used and how they are related. While most terms are explained when they are introduced, here I explicitly define terms that are critical to the core model of this thesis. These terms are 'social context', 'social influences', 'messages', 'context' and 'travel behaviour'.

'Social context' refers to the array of interactions people have with their surroundings, including other people, media and the physical world. 'Social influences' are part of this social context, describing particular ways that the social context could influence travel behaviour. These social influences involve 'messages', which are the interfaces between the various social forces that construct the way the world appears to a person and the psychological forces that

determine how the person interprets and processes their surroundings. The word 'context' is used as well to refer to the issues, processes and perspectives which are related to different ways of investigating urban travel through different disciplines. For example, the 'economic and industry context' investigates issues such as the cost of transport and subsidies, processes such as the flow of money and jobs, and perspectives such as people's estimates of the costs of different transport options and people's sentiments towards the car industry and government spending on transport. Finally, 'travel behaviour' is a term that has been used to describe a range of behaviours related to travel, from choosing where to go to the manner in which people conduct themselves while using transport. In this thesis, travel behaviour refers to the action of using one mode of transport (or in the case of intermodal transport, a number of modes of transport) instead of another.

A framework is developed within this thesis that encompasses these terms. This framework is designed to enhance the ability of transport researchers to understand the links between social context and travel behaviour. In order to develop this methodology, it is necessary to understand a number of factors relevant to urban travel behaviour and social influences:

- The array of issues related to urban transport and how they are perceived by the public and transport planners
- Features of urban travel behaviour and the mechanisms that determine which mode of transport people take
- The development, portrayal and interpretation of transport-related messages, and how they create meanings that could affect people's psychological processes

Insights into social influences and transport policy are anticipated through the development and application of this framework. It is not within the scope of this thesis to incorporate the application of this framework to all possible social influences or to a range of people in different social contexts with different transport needs. This thesis applies these methodologies at a general level to numerous social influences, and conducts a detailed investigation of particular media samples. Examining the prominent social influences that have the potential to significantly influence travel behaviour may aid policy-makers in using strategies that address these social influences. This requires an understanding of current policy-making practices related to transport and associated strategies in order to explore how policy can restrict, enhance or adjust the way various messages within one's social context affect travel behaviour. Through an understanding of the framework's development, its preliminary application and the implications for policy as outlined in this thesis, there will be

Page 23 of 306

benefits to future research that applies this framework to specific groups and specific types of social influences.

1.4 Previous social science studies examining urban transport

Urban transport issues have been studied previously through different disciplines. This thesis builds on this research with work from a range of disciplines, particularly from the social sciences. This range includes sociology, psychology, linguistics and history. Social science approaches examine the topic within broader social systems and stress the importance of human behaviour in improving urban transport (Lyons & Urry, 2006). While much economic and engineering research has focused on urban transport, it has not been as intensively studied within other disciplines of social science until recently (Merriman, 2009). However, it is essential to acknowledge the work that has been done in these disciplines, because they offer theories and methodologies that may be applicable to the research herein. Previous insights become the starting point for the understanding of urban transport. They inform this thesis about established knowledge and indicate where there are gaps in knowledge that should be investigated.

It is important to understand the motivations, methodologies and assumptions of different disciplines. Sociology examines how society is organised and how people experience life. This involves developing concepts to explain how societies function. These concepts are then tested through empirical research that demonstrates how well these concepts correspond to people's social life in reality (BSA, 2012). Social psychology incorporates some knowledge of the human mind and its modes of operation into social science research that investigates social behaviours (McDougall, 2003). Urban planning deals with how physical surroundings affect people and the activities they undertake. Linguistics is the systematic study of the nature, structure and variation of human language. Semantics is the branch of linguistics concerned with how meanings are developed. For all these disciplines, there is either research which has been directly applied to urban transport or research which develops theory that could aid the development of the approach to investigating urban transport.

Research into urban transport has focused either on transportation systems as a whole or on one or two modes of transport. There are different motivations for researching modes of transport. These motivations affect the focus of the research and subsequently the background for future work. The place of different modes of transport within culture influences how they are researched. Researchers are more interested in investigating culture specific to cars than the culture of other modes of transport, because cars appear to have had

Page 24 of 306

a bigger impact on society. When only one or two modes of transport have been researched for particular characteristics or effects, there are limitations on using this work to establish comparisons between all the modes of transport relevant to this thesis. A large part of this thesis examines different properties of several modes of urban non-freight transport and the culture around them. Much of this work is based on collating previous work and therefore it is highly dependent on how different modes of transport have been previously researched. Four different ways in which urban transport use has been investigated through the disciplines described above are discussed below with key insights noted. These are: the history and sociology of car culture; the social psychology of travel behaviour; urban planning for the people; and sustainable consumption. Each is now discussed in turn.

1.4.1 Car culture

It has been acknowledged in a wide range of sociology literature that cars occupy a much greater role in industrial society than simply their use for transportation (Dant, 2004; Featherstone, 2004; B. Ladd, 2008; Lutz & Lutz Fernandez, 2010; Paterson, 2007; Seiler, 2008; Sheller & Urry, 2000; Urry, 2004). An examination of the history and sociology of car culture has revealed the car as the dominant mode of transport in most cities of industrialised society, an important private possession, the subject of many cultural texts and a central part of many cultural practices. Indeed, the concept of 'automobility' has been developed to describe the car's current role in society, with six aspects of automobility being noted (Urry, 2004):

- The quintessential object of the manufacturing industry
- A major item of personal consumption which provides status to its owner/user
- A highly complex system, due to the collaboration of array of industries and other stakeholders
- The predominant form of mobility, which subordinates other forms of mobility and reorganises how daily activities are carried out
- Part of mainstream culture which determines what is a good life
- The most important cause of environmental resource-use

These insights into automobility guide the approach taken in the current thesis to researching travel behaviour. They facilitate the identification of factors that can affect how transport is regarded and behaviour is determined. Because this thesis also incorporates the study of modes of transport other than the car, it is necessary to consider the extent to which these concepts of automobility are transferable to the use of other modes of transport.

In the literature there is acknowledgement of the significance of various texts, symbols and experiences in shaping the way cars are viewed and consumed within cities. A number of studies take a historical perspective. Seiler (2008) focuses on how the evolution of car use and car culture has affected democracy and people's sense of self. Other literature has focused more generally on how people have reacted to the introduction of new vehicles, technologies and regulations (B. Ladd, 2008; Volti, 2004). The current culture around cars has been the focus of a number of sociological studies that have used a combination of interviews along with an analysis of current cultural texts (Lutz & Lutz Fernandez, 2010; Paterson, 2007).

Studies related specifically to cars do allude to a number of different influences within society and assist understanding by speculating about transport-related messages within people's social context. However, there is a lack of exploration of the mechanisms through which these influences can affect a person's travel behaviour, with minimal mention of psychological processes or how people interpret messages. Although this gap limits the validity of the claims that these are relevant social influences, these studies do offer a starting point for any examination. They offer conclusions as to why policies have led to favourable conditions for car use (Uzzell & Rätzsch, 2009) and how policies may be improved through the acknowledgement of the cultural impacts of cars as well as their environmental, social and economic harms (Lutz & Lutz Fernandez, 2010). This literature directs policies towards transport systems designed to *support* society, social patterns and practices, rather than systems that *serve* the public, where serving the public dangerously assumes the public is passive to the transport system (Lyons & Urry, 2006).

1.4.2 Social psychology of travel behaviour

Social psychology is the field of psychology most relevant to the study of travel behaviour (Garling, Gillholm, & Garling, 1998). There is extensive social psychology research that examines urban transport, often in response to the need to expand the understanding of travel behaviour beyond economic rationalist models. This research has examined various psychological correlates of the use of modes of transport (Gardner & Abraham, 2008). These studies reach conclusions by using psychological reasoning about specific phenomena in particular situations. Most psychological studies deal with car use in comparison to another mode of transport for a specific journey (Guiver, 2007), such as a student's trip to university (Heath & Gifford, 2002). Predominantly, this research quantifies the behavioural determinants and uses statistical methods to demonstrate correlations and potential causes of social behaviours.

Both instrumental and affective motives for transport use have been investigated (Steg et al., 2001). Instrumental motives, such as attitude and habit, have been emphasised in a number of studies. However, other determinants of behaviour have also been shown to be important, including emotions, norms, values and perceived efficacy. Models are established to examine the relative influence of different determinants of behaviour and how they interact. Several studies acknowledge that the determinants of behaviour associated with each mode of transport are important, not just those related to the mode of transport chosen. For example, it may not be one's motive to drive, but one's motive not to use public transport that is more important in travel behaviour (Gardner & Abraham, 2008). The correlations found in this research provide an empirical basis for the importance of different determinants of behaviour.

Psychology is in a good position to contribute to the understanding of current environmental issues, because behaviour is an important component of our environmental impact (Uzzell & Rätzl, 2009). However, the sway towards reductionist and individualistic approaches to behaviour may have put psychology at a disadvantage in dealing with such issues. Some studies simplify the factors that influence travel behaviour by ignoring the broader social context within which these decisions take place and by using a 'simplistic, linear model' (Uzzell & Rätzl, 2009). This work limits the number of variables and assumes that individuals have consistent values and preferences that motivate their behaviour (Guiver, 2007). However, it has been noted by several researchers that there is a need for better understanding of how psychological correlates are affected by different social factors and interventions (Uzzell & Rätzl, 2009). This thesis examines travel behaviour from such a broad perspective and draws on the wealth of knowledge about the relationships between various behavioural determinants and travel behaviour.

1.4.3 Development of urban planning for people

Since the 1970s, there has been an increasing awareness by architects and urban planners of the importance of taking a human-centred perspective to the design of cities. The urban environment can encourage particular activities and impede others. This human-centred approach sets out to identify and understand the signals within a city that reduce one's desire to spend time in the outside urban environment—in particular, what makes the streets less or more amenable to people. Therefore, these architects and urban planners explore the city with a particular emphasis on how it affects people who are engaged in walking, cycling and other human-scale activities that take place in the street, such as playing, socialising, shopping, alfresco dining or relaxing.

To examine this, it is important to understand how individuals interact with their urban environment and how this makes them feel. Therefore, these studies focus on the factors within the streetscape that deter or attract people in spending time in the city (Gehl, 1971). The factors include the permeability of the streets for pedestrians, the aesthetics, the activity and the sense of safety. The permeability of streets is affected by the size of the sidewalks and the roads, the quality of the sidewalks, the lighting and shelter. The activity of the street is also measured in such studies by recording the movements of people and which activities they engage in (Gehl et al., 2007). The activities that are made possible by the design of the city are also examined. These studies note the problems caused by high levels of car use and by city design which focuses on cars. Activities that encourage human interaction and exchange with one's surroundings, including the use of modes of transport, are seen as positive aspects of streets (Engwicht, 1992).

This literature contributes to this thesis through the way it conceptualises the relationship between the streets and people. In this thesis, the street is an important part of the social context within which one receives transport-related messages. One receives direct feedback while partaking in the use of different modes of transport on the street, as well as through observing other people using various modes of transport. Therefore, the way urban planners and architects have characterised these interactions can aid the understanding of how people receive such messages.

1.4.4 Sustainable consumption and behavioural change

There has been an increased interest in sustainability and an appreciation that current consumption patterns are not sustainable. This has led to research that investigates the effectiveness of behavioural change strategies. These studies have occurred both through university research and through reports commissioned by governments from consultants. In addition, there are consultants who develop behavioural change strategies (Halpern et al., 2004; Hounsham, 2006; McKenzie-Mohr, 2000; Seethaler & Rose, 2006). Knowledge from psychology, sociology and marketing is used along with empirical findings to improve tools that encourage more sustainable behaviour. This has included research specific to travel behaviour change (Eriksson, 2008).

This literature often stems from psychological studies and attempts to address determinants of behaviour. Therefore, the majority of developed strategies focus on the individual and how to frame messages that encourage them to take responsibility to act sustainably. There is a lack of emphasis on institutional changes and long-term strategies. However, this work does

demonstrate important psychological and sociological factors, including how people's motivations are governed both by the social structures around them and their own agency (Jackson, 2005). Therefore, this literature informs the approach of this thesis by demonstrating ways to consider behaviour and behavioural change through relevant theories in sociology and psychology.

1.5 Research approach of this thesis

This thesis develops and applies a framework to facilitate the understanding of how social context influences travel behaviour. This framework consists of a system of causal links that are informed by relevant theories and insights from the social science work described above, along with other work not specific to urban transport. Firstly, problems in transport are defined in order to understand how researchers, practitioners and transport users perceive and deal with various transport-related issues. Then, literature is examined that deals with how people interact with their social context and what influences this has on their behaviour. By combining this work with an understanding of the predominant ways by which people are exposed to transport-related messages, theoretical causal chains can be established between messages and mode of transport choices.

Through this work, this thesis contributes to the way urban transport is conceptualised and how solutions can be developed. While investigating theories relevant to travel behaviour and social context, a number of characteristics that are particular to travel behaviour and transport-related messages are identified. The collaboration of these insights into a framework opens up the dialogue of urban transport research and policy to consider social influence. This guides the way that aspects of societies and their impact on urban transport are examined. The preliminary application of the framework also reveals a number of messages in society that may be encouraging car use, which have previously been overlooked.

1.5.1 Defining the problems in transport

There is extensive literature that identifies the problems with urban transport from one perspective or another. Particularly prominent is the need for sustainable transport (B. C. Richardson, 2005), a term that has been given a number of definitions depending on the objectives. These objectives relate to access, human and eco-system health, equity, safety, affordability, efficiency, choice, economy, development, resource consumption and emissions (T. Goldman & Gorham, 2006). In this thesis, sustainable development is defined as 'Types of social and economic development that protect and enhance the natural environment and social equity' (Diesendorf, 2000). Many studies focus on the energy and emissions related to

urban transport while acknowledging that many other factors are involved (Rajan, 2006). Perhaps this is a result of the expertise of many people who are interested in transport issues being aligned with understanding energy and emissions (Greene & Wegener, 1997), but it may also be due to how transport problems have been framed within the wider public awareness and in previous research.

This thesis aims to identify the mechanisms that would assist in the shift away from cars and towards public and active transport. It is incumbent to ask whether reducing car use is essential. Car use has been associated with a number of sustainability, liveability and ethical issues (Jain & Guiver, 2001). One cannot reject without discussion the possibility that these issues are solvable through the application of appropriate technologies and practices while maintaining cars as the dominant transport mode in developed cities such as Sydney. It is therefore necessary to investigate the array of problems around transport and how the car and other modes of transport contribute to them. This is done in Chapter 2 by investigating six contexts within which urban transport can be viewed. Too often, urban transport problems have been investigated in isolation and therefore 'solved' without consideration of the effects on other transport-related problems. For example, different studies justify the need for more sustainable transport by pointing out its contribution to greenhouse gases or the depletion in petroleum reserves (L. Chapman, 2007). While these problems alone might warrant the improvement of the transport system, they may lean towards solutions, such as technological innovation, that do not address other transport issues like social equity. Therefore, the investigation of six contexts broadens the understanding of the true impact of cars and other modes of transport and demonstrates that a reduction in car use is essential in dealing effectively with the array of issues uncovered. Chapter 2 is not only important in establishing the reasons why policy to promote modal shift is necessary. It also sets the scene within which transport messages are received and travel behaviour is established. Exploring the contexts of urban transport sheds light on the various attributes and other considerations of transport users, because beliefs within the public are a part of the exploration.

1.5.2 Developing the links between social context and travel behaviour

Through a social science approach, the issues with transport are seen to be more extensive and complex than through a technological and economic approach. Transport goes beyond the structures and the schedules of transport service and penetrates working arrangements, media institutions, shopping patterns, one's identity and more (B. C. Richardson, 2005). Since it is challenging to comprehend the plethora of influences that affect people's modal choice, it

is necessary to create a simplified framework for investigation. When considering how this simplification should take place, it is necessary to decide which interactions and influences are essential to incorporate into the framework in order to attain valuable and rigorous insights.

Some research has pointed to the diverse influences on behaviour and how this behaviour in turn shapes public health and environmental outcomes (C. M. Collins & Chambers, 2005). Figure 1.1 draws on the idea of that there are influences varying from population-wide to personal scale (levels of aggregation), and that both people and place influence behaviour at these different levels of aggregation.

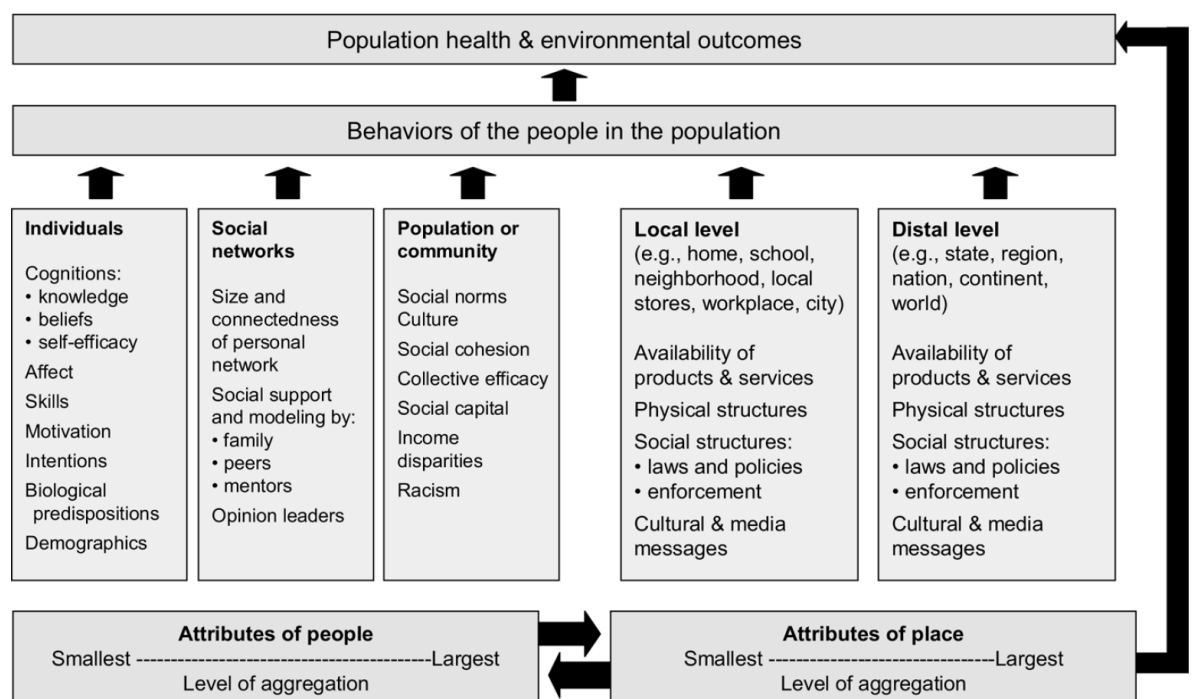


Figure 1.1: A framework for examining the influence of people and places on population health and environment (Maibach, Roser-Renouf, & Leiserowitz, 2008)

The model developed by Maibach et al (2008) offers an interesting framework for examining urban transport and modal shift. However, it does not examine the interaction between the categories of influence. For example, the psychological constructs identified at the individual level, such as self-efficacy, are most probably influenced by factors identified at other levels, such as cultural and media messages. It is therefore important to represent these interactions within the framework to study urban travel behaviour.

Behaviour is . . . based on habit and cultural tradition, emotional impulses, the influence of family and friends and social norms as well as wider trends. Moreover, while values and attitudes are clearly important in influencing behaviour, values and

attitudes are not formed in a social and cultural vacuum. They are embedded, nurtured and emerge from a social context, such as class, gender, ethnicity, and environmental settings, resulting in specific everyday cultures. (Kennedy, 2011)

For this thesis, a simplified systems approach is taken with a focus on the messages from the environment to individuals who use the urban transport system and how this shapes the psychological processing that could affect behaviour. My approach therefore acknowledges that, along with the social forces that affect individuals' modal choice, the psychological processing of various influences by individuals leads to their travel behaviour. This approach does not attribute responsibility completely to either the individual or their social influences, but accepts that they both play a role.

there is a need to find a more balanced approach, which pays attention to both agency and structure, which makes room for (combining) both bottom-up and top-down dynamics of change, and which recognizes the mutual influencing and co-shaping of human actors on the one hand and objects and technological infrastructures on the other. (Spaargaren, 2011)

Messages are particularly pertinent when examining travel behaviour, because there are so many messages related to urban transport and travel arrangements that one encounters on a regular basis. While participating in mainstream culture, spending time outdoors or indeed using urban transport, one is frequently exposed to transport-related messages. Indeed, the motivation for undertaking this thesis came to the author by noticing the extensive and diverse array of transport-related messages. These messages come from a variety of sources, including media, such as car advertisements, and social networks, such as conversations about how one will get to an activity. We cannot assume that all messages reinforce car use. Therefore, as part of this thesis, messages that could increase people's inclination to use other modes of transport, namely public transport or active transport, are examined as well. Some transport-related messages may also have little effect on one's behaviour. Indeed, it is necessary to examine messages without a preconception of how they would influence people, but to use theories from sociology and social psychology researched in Chapters 3 and 4 to guide the causal links between messages and travel behaviour.

Using messages as a central construct of this thesis is in line with research that examines the practices of populations as a way to avoid allocating the responsibility for changes on the individual, where the term 'practices' refers to the 'ordering and orchestrating entities'

involved in everyday behaviour (Shove, 2010; Shove & Walker, 2010). This thesis also takes a similar approach to 'radical micro-sociology', which examines how norms and solidarities become apparent in everyday life (Spaargaren, 2011). The approach in this thesis examines social influences while bringing the focus of the examination down to the level of individual interactions in cases where this facilitates explanation. It explores these influences at an individual level, to aid the conceptualisation of the processes that individuals go through in encountering messages and the processes that determine behaviour. When identifying the relevant messages, it is important to consider that perceptions of issues are often founded through indirect and diffuse sources rather than information sources, which are for the sole purpose of informing a population about the particular issue.

Knowledge of social problems is often not the result of visible or identifiable conditions directly surrounding an individual or society at large (Kensicki, 2004)

It is necessary to contemplate messages that may not seem to be directly related to the formation of attitudes about transport. These come from a variety of sources and an investigation into the theory behind the influence of messages creates the foundation of this work, which is addressed in Chapters 3 and 4. It is necessary to take a systems approach to understand how the various sociological and psychological constructs could influence behaviour.

1.5.3 A systems approach

A systems approach allows the researcher to reframe how problems are conceived and what solutions might look like (Cabrera, Colosi, & Lobdell, 2008). Through this, the researcher is exposed to the complexities of the system and counter-intuitive effects become apparent with a focus on the relationships between different elements of a system (Boardman & Sauser, 2008). However, the process of analysing the elements and interactions of the system without compromising the nature of the system is the true challenge. This is why some simplification in examining urban transport is necessary.

The entire process of complexity understanding is driven by the paradoxical theme of unraveling that which is interwoven in order to understand the parts, their interactions and their interweaving, while keeping it in its whole state since the unraveling will fail to produce the extraordinary emergent behaviors attributable solely to the existence of that whole and to that whole's properties, which are meaningful only to it and

remarkably different from properties attributable to the interwoven parts. (Boardman & Sauser, 2008)

Transport is a highly complex system, with the various elements within the system interacting with one another and with transport being intertwined with various other systems in society (Goldman 2006). Setting the boundaries and elements of the system creates the focus for the theory and the level of consideration employed. The present thesis limits the system to the factors that influence the mode of transport that people take. The elements of the system are therefore the abstract psychological identities, interpersonal factors and social constructs that facilitate the explanation of travel behaviour. It is through an understanding of the causal links and interactions between these elements that insights into modal choice are established. Figure 1.2 is a general representation of the different elements of the system that influence behaviour.

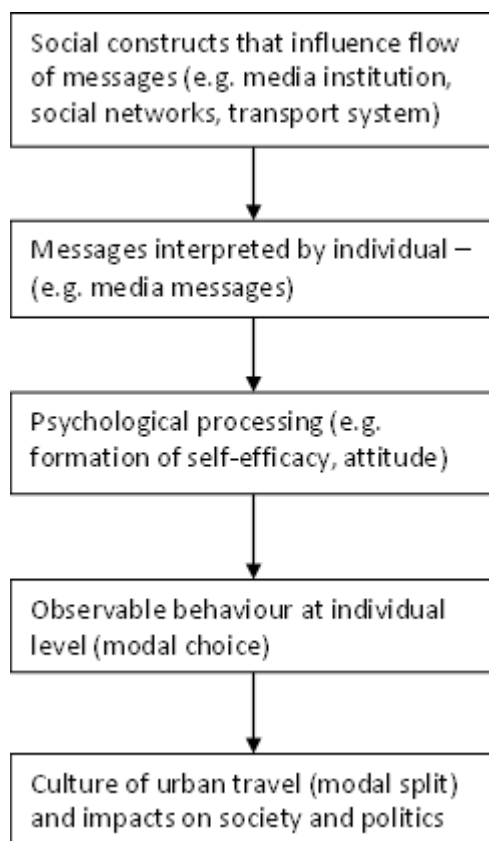


Figure 1.2: A system for describing travel behaviour

The causal links demonstrated by the arrows in this diagram are of primary interest within this thesis and so there is an emphasis in the thesis on examining theories to characterise these links. However, it is evident that the elements of this system interact in a much more complex

way, with feedbacks and compounding effects. For example, the messages people receive while traveling and their interpretation of these messages would depend on what mode of transport they use and the culture of urban travel around them. These effects are considered when examining the characteristics of each of the elements in the system with qualitative descriptions of the potential effects on the system. Indeed, due to the complexity of this system, the efforts to characterise various effects are either considered through previous theoretical and empirical work or through qualitative methods. The various characteristics of social constructs, as well as the culture of urban transport, can be observed at a macroscopic level, with the culture of different communities and historical changes being studied. For individual-level interactions, factors can be measured, controlled, manipulated and correlated with observed behaviours. Psychological constructs can be explored through experimentation or through understanding various social influences and behaviours in order to draw conclusions about the psychological processes that could have taken place to result in such behaviours. A number of theories exist that attempt to include a range of these elements into an explanation of behaviour or social change. Using these theories clarifies the formation of these elements, how they interact and the role they play in determining behaviour. Theories that are applicable to social, environmental, health and consumer behaviours are all relevant to the system examined in this thesis.

1.5.4 Qualitative research

Transport research has been dominated by quantitative methods (Røe, 2000). However, the exploratory nature of this thesis, along with the complexity of the system being studied, warrants the use of qualitative methods. This will facilitate the generation of various insights and possibilities for policy through 'descriptions and interpretations of social phenomena, including its meaning to those who experience it' (Dey, 1993). Qualitative research has been undertaken in other attempts to understand travel behaviours, for example with researchers conducting semi-structured interviews to understand people's relationship to car use (Lutz & Lutz Fernandez, 2010). Where quantitative research has been used to investigate travel behaviour, particularly in social psychology, there has been the need for drastic simplification of the system and for assumptions that self-reporting is accurate. Indeed, quantitative research in social science can lead to propositions that are "thin and bald, merely describing the surface features of events" (Webb, 1995).

1.6 The plan of this thesis

This thesis is organised as a step-through inquiry into the chain of influences that leads to travel behaviour. To do this, Chapters 2, 3 and 4 are dedicated to understanding the considerations within processes that could lead to a message influencing one's mode of transport. This includes factors that affect the contents of the message, the interpretation of the message as well as how messages are incorporated into psychological processes which may determine behaviour. This work is then brought together in Chapter 5 by examining the theoretical causal links that exist between transport related messages and travel behaviour, where the links are inferred from theories through previous work.

As previously mentioned, Chapter 2, describes the current state of transportation options. This develops an understanding of both the reasons why people choose the modes of transport they do, as well as how modal shifts can impact urban transport. Chapters 3 and 4 develop the framework for the analysis of social influences on the modes of transport people choose. The mechanisms that underlie how people's behaviour is determined are the focus of Chapter 3. Various theories about psychological processes and their role in influencing behaviour are outlined in reference to travel behaviour. Characteristics that make travel behaviour different from other behaviours and affect how the determinants of behaviour act are also discussed. In Chapter 4, an analysis of the ways messages in our society are developed, conveyed and interpreted provides insight into how messages could be influencing the psychological processes of individuals and, subsequently, their behaviour.

Chapter 5 uses the framework developed in earlier chapters to explore some of the identifiable social influences on modal choice using a systems approach. This is aided by the observed influences on a sample of Sydney residents who undertook a 'travel information diary' for one week. Mass media, which is one of the identified influences, is then analysed in detail in Chapter 6. The media analysis is conducted by firstly identifying what types of media messages are likely to have properties that could lead to them influencing travel behaviour. By identifying these properties within texts, it is possible to substantiate claims of how different media influence travel behaviour, and to determine whether there is a strong likelihood that such messages are encouraging or discouraging car use. Chapter 7 explores the strategies that could be implemented to deal with social influence after drawing on parallels between the potential use of this work and the work done to reduce the social influences that promoted smoking. Finally, in Chapter 8 general conclusions are presented and broad behavioural strategies are recommended for policies to encourage modal shift from cars to public transport and active transport.

2 Urban transport context

The purpose of Chapter 2 is to show the contexts within which urban travel takes place, how these contexts have formed and how they have been considered by the public and planners. Context refers to the issues, processes and perspectives which are related to different ways of investigating urban travel through different disciplines. A range of different transport modes have come into existence and this work focuses on three different types – car use, public transport and active transport:

- Car use – driving or riding as a passenger in a private motorised vehicle with four wheels
- Public transport – Communal use of vehicles to travel – usually multiple people riding in the same space. The predominant forms of public transport in Sydney are train, tram, bus and ferry.
- Active transport – People use their own energy rather than external energy sources to power their movement. The predominant forms of active transport in Sydney are walking and cycling.

The experience of the transport user is dependent on both the inherent properties of modes of transport as well as how they are run and how they are situated within a number of contexts. These also affect the sustainability of the transport system. By building up the concept of ‘contexts’ as a way to take into consideration a broader scope of transport problems, this thesis highlights the array of problems that should be addressed when developing comprehensive transport policy.

This approach was developed through examining transport-related literature and ascertaining whether it defines transport problems within either one or more of these contexts. These contexts are highly dependent on the history of the different technologies, urban development, industry, lifestyle changes and the related cultural institutions with an associated ‘*multilinear ensemble* of commodities, bodies of knowledge, laws, techniques, institutions, environments, nodes of capital, sensibilities and modes of perception’ [emphasis in original] (Seiler, 2008). The investigation in this chapter offers some insight into why the current urban transport landscape is the way it is, and enhances the understanding of the values and justifications associated with current travel patterns. It also demonstrates the transience of transportation systems and how contexts vary between places and change through time. The six contexts examined are:

- The political/cultural context – modes of transport have broad impacts on the culture and political ideologies of the society, and conversely, transport development is also influenced by culture
- The material and energy context – modes of transport use consumes resources, and produces waste and emissions
- The urban planning context – modes of transport impact the landscape and function of a city
- The economic and industrial context – modes of transport require financing and their operation impacts on the wider economy
- The psycho-social context – modes of transport impact their user psychologically and socially through the experiential, symbolic and utilitarian values that transport use offers them
- The public health context – modes of transport impact the health of people who use the transport as well as other people in the community

These contexts are overlapping due to the complexity and interrelatedness of urban transport issues as shown in Figure 2.1. They are dependent on the city and even the area within a city.

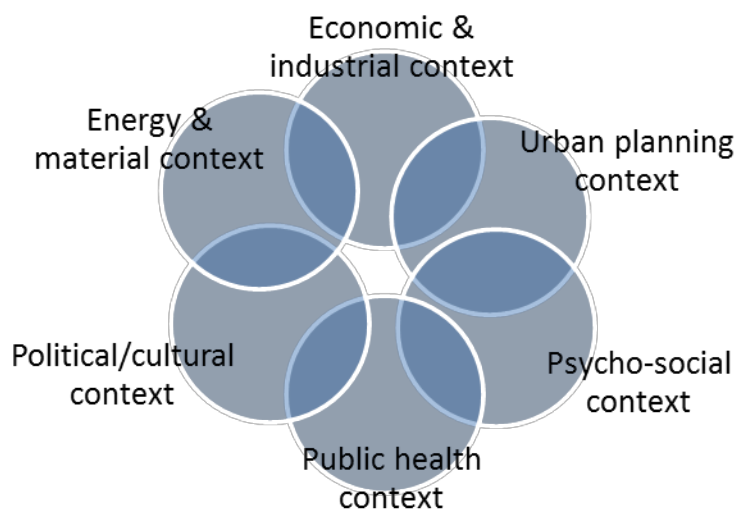


Figure 2.1 Six contexts of urban transport identified to examine characteristics of transport

Insights into travel behaviour can be established by examining how people view different contexts, which contexts play an important role for them and which are overlooked. Contexts also offer insights into how transport professionals and politicians may view transport, with the prominence of some contexts demonstrating where research, advocacy and policy efforts

are focused. The political and cultural context is a suitable starting point because it is integral in determining the direction of future transport planning and travel behaviour.

2.1 The political and cultural context

The politics and culture around transport have changed drastically in the 20th Century and this has fostered certain modes of transport at the expense of others. The development of modes of transport, particularly the car, has relied on numerous changes in government spending and policy, new priorities in our culture, different mechanisms catering for the expense and requirements of owning and running a car, as well as the establishment of expertise in different fields (Lutz & Lutz Fernandez, 2010). It has developed in parallel to a range of different social movements which have both influenced and been influenced by car use. These include the emancipation of women, capitalism, individuality and freedom, and the development of corporations, Taylorism (scientific management, which alienates workers from what they produce), the finance industry and mass media (Paterson, 2007; Seiler, 2008).

At the end of the nineteenth century, electrification of public transport as well as the emergence of the bicycle and the automobile changed the urban transport landscape. Many of these modes of transport first emerged as tools for recreation, sport and adventure for the upper class. There was much dissent amongst the majority of the population, including religious leaders, moralists, and physicians, upon seeing the first cyclists and motorists (Herlihy, 2004; Rosen, 2002). The public regarded driving as a sign of the arrogance of the rich (Gartman, 2004), others as an intrusion on the peace of the countryside, while the dangers it presented and the space it took from pedestrians and children made it unpopular in the city (B. Ladd, 2008). The problems with car use, such as congestion, road safety, lack of urban amenity and the expense of cars, were well noted at the start of the 20th Century.

Modes of transport developed in parallel with each other, with some synergies in their development through technological and manufacturing innovations as well as cultural changes which introduced the concepts of speed, individual movements and regulated public spaces. For example, bicycle advocates were the first to lobby for better roads through the 'Good Roads' movement (Seiler, 2008), which then became the cause of motorist groups. The complexity of the system of automobility in cities creates a need for numerous institutions to support the running of the system and the managing of its impacts on the society, the environment and the economy. There are powerful groups with vested interests in car use. In the United States of America there was a group known as the 'Road Gang' which lobbied for increased support for car use. This included 'the oil, cement, rubber, automobile, insurance,

Page 39 of 306

trucking, and construction industries, consumer and political groups, financial institutions, and media' (Seiler, 2008). Many saw their role as providing for the natural growth in automobility that the population wanted, rather than imparting influence on the growth of car use. Road building agencies described their role as 'apolitical executors of the public's automobility imperative and as facilitators of safety' (Seiler, 2008).

The growth in automobility, irrespective of whether it has come to satisfy a natural need for urban mobility or it has harnessed its own need, has been very rapid, as can be seen in Figure 2.2. This growth has occurred in parallel to related events and cultural changes of the twentieth century. With its representation as a symbol of status and freedom, motoring was desired by the general population and in the USA the affordable Model T Ford made it possible. Shrewd and ruthless businessmen, including Henry Ford and General Motor's founder, William C. Durant, effectively marketed cars to the masses, while road lobbying ensured that cars were well catered for in the cities (Volti, 2004). While the Great Depression caused a decline in automobile sales, particularly in the USA, innovation in the industry continued, creating more user-friendly cars. The industry developed throughout the war periods as it manufactured military goods and motor vehicles served to move troops, particularly the injured between the frontline and military bases (Volti, 2004).

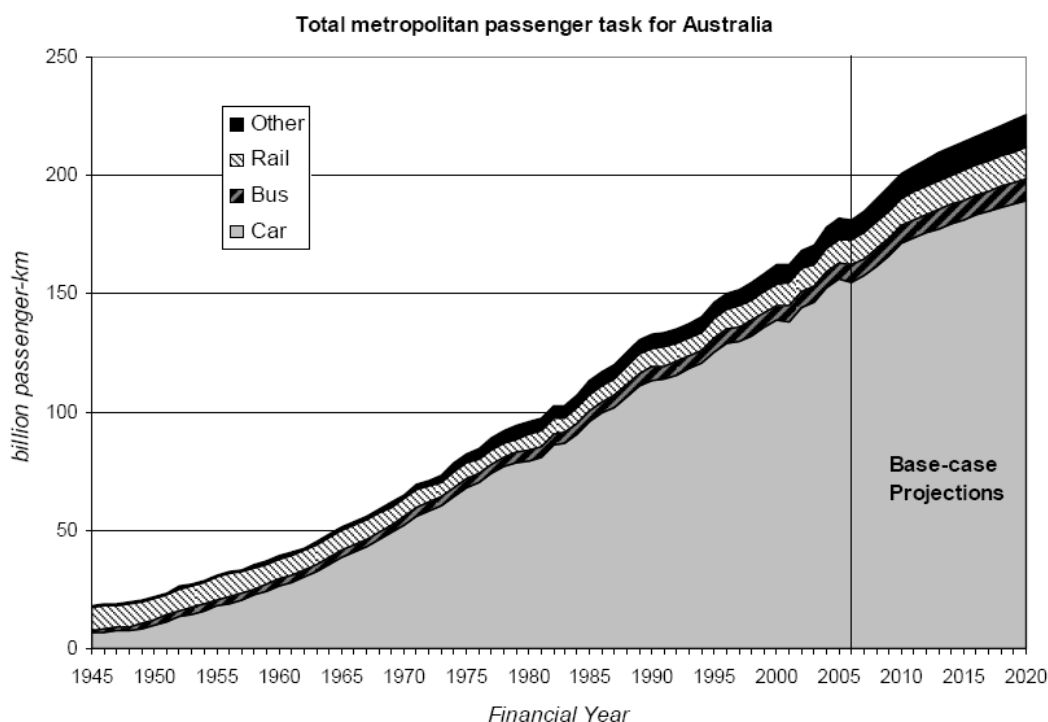


Figure 2.2 Trends in urban transport use in Australia (Cosgrove & Gargett, 2007)

In the period after WWII a faith in the ideals of the market was restored after being suppressed through the years of the war and depression. The car was seen to engender these market ideals as it represented self-determination, room for private enterprise and a high level of industrial requirements. This was also reflected in the styles of cars that became popular during this period, with flamboyant features and increases in size and power. Industries, infrastructure and planning, which supported the car, accommodated its expansion. It became easier to buy, own and use a car (I. Cameron, Lyons, & Kenworthy, 2004). The car is currently the dominant mode of transport for urban trips in most cities in the developed world. In most developing countries there are aspirations to emulate this high level of car ownership and car use. The dominance of cars not only translates to the practical uses of the car, but also influences how people think more broadly about mobility.

Global society increasingly lives, thinks, and imagines movement, transactions, and realisations according to the accelerated measure of riding in a motorised vehicle.
(Amato, 2004)

The necessity to move people and goods in cities, along with the complexity of planning and operating transport systems, makes transport a crucial and challenging area of policy. Urban transport is required to keep economies running, society functioning and people accessing opportunities to fulfil their needs and desires. Transport fundamentally requires the sharing of public goods including land, infrastructure and services. The efficiency, liveability and sustainability of this transport system depend on how these associated public goods are created, distributed, operated and used. It is, therefore, necessary to have good governance and planning for transport systems. Some transport issues are best addressed at a national or international scale, while others are the domain of local government (May & Crass, 2007). Consequently in Australia, the responsibility of transport policy and other related policy is divided between local, state and federal governments. The majority of responsibility for urban transport lies with state governments.

Transport systems that involve individualised high-speed travel require a high level of co-ordination and accountability to reduce the risk and inefficiency of such systems. Regulation and reinforcement have therefore become a crucial part of transport policy. The nature of these regulations can legitimise the use of certain modes of transport or can create barriers to others. The layout of roads, parking restrictions, driver training, car insurance and police highway patrols are all part of the conventions that legitimise car use by making it more structured and safer. It was necessary to introduce regulations and signage, as well as tests

and education for drivers to learn the rules of the road, and police to enforce these rules. Police are also involved in dealing with crashes, as are paramedics and other health professionals. To repair the material damages caused during crashes, mechanics and panel beaters are needed, and car insurance industries have been established. Developing preventive campaigns to reduce the risks of automobiles has been taken on as the responsibility of government. By contrast, cyclists may struggle to negotiate cycle networks that are incoherent, illegible and where it can be safer at times to make illegal manoeuvres (Horton, Cox, & Rosen, 2007a).

With the emergence of new modes of transport, transport planners have been required to build infrastructure to develop a network to cater for them. Guided by engineering and economic principles and using quantitative methods for analysis, transport solutions have mainly focused on the design and construction of infrastructure for dominant modes of transport.

... the emerging profession of traffic engineers understood "traffic" to mean a flow of motor vehicles only.... Solution was to propose bigger and faster roads.... walking and bicycling were soon classified as recreation rather than transportation. (B. Ladd, 2008)

Economic, political and logistic constraints have limited the solutions that were considered feasible. Hence, in order to be advanced, solutions have needed to embrace a number of qualities including being cost-effective, proven and have low lead times (Booz|Allen|Hamilton, 2006). Therefore a project's costs and benefits must be quantifiable, measureable and valued through a cost-benefit analysis. This can reduce the feasibility of solutions that involve gradual and unpredictable changes. The need for using proven solutions reduces the potential for innovation. Low lead times put limitations on solutions which require extensive community consultation and co-operation between different government departments and agencies. This results in a planning approach that breaks up future needs for the transport systems based on narrow mode specific studies with neither consideration of the larger problems nor examination of solutions that could arise by taking a more systematic approach.

It is within these constraints that the approach to 'predict and provide' for future transport demand came to dominate transport planning (Low et al., 2003). This approach assumes that future traffic flows and transport demand can be predicted by current trends and ignores the potential influence of transport planning choices on the way people travel. Therefore, this approach to transport planning reinforces the status quo, which in western countries is

dominated by car use. Indeed, the solution to 'predict and provide' has been used to justify reductions in public transport infrastructure and services as public transport patronage has declined (Vigar, 2001). When solutions involve tangible infrastructure and measurable capacity increases which represent provision and progress, the public and politicians are more inclined to believe that they are appropriate and effective. There are many examples of transport plans that have been strongly influenced by the solution to 'predict and provide'. The 1974 Sydney Area Transport Plan was heavily influenced by American transport consultants who promoted the provision of road infrastructure for the predicted demand (Low et al., 2003). Indeed, this discourse resonated in transport planning in Sydney for many years after other discourses, such as 'predict and prevent', had generally come to be seen as more appropriate (Vigar, 2001). Road engineers of the Roads and Traffic Authority were still using predictive modelling until the late 1980s (Low et al., 2003).

The perception of travel as opportunity implies that increasing mobility is a positive step in transport planning (Low et al., 2003). This has especially been the case for car use, as cars have been seen as the best way for people from various locations to travel to wherever they need to go. People that question this perspective have been criticised by a range of reactions including accusation of being anti-modern, anti-freedom or anti-family values and therefore irresponsible (Low, 2001). These reactions are supported by institutions with vested interests in the continuation of widespread car ownership, such as media, car manufacturers and road lobby groups. The objectives of anti-car or anti-road protests have been trivialised by media with reports focusing on the personalities and activities involved with protest instead of the reason for the protest (Paterson, 2007).

Cars are being used for all types of trips with varying lengths and in various conditions, as shown by Figure 2.3. People are heavily reliant on cars for work and are becoming increasingly dependent on them to get to education and childcare.

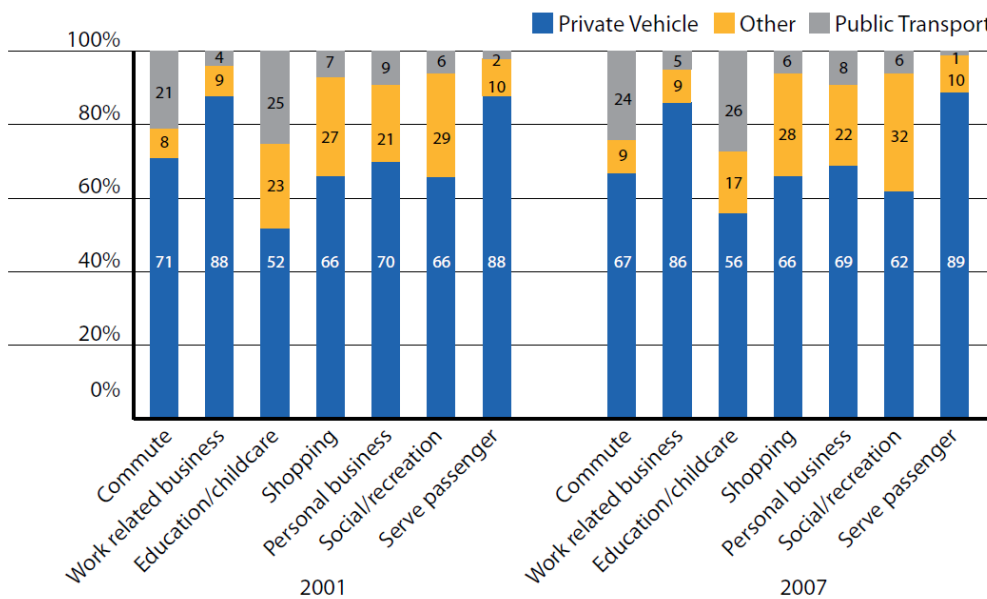


Figure 2.3 Proportion of trips by purpose and mode on an average weekday in Sydney (TDC, 2009)

During the oil crisis in the 1970s and in more recent times, energy consumption and other sustainability issues have also been on the agenda of transport planners. However, it can be argued that sustainability has not been dealt with in a coherent and systematic fashion. Urban planning, sociology, psychology, architecture, marketing and other relevant areas which may serve to create a more comprehensive transport planning process, have usually had limited involvement in dealing with urban transport and the expertise of professionals in these fields has not been part of transport planning job descriptions. Therefore, as transport networks have been reduced to the technical problem of flows of traffic through channels, there has been a limited expertise in understanding social and environmental considerations (SEU, 2003).

A number of solutions have been presented for developing transport that is more ecologically and socially sustainable. These include changes to (a) urban planning, (b) transport infrastructure, (c) vehicle technology and (d) the behaviour of people using transport. Some have proposed that increasing the density of cities reduces travelling distances and increases the viability of public transport (Laird, Newman, Bachelis, & Kenworthy, 2001; Newman & Kenworthy, 1999), while others have looked to improved co-ordination of public transport to make it more attract, efficient and sustainable (Mees, 2012). With the severity of particular sustainability issues, such as peak oil and climate change, some believe that technical solutions are the only path, particularly those who see cars as overwhelmingly beneficial (B. Ladd, 2008).

However, such options neglect the other ecological and social problems associated with current prolific car use (Low et al., 2003).

Addressing improvements to public transport and active transport has frequently taken place in a fragmented way. They are often considered and advocated for separately and run by separate authorities, which can lead to inefficient competition. Examples include competition between buses and rail for passengers, which can lead to excessive public transport capacity along certain corridors (Mees, 2000). There has also been “the impulse to invent, dig and build rather than to plan” in attempts to make public transport and active transport more attractive (Low et al., 2003).

There has been a general resurgence in people using bicycles for everyday transport, associated with improved cycling infrastructure and the emergence of cycling within urban culture. This has particularly been the case in Europe and, more recently, in Australian cities such as Sydney. It is noted that cycling addresses a range of problems including congestion, pollution, climate change, sustainability, quality-of-life, neighbourhood decline, health (Horton, Cox, & Rosen, 2007b). Bike user groups and advocacy groups such as the New Urbanist and City Beautiful Movement have increased the profile of cycling and walking. Cycling is:

in some places one answer to the problems of too much automobility, whilst in other places it is a mode of mobility to be banished in the pursuit of ‘progress’ and greater automobility; in other still it remains a mode of mobility beyond economic reach (Horton et al., 2007b).

The examination of the political and cultural context has touched on other contexts because they are all incorporated into the culture of transport and how it is governed. It has been historical in nature, in order to capture how culture and planning has been involved in shaping current transport systems. The examination of other contexts focuses on the current status of transport which has been partly shaped by the history of the culture and planning of transport.

2.2 The material and energy context

To be constructed and to operate, modes of transport require a range of resources, including sources of energy. There are also emissions and waste that result from their operation and disposal. With serious threats to the sustainability of society caused by resource depletion and greenhouse gases emissions, as well as consequences for biodiversity and human health, environmental impacts of transport have become a focal point of discussion about transport

Page 45 of 306

(Bose, 2000; Bouwman & Moll, 2002; L. Chapman, 2007; Hysing, 2009; Iftekhhar & Tapsuwan, 2010; M. Nilsson & Küller, 2000). In particular, the use of fossil fuels and the emissions of carbon dioxide have been primary targets for environmental regulations of cars (Crandall, 1992; Goldberg, 1998; Thorpe, 1997) and are used by car manufacturers to demonstrate their environmental credentials (Stafford, 2003). Despite gains in fuel efficiency, greenhouse gas emissions from the transport sector are still expected to grow (DCC, 2008).

The consumption of materials and energy in urban transport systems is extensive (Lenzen, 2004) and varies dramatically between different modes of transport. This is due to the differences in the structure and efficiency of vehicles and infrastructure and the number of occupants of vehicles. In public transport, vehicles are shared amongst any members of the community willing to pay. They are usually high occupancy vehicles (a train has a capacity in the order of 1,000 (Brooker, 2010), a single-decker rigid bus has a seating capacity of 58 people and ferries in Sydney vary in size, with the larger vehicles having a capacity for 1,100 people (TfNSW, 2012)). Therefore these vehicles are heavy and require ample energy and infrastructure for movement. Active transport requires either no vehicle or small vehicles, such as a bicycle or skateboard (but for this thesis I only focus on cycling and walking), and this is typically not shared (except for the emergence of city bike share schemes (DeMaio, 2009)). Private motorised vehicles are typically large enough to seat five people, however they are not often shared and on average are occupied by 1.5 people in Sydney (Corpuz, 2006). The small vehicles used in active transport, which are powered by their user or the sharing of vehicles in public transport, both result in less consumption of materials and energy than private motorised vehicles. This is illustrated in Figure 2.4. However, due to the considerable energy requirements of ferries, their energy intensity per passenger is higher than that of car use. It should be noted that the figures used in this graph depend on the average occupancy of public transport, which could be higher and therefore reduce the energy intensity of these modes.

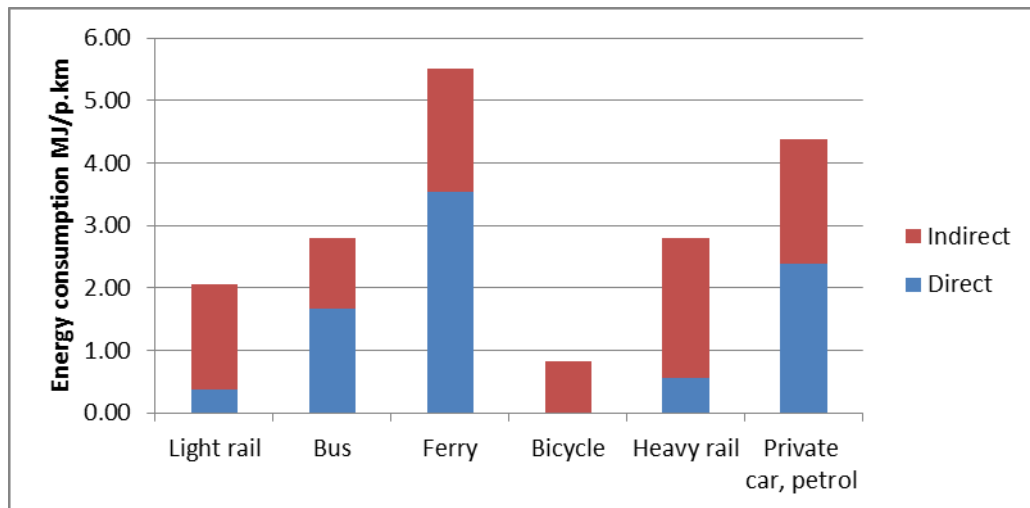


Figure 2.4 The indirect and direct energy consumption of modes of transport (Lenzen, 1999)

Notes: Private car figure includes non-urban car use. ‘Direct energy’ denotes the energy use during operation; for ‘indirect energy’, see text.

Figure 2.4 shows that there is significant indirect energy consumption associated with transport. This is because of the energy consumption required for vehicle manufacture, infrastructure construction, fuel production and other energy for processes to produce the transport services (Treloar, Love, & Crawford, 2004). In the case of bicycles, indirect energy includes the energy required to produce the extra food required for someone to pedal their bike; for heavy rail, it includes the primary energy for the production of electricity (Lenzen, 1999). The direct energy consumption in a Netherlands study shown in Table 2.1 highlights the minimal energy used by active transport and shows that for well-patronised public transport significant energy savings are made in comparison to car use.

Table 2.1 Direct energy consumption of modes of transport in The Netherlands (Bouwman & Moll, 2002)

Transport Mode	Energy use (MJ/pkm)
Petrol car	1.79
Train	0.98
Bus, tram & metro	1.11
Bicycle	0.04
Walking	0.03
Other modes	2.11

Emissions occur as a result of burning fuels to power vehicles as well as indirectly with emissions associated with other energy and material supplies. Some emissions have

immediate effects on the environment, such as local air and water pollution, while other emissions have long term and global effects, predominantly greenhouse gases which affect the oceans and climate. The impacts of local air pollution on humans are discussed in the public health context. The impacts of greenhouse gas emissions have been extensively researched and include ocean acidification, increases in average global temperatures, increases in extreme weather, and sea level rise (L. Chapman, 2007). Transport directly accounts for 26% of global CO₂ emissions and it is one of the sectors for which emissions are still increasing (L. Chapman, 2007). However, as for energy consumption, transport also causes substantial indirect greenhouse gas emissions as shown in Figure 2.5, so most greenhouse gas figures underestimate the impact of transport.

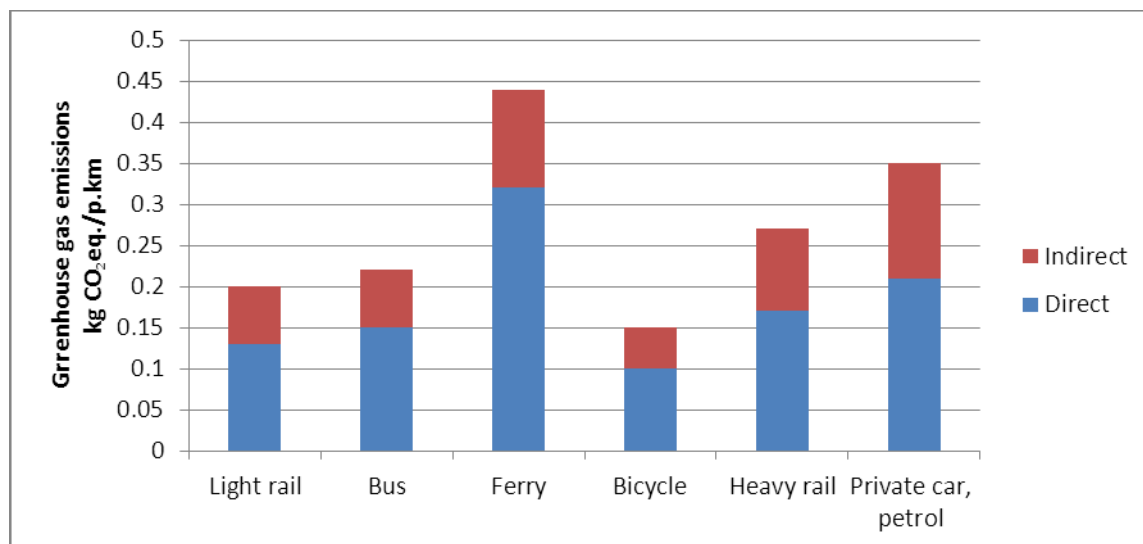


Figure 2.5 The greenhouse gas emissions of urban modes of transport. Source: Lenzen (1999)

Note: private car figure includes non-urban car use.

There is solid waste associated with transport disposal as well as pollution to waterways associated with runoff from the roads. Approximately 500,000 vehicles enter the waste stream every year in Australia, with most of these being recycled (Allan, 2007). Waterways are contaminated with fuel, motor oil, brake fluid and other chemicals used in the car which leak at the point of use (Litman, 2009) as well as during the extraction and transport of petroleum (Tamminen, 2006). This causes damage to aquatic life and natural features, contamination of drinking water, and aesthetic loss. In addition, the impervious nature of roads and car parks means that storm water is pooled which makes flood management a more difficult task (Litman, 2009).

Technological developments have improved the efficiency of different modes of transport and some of these advances have been transferable between the modes of transport. Indeed, the emergence of the bicycle contributed to certain technical innovations which made the cars viable, such as the use of pneumatic tyres (Volti, 2004). Effort to advance transport technology has become a major investment for both industry and government, although the focus of this effort has been on cars. It is therefore expected that cars have acquired greater gains in efficiency and other improvements in consumer expectations than other modes of transport. Cars however, are only more efficient in energy consumption than ferries in Sydney, as is seen in Figure 2.4.

While technological and infrastructure improvements have been pivotal in containing the energy consumption of transport, behaviour change is seen to be potentially the most important factor in reducing emissions in the next forty years (Bouwman & Moll, 2002). It is generally understood that the use of public transport, cycling or walking has a lower environmental impact than taking a car (L. Chapman, 2007). However, the sheer amount of infrastructure, industry and technologies developed around the current use of fossil fuels for transport, in particular road transport, means a large amount of effort would be required to either transfer existing modes to non-fossil fuel based sources or to shift the population to the use of transport modes which are less fossil fuel intensive (Unruh, 2000).

Many studies which seek correlations between environmental knowledge and environmental concern with the transport mode people take have concluded that there is a lack of correlation (Beirao & Sarsfield Cabral, 2007; Walton, Thomas, & Dravitzski, 2004). Understanding this lack of correlation has been the focus of a much research (Anable, Lane, & Kelay, 2006; Axelrod & Lehman, 1993), which is discussed in Chapter 3. People also distance themselves from the environmental problems associated with car use by referring to sources of information, and thereby noting what others believe rather than directly acknowledging their own knowledge of the issues (Hagman, 2003).

2.3 The economic and industrial context

Transport options affect both people's personal spending as well as the broader circulation of money throughout the community and globally. Industries are required to provide the necessary goods and services to support different options for urban travel. These options create economic activity, provide employment and generate revenue for government. Dominant practices, such as car use, which are resource-intensive and are dependent on complex systems, require a high level of support. Therefore powerful industries and a high

level of economic activity have developed around them. Industries associated with providing transport have become a major part of economies throughout the world. Transport has also come to represent a large expense for households (Pink, 2011) and governments (Carmody, 2008). Different modes of transport require not only money for purchasing and running the vehicles, but also the associated maintenance and storage of the vehicle as well as the infrastructure, land and other external costs of running the vehicles. High economic activity has come to be seen as axiomatically beneficial and the existence of the economy has become such a fixture in people's mindset that it almost appears to act independently of human actors (Uzzell & Rätzl, 2009).

The costs that most affect people's choice of transport are the direct costs that they must spend themselves. These costs also dictate how accessible the modes of transport are for people from different demographics and socio-economic backgrounds. In Sydney, this is dependent on a number of factors including the frequency of use, the distances required to travel, time constraints and whether one wishes to use the same mode for most of their travel or to use different modes on different occasions. There are very different cost structures depending on the mode of transport as can be seen in Table 2.2.

Table 2.2 Direct cost structure of different modes of transport

	Private motorised transport	Public Transport	Active Transport
Fixed costs	<ul style="list-style-type: none"> • Vehicle costs • Insurance (paid per year) • Registration (paid per year) • Fixed maintenance • Fixed parking costs (garage) • Driver's licence and training 	<ul style="list-style-type: none"> • Season pass (multimodal or for a particular trip) 	<ul style="list-style-type: none"> • Vehicle costs • Fixed maintenance costs • Insurance (optional)
Marginal costs	<ul style="list-style-type: none"> • Petrol • Variable maintenance • Variable parking costs • Tolls 	<ul style="list-style-type: none"> • Individual tickets (multiple legs of the trip may require multiple tickets) 	<ul style="list-style-type: none"> • Variable maintenance

The fixed costs associated with car use are the most expensive of the transport costs in Sydney. The total cost of a medium sized car being approximately \$10,000 per year, of which, less than 30% are marginal costs (NRMA, 2008). However, these costs are usually not fully comprehended by car owners as people habitually underestimate the total cost of a car use (Lutz & Lutz Fernandez, 2010). They perceive the only cost "is the money that goes in at the service station for petrol, because cars are seen as a sunk cost when you buy them" (Tranter & Page 50 of 306

May, 2005). Due to the high prices of cars, the proliferation of car use has relied on the development of systems to allow people to finance their cars (Paterson, 2007).

Individual tickets for public transport can be more expensive than the marginal costs of driving, which can reduce people's interest in multi-modal travel (i.e. driving on occasions and catching public transport at other times) (Low & Gleeson, 2001). However, the average cost of using public transport in Sydney is much cheaper than the average cost of owning and using a car (Glazebrook, 2009). The cost of using a bicycle is much less than for a car (Bouwman & Moll, 2002), with potential savings of \$3.5 million over the course of the working life of someone who rides rather than drives (Miller & Huntley, 2011). Modes of transport that are lower in price provide better options for less wealthy residents of a city. Figure 2.6 shows the variable costs and other private costs of cars and public transport in Sydney, along with the external costs, which will be discussed shortly.

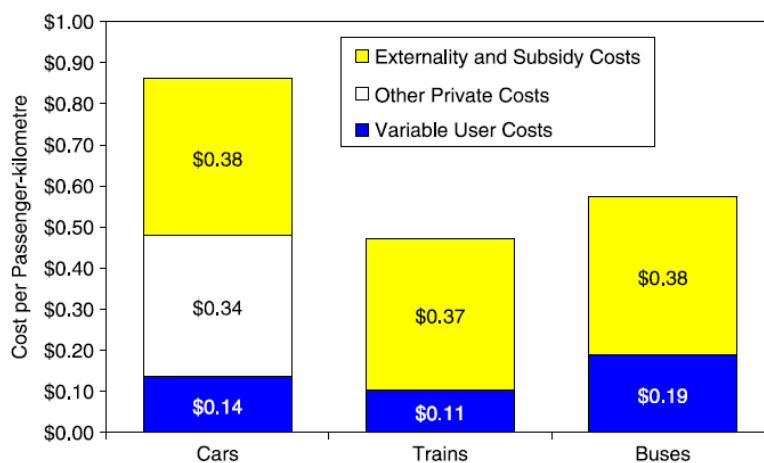


Figure 2.6 Cost for public transport and cars in Sydney (2005/06). Source: (Glazebrook, 2009)

The cost to the transport user is not a true reflection of the total cost required to provide the necessary goods and services to enable people to travel. There are a range of subsidies from the government, private interests, as well as diffused costs which are hard to allocate (Diesendorf, Hutabarat, & Banfield, 1999). Subsidies include the costs for road and parking infrastructure as well as the running of all the institutes required to support a transport system. The costs of transport may also be affected by the arrangements of workplaces, educational and health institutions as well as commercial centres that may, for example, subsidise car parking in order to attract consumers or employees (Willson & Shoup, 1990).

Public transport is often funded and operated through the government. The extent of this subsidy depends upon the usage, the concessions for the passengers, the efficiency of the

service, and what capital costs are being paid off. Cityrail, who runs Sydney's train service, received subsidies from the state government of approximately \$1.6 billion in 2007 (Karpouzis, Rahman, Tandy, & Taylor, 2007). Public transport provides value to the community which is seen to justify these costs. However, money spent on public transport is often defined as 'expenditure' as opposed to road infrastructure which is considered an 'investment' (Low et al., 2003). All levels of government spend money on road infrastructure. In Australia this amounted to approximately \$12 billion in 2007 but it is highly variable (Carmody, 2008). More importantly, it is the accumulation of historic investment in roads that has led to the current level of capital dedicated to car use and the limited services and infrastructure for public transport and active transport (Bachels, 2001).

The car system we have today is, in a thousand ways, a creature of the year-in-and-year-out decisions of these corporations and government, including especially the choice to invest what is a comparatively very small amount in public transport. (Lutz & Lutz Fernandez, 2010)

Externalities are the costs associated with the use of a mode of transport that are not borne by the user. These include the subsidies that have been discussed, but also the costs that members of the public must bear due to a reduction in their quality of their life, such as illnesses associated with car use. This may create extra economic activity but it is still not beneficial because this activity is required to sustain a level of value that would exist if the transportation activity didn't take place. Putting a monetary value on the different external costs permits people to see the magnitude of different problems in economic terms. The externalities related to health, safety, the environment and time, shown in Table 2.3, demonstrate the various problems with car use in economic terms.

Table 2.3 Social costs of cars in Sydney (Glazebrook, 2009)

Social costs category	Total road \$ million	Due to cars \$ million	Cost/ vehicle-km	Cost/ passenger-km
Congestion	\$12072	\$9320	\$0.28	\$0.20
Accidents	\$3864	\$2983	\$0.09	\$0.06
Greenhouse gas emissions	\$148	\$114	\$0.00	\$0.00
Air pollution	\$1223	\$944	\$0.03	\$0.02
RTA subsidies	\$741	\$572	\$0.02	\$0.01
Total	\$18048	\$13933	\$0.43	\$0.29

Modes of transport can generate positive externalities as well. This is particularly the case for active transport which can offer health benefits to the traveller. Cycling can benefit

organisations that don't need to provide car parking, as well as the government and health insurers who don't have to spend as much on health care bills (Horton et al., 2007b). These benefits were exploited in the middle of the 20th Century by the Chinese government and more recently by other governments. While the popularity of cycling in China did not come about as early as in Europe and America, cycling grew rapidly in China with the start of the bicycle industry in the 1930s and the strong support by the communist government after 1949. The Chinese government introduced policy to encourage cycling as a way to improve the productivity of their workforce. Indeed, there were incentives for people to ride to work, including subsidies of bikes, provision of bike paths in urban planning, and incentives for bicycle manufacturers (Esfahani, 2004).

The money that is spent on transport can be injected into the local economy through local businesses and labour that provide transport services as well as the associated taxes, or it could be distributed to other parts of the world through multinational companies, overseas labour and taxes. Roger Geller, a bicycle planner for Portland, Oregon, reported that with the modal shift from cars to cycling, the local economy has fared better, as more money (approximately US\$800,000 p.a.) has been spent on locally produced services and goods, rather than cars and petrol sourced from outside the area (Geller, 2010). People who use different forms of transport may choose to spend money in a way that is more fitting to the way they travel. People who ride bikes or walk for transportation are more likely to shop locally and frequently, whereas for car drivers it is easier to visit large shopping centres for less frequent but larger purchases of shopping. Similarly, the places people go for leisure and other services can be dependent on the modes of transport available. Travel behaviour therefore affects the economy beyond the transport industry.

The advancement of public transport, cars and bicycles has required improvements in the production of their associated vehicles and equipment, and advances in the associated industries. Both bicycle and car industries have relied on the specialities of existing industries (Rosen, 2002) as well as opportunities for commercialisation and promotion (Herlihy, 2004; Sovacool, 2009) and affordability for the public. The simplicity of cycling technology has made bicycles an 'appropriate technology' across the globe. However, the large scale production of bicycles for profit has led to the adoption of "built in obsolescence and opaque product design", which reduces the empowerment in the community by making them more reliant on manufacturers to replace parts (Rosen, 2002). The cycling industry has been concentrated in

Asia since the 1960s with the original European and American manufacturers struggling to stay viable (Herlihy, 2004).

Automotive industries have been in operation since the end of the nineteenth century, with production quickly spreading across the world. The automotive industry has been responsible for innovations in industrial practices and supply chain management. The assembly line increased the efficiency of manufacture, while reducing the need to employ craftsmen to make the vehicles (Seiler, 2008). Planned obsolescence describes “the assortment of techniques used to artificially limit the durability of a manufactured good in order to stimulate repetitive consumption” (Slade, 2007). Such techniques were used, particularly by General Motors, to ensure there was continual demand for new cars (Volti, 2004). In more recent times, ‘just in time’ practices have been introduced by Toyota’s production team. This method of supply chain management minimises inventory through feedback systems and the precision ordering of stock, but it requires a highly efficient and reliable transport system for its success, and so it has added to the demands on our transport system (T. Richardson, 2001; Skinner, Fergusson, Kroger, Kelly, & Bristow, 2003).

Cars create a high level of economic activity (Joetan & Kleiner, 2004) and are one of the world’s major industries due to their demands for raw materials and manufacture. This has been the case since as early 1920s where the car industries were responsible for 80% of the rubber industry’s output, 75% of glass, 20 % of steel and 90% of the nation’s gasoline output in America (Volti, 2004). Industries and institutions developed to support car use include car manufacture and maintenance, petroleum supply, marketing, media, road and infrastructure provision, traffic management and regulation as well as motoring groups. The transnational nature of automotive manufacturers and the fuel industry means that a significant proportion of the money that it spent on cars leaves the city and indeed the country where people use the cars. Even with this export of wealth through these industries, the automobile industry still plays a role in the Australia’s economy. The manufacture of automotive products accounts for 1% of the GDP and of 6% of value-added in the manufacturing sector, which amounts to \$5.6 billion (Bracks, Harcourt, Upton, Webster, & Apple, 2008). It is estimated that the automotive industry employs in manufacturing cars and supplies 67 000 people (Angelkovski, 2008). In a country with a total workforce of approximately 11.3 million (Pink, 2010) this represents a significant proportion of the country’s employment.

Significant direct employment in the industry, strong links between the industry and other parts of the economy and perceived technological and employment spillovers

have led many governments to provide forms of assistance for their automotive industries. (Bracks et al., 2008)

The quality of employment is also an important economic indicator. The automobile industry was one of the first industries to introduce assembly line work that is seen to result in “disempowerment, loss of autonomy, and coercion into more rapid and precise work” (Seiler, 2008). Indeed, people could not claim status and individuality through the products they made on an assembly line. Hence, rather than their ‘craft’ or labour being used by people to demonstrate their individuality, consumption became a more important part of how someone defined themselves. It was noted that 47% of employers find it difficult to recruit staff in the automotive manufacturing industries (Bracks et al., 2008). This indicates that while the industry may be a large employer in regard to the number of employees, the employment opportunities within the sector may not be in line with the skills and expectations of the community. Employment in the sector has also been dropping throughout the last decade (Angelkovski, 2008), which reduces the sense of job security.

As car use has increased, the economies throughout the world have become more strongly dependent on the automotive industry. Therefore these economic and employment indicators cannot simply be observed as a sign of an appropriate industry. It must also be recognised that its apparent prosperity is the result of an industrial history where society has placed minimal constraints on the demand for the product. This puts these industries where, due to the spread of funding across diffused populations of shareholders and people with money in investment funds, many people have stakes in the future of the industry. The majority of citizens may feel that they are reliant on the automotive industry for their economic security (Lutz & Lutz Fernandez, 2010). This unrelenting growth and reliance on the automotive industries however has put pressure on the cities the cars are driven in as can be seen in the urban planning context.

2.4 The urban planning context

Transport infrastructure has become an omnipresent part of cities. A large amount of space is dedicated to transport and it shapes the structure and ambience of cities. This, along with the density of housing and land use patterns subsequently affects the distances people must negotiate to travel between activities (Dieleman, Dijst, & Burghouwt, 2002) and the suitability of different modes of transport. It also affects the sense of community within a city and the equality of the city (Penalosa, 2011).

The structure of the city is affected by where people reside, work, shop and take part in other activities, which is informed by the transport options available to them. Motorised transport that is capable of high speeds has led people to live further away from their daily activities and led to a reduction in safety and amenity of the streets. Before motorised transport, cities were structured so that people could walk between their activities (Newman & Kenworthy, 1999). People walked through the whole width of the street and would meet in the middle of the streets. There was no need to travel at a certain speed or to constantly move (Amato, 2004). When other forms of transport were initially introduced to the streets, the welfare of the pedestrian was prioritised with measures to ensure the streets remained safe and amenable (Broomham, 1996). However, with the emergence of motorised public transport and then the rise of cars, it became more difficult to walk because the distances people were expected to travel grew (Robin, Matheau-Police, & Couty, 2007). The dominance of the car within the streetscape impeded the rights of the pedestrians, cyclists and public transport users (Aldred, 2010). The optimisation of road infrastructure for cars has meant pedestrians have smaller spaces to walk along or sit down, long waiting times at traffic lights, unpleasant street scapes and increased safety risks (Amato, 2004).

Cars and roads played leapfrog with each other. Each took up ever more room on the landscape and each pushed the walker to the side. More cars meant a demand for more and better roads and improved roads encouraged more people's desire to drive cars. Advocates for walking were faint voices in a world that almost unequivocally equated motoring and progress. (Amato, 2004)

Motorised public transport and, later, cars allowed people to live away from the centre of the city and have larger homes. Suburbanisation was initially a response to a number of ills of high density urban living, including concerns for "hygiene, moral decline, social fragmentation and economic deprivation" along with a lack of available housing in the cities driving up prices (Divall & Bond, 2003). Public transport, in particular affordable trams, was crucial for this initial development of suburbs, while jobs were maintained in the city. Land around public transport nodes became developed and land value increased with the density of activity and increased accessibility (Newman & Kenworthy, 1999). However diffused transport infrastructure, such as roads, created more homogeneous, spread out communities and, as car use increased, sprawling suburbs developed with little or no access to public transport (Amato, 2004). Subsequently, jobs have also become less centralised (Daniels, 1972), and so peripheral travel, between locations which are both away from the centre of the city, has become

prevalent for commutes (Novaco & Gonzalez, 2009), rather than radial travel, which is travel towards the city centre. Radial travel has been traditionally better catered for by public transport than peripheral travel. Car dependent suburbs with decentralised jobs require universal car ownership which reduces the viability of all other modes of transport.

The world in which they [cars] have been bought, driven, parked, and crashed.... The context in which they operate has changed profoundly..... Cities are large, complex, and fairly permanent entities, certainly more so than automobiles. Yet in the past century they have changed more than cars, and the automobile may be the single most important cause of that change. (B. Ladd, 2008)

With respect to the land use requirements of modes of transport, most studies demonstrate that public transport is the most effective way to move people (Birch & Wachter, 2008). Car use is consistently shown to occupy the most space (Diesendorf, 2002; Litman, 2009; Smeed, 1963). While pedestrians and cyclists do not move as fast, and consequently occupy spaces for longer periods of time (Bouwman & Moll, 2002), they have a relatively small footprint, travel shorter distances and therefore do not require much land (Litman, 2009). Beyond the quantity of space used for infrastructure, it is also important to understand how the acquisition and use of this space for transport has affected the city. Cities are comprised of people from a range of socioeconomic backgrounds who have different needs for accessing services and spaces. Cities and their transport systems can create opportunities and encourage community, but they can also create segregation and create barriers to services. Deterioration of well-established neighbourhoods is a key issue with construction of city highways for example (Volti, 2004). Infrastructure for high speed transport can also impede certain movements within the city, which reduces the accessibility for other transport users such as pedestrians or cyclists. These barrier effects are particularly an issue for thoroughfares for fast moving vehicles, such as railway lines or highways, which are dangerous and difficult to traverse (Litman, 2009).

Car dominated cities have been shown to reduce equity within a community as they disadvantage people without cars. When the majority of the population uses cars to access medical care, work and other activities, people without a car can struggle to access these places (Lutz & Lutz Fernandez, 2010). With the high cost of owning a car, this is particularly an issue for the less wealthy and can reinforce their poverty in that they have limited access to opportunities to gain wealth. The social welfare of people from lower socio-economic backgrounds has generally not been given much consideration in appraising transport projects (SEU, 2003).

...the car centred economy has reduced mobility for many: those dependent on public transport or cyclists and pedestrians and those relocated by the suburbanisation produced by the car, but without access to one. (Paterson, 2007)

The allocation of space and financial resources to transport services defines the priorities of certain transport options over others and over other needs of the cities, including retail, residential, community and cultural spaces. Additionally, there are also resources required to make urban spaces more amenable to catching public transport and active transport, which can be overlooked in transport policy (Timms & Tight, 2010).

Transport systems have been shown to add to the charm and aesthetic of a city. Infrastructure, such as old railway stations, is seen as a charming aspect of a city with interesting architecture meeting the movements of the trains and the people (Kido, 2005). People riding and walking provide movement and humanity on the street. It has also spurred on movements such as 'Cycling Chic' (Bonham & Wilson, 2012). The human presence in the city also creates a softer and more organic feel than the machine dominated streets.

...increasingly it is understood that the walker makes and becomes the city he or she walks. It is conceded that walking plays an indispensable role in restoring neighbourhoods, luring tourists and shoppers, designing beautiful streets, and adding vitality to an entire city. (Amato, 2004)

The public spaces within a city offer places of exchange, which is a key element of city life. It is a place where people can observe the experience of others and also be participating in some way within the scene (Gehl, 1971). The Lynds' study in the 1920s described many consequences of automobile ownership, such as an apparent decline in neighbourly interaction and the financial sacrifices people made in order to pay for their cars (Volti, 2004). Public transport and active transport offers:

...the ability for people to participate in exchanges with other people and their environment, bring about social networks, understanding within the community, social capital and an appreciation of culture and the environment, as well as the immediate benefits of the pleasurable aspects of the exchange (Engwicht, 1992)

Developing equity and democracy within cities has been identified by some municipalities as the most important consideration in planning transport and land use (Penalosa, 2011). Modes of transport that allow people to interact and to participate in city life are therefore positive

for community and equity within the city. Public transport naturally is shared by various members of the community (Divall & Bond, 2003) which creates opportunity for exchange. Cycling and walking have also been noted for their direct contribution to community.

Pedestrians create the place and the time for casual encounters and the practical integration of diverse places and peoples. Without the pedestrian, a community's common ground – its parks, sidewalks, squares, and plazas – become useless obstructions to cars. Pedestrians are the lost measure of community, they set the scale for both the centre and edge of our neighbourhoods. (Calthrope 1993 cited in Amato 2004)

Beyond interactions in the street, co-operatively run bike shops and repair workshops play active roles in their community (Rosen, 2002). It is therefore apparent that both active transport and public transport encourage community, while cars generally increase anonymity and reduce social interactions and citizenship (Aldred, 2010).

Cars are essential in allowing people to get to many activities and opportunities for interaction, but while using them, people are not involved in social exchanges. Due to developments of car dependent suburbs, people from lower socio-economic backgrounds have become the most entrenched in their dependence on cars. They have less opportunity to move their residence or workplace to where there is more potential to use public transport and active transport (Greed, 2011). If user costs for cars increase as a measure to curb the problems with cars, the young, the vulnerable, the poor and the marginal who currently own cars would be impacted the most (Short & Pinet-Peralta, 2010). It is important to consider the broad range of ways that people's social position and their psychology are affected by urban transport.

2.5 The psycho-social context

Urban travel satisfies psychological and social needs through the ability to access goods and services as well as the experience of travel and other inherent value (both negative and positive) that modes of transport offer. People, therefore, have both positive and negative feelings towards aspects of transport use through its symbolic and affective values, as well as its contributions to one's daily life. The affective value of transport is felt through the pleasure/displeasure of the experience of travel, while the symbolic value is felt through the status or identity it gives to users.

The viability of different modes of transport available in cities is, in part, determined by the location of where people choose to live, to work, to shop and to take part in other activities

within the confines of the urban planning context. However, beyond land use, other transport policies can also attract or deter people from using different transport modes and different travel patterns. The forces that affect the potential for someone to use a mode of transport have been studied and this potential is referred to as motility (Flamm & Kaufmann, 2006). It is with a certain level of motility that people find the instrumental value of different modes of transport. People use transport as an instrument to get between activities within a city in a certain timeframe. In addition they have other expectations of transport including their own presentation and promptness at activities, as well as the ability to carry a load. The current structure of daily life has developed in conjunction with the development of transport systems. Prominent modes of transport influence the expectations people have about what should be done and where, during the course of a day. Routines in modern life have required extensive flexibility and reliability from the transport systems which take people between the various activities.

Widely dispersed and low-density residential locations, combined with complex patterns of shopping trips and commutes for employment purposes, dictate complicated and extensive travel routes for many persons. (Huttman, 1973)

It is therefore not surprising that in time-constrained societies, such as those of sprawling Australian cities, the car has emerged as an essential tool for completing one's daily activities. Cars offer "a door-to-door transportation system, the means to gaining access to life necessities and employment, and a source of pleasure and social status" (Vergragt & Brown, 2007). In places where cars have not been prominent, people have structured their lives with more flexibility around public transport times or with activity centres in close proximity, so that walking and cycling can be more readily undertaken. For example, urban villages in cities such as Fes in Morocco, allow for people to live and work locally and to participate in shared activities that may be less rigid than structured workplaces (Crawford, 2009). This flexibility within lifestyle and community reduces the need for highly flexible transport systems that have become so important in cities with high car use.

Flexibility in terms of travel patterns is important because jobs, shopping, residence and other activities requiring significant movement have been shaped over decades by the car. It is no surprise that the automobile best serves the conditions which its manufacturers and users have cultivated. (Huttman, 1973)

The car is often seen as the most flexible mode of transport because of its speed and the extensive road network and parking places that allow the driver to travel and park where they desire. A bicycle, however, may lack the speed that enables flexibility to travel further and arrive more quickly, but it has greater flexibility in the sense that it can be parked, manoeuvred and even carried easily due to its compactness, lightness and human scale. Indeed, the agility of cycling and walking allows for spontaneous changes in plans as there is less of a need to follow highly regulated paths. In areas where parking is limited, such as in the old centres of European cities, the flexibility of car travel is reduced.

Reliability of modes of transport refers to how well one can trust them to perform the tasks that are required of it. This usually means dependably getting to places within a certain timeframe without mishap. A lack of reliability is often perceived as more important when the user does not have control, such as public transport in Australia, whereas reliability issues for car users are not perceived in the same way (Guiver, 2007).

Convenience has been identified as the most important factor in transport planning and policy-making today (Crockett & Hounsell, 2005). As can be seen in Table 2.4, this is reflective of the importance transport users place on convenience. Convenience in rail travel was seen to be reflective of the experience at transport interchanges (including being properly informed), as well as the frequency of the service and the provision of transport options to interchanges (Crockett & Hounsell, 2005).

Table 2.4 Factors affecting modal choice amongst travellers in Scotland (Stradling 2003 cited in Crockett and Hounsell 2005)

Factor	Percentage
Convenience	67
Journey time	47
Cost	38
Weather	29
Comfort	26
Health and fitness	16
Safety	13
Environment	5

Travel time and consequently speed are key considerations of travel behaviour (Bronner, 1982) and it is seen as a real barrier to the use of public transport or active transport (Beirao & Sarsfield Cabral, 2007).

The exchange value of time becomes dominant and this is reflected in language: time is spent, saved, invested, wasted and employed. As societies put price tags on time, equity and vehicular speed correlates inversely. (Illich, 1974)

Travel time can be considered a burden where opportunities to be earning money or to be with loved ones is 'lost' (Watts & Urry, 2008). Financial values are often put on this time and these values are contingent on the activities it is tied to (Tilahun & David, 2006). By changing the average speed, waiting requirements or directness of travel, traffic engineers attempt to reduce travel times. Under these considerations freely flowing car traffic is optimal as motorised vehicles can travel faster than active transport and can be more direct, with less waiting time than public transport. The train is the only mode of transport faster than cars according to Table 2.5; however, this is influenced by the frequency and directness of the service.

Table 2.5 Average travel time by mode in The Netherlands:(Bouwman & Moll, 2002)

Transport Mode	Average travel time (min/pkm)
Petrol car	1.34
Train	0.94
Bus, tram & metro	1.92
Bicycle	5.40
Walking	10.77
Other modes	1.36

To improve the efficiency and reliability of cars, overcoming congestion has become the subject of many urban transport strategies (Booz|Allen|Hamilton, 2006). The ideal of free-flowing road traffic is assumed to be the normal and desirable state of roads that transport planning must attempt to attain (Low et al., 2003). Concerns about congestion have led to drastic changes in the structure and character of cities (Moran, 2005). In some cases, the need to create free-flowing roads "that give velocity and rhythm, and no obstruction to traffic" has overridden all other objectives of transport planning (Davison, 2004). However, this approach doesn't consider that if one increases the average speeds on the road, this can induce more people to travel by car, particularly from distant locations (Khisty & Ayvalik, 2003; Vigar, 2002). This subsequently leads to both longer travel times (Levinson & Kumar, 1994) and congestion. Minimising travel time doesn't consider the time and effort required to make available, maintain and use a mode of transport. It is not only for the time of the trip, but all the time required to enable one to use a certain mode, that should be considered. This includes the

time to maintain vehicles and prepare for travel as well as the time needed to earn money to finance the travel option (Tranter, 2004) – see Table 2.6. This demonstrates that hidden time requirements are extensive for car owners. While car users perceive they have the ability to travel fast, they are not observing the full context of the time requirement for this supposedly immediate and rapid propulsion.

Table 2.6 Comparison of effective speed of various modes of transport in Canberra (Tranter, 2004)

Mode of transport	Effective speed
Large 4WD	12.8 km/h
Cycling	18.1 km/h
Bus passenger	21.3 km/h

People's perception of travel time is an important consideration (Burnett, 1978) because this affects both the modes of transport they think are feasible as well as the quality of the travelling experience. The time required for different activities, such as waiting, driving or riding may all be perceived differently. In a qualitative study, people tended to perceive bus travel as slower than car travel, but potentially faster where bus lanes are provided (Guiver, 2007). Time perception during a walk was highly dependent on how it was experienced. It is by engaging with these 'experiential times' that the way in which people's 'sense' of time expands and contracts as they move on foot is revealed. This opens up the possibility to do other things in a way which other forms of urban transport are unable to do. These parallel activities included talking on the phone, spending time with family members or friends, or planning the working day ahead. In other words, walking allows more than mere transportation (Middleton, 2009). Other modes of transport also offer different additional benefits, and similar studies for other modes of transport could provide extra insight into people's travel experience.

Indeed, during the time people travel, they can benefit or be hindered by a number of experiences (Lyons & Urry, 2005; Middleton, 2009; Watts & Urry, 2008) as can be seen in Table 2.7. The nature of these experiences and the enjoyment of them are dependent on the length and destination of the trip, the mode of transport, the personality and attitude of the traveller as well as the general conditions. Variables that contributed to the enjoyment of the commute include the social environment, availability of activities, quality of facilities, productive use of the commute, and the intrinsic value found in the travel (Páez & Whalen, 2010). Beyond the instrumental value of travel, urban transport users can gain a number of benefits including

adventure, variety, independence, control, status, a buffer or transition, exposure to the environment, escape, curiosity, conquest, physical exercise, therapy through the movement as well as potentially using travel time productively (Ory & Mokhtarian, 2005). Different modes of transport are more in line with certain benefits. Indeed some travel is done for the pleasure without any transportation needs. It is argued that this pleasure is transferable to using a mode of transport for utilitarian purposes (Aldred, 2010).

Table 2.7 Aspects that affect the experience of a mode of transport

Mode of Transport	Potential activities one can pursue	Leisure of the transport mode	Exercise during transport
Public Transport	Depending on conditions, can eat, work, read, discuss, use computer – no real restriction except for spatial constraint	Depending on conditions, can be tedious, meditative, fun – looking out the windowing or involved in one's activity	Usually requires walking to get to and from vehicle
Car	Driver must keep attention on road and is therefore restricted - can listen and discuss	Depending on conditions/traffic and person. Can be thrilling, fun, frustrating, scary	Minimal walking unless one cannot find a park close to their destination
Bike	Very limited due to need to pay attention on the road and control vehicle – can be a time to reflect	Cycling can be playful, tiring, amusing, refreshing and/or pleasant	Benefits of physical, continual, low impact exercise
Walking	Walking can be a time to reflect, talk and notice the world (Middleton, 2009)	Depending on the space and walkability of the neighbourhood – pleasant, refreshing, tiring and/or tedious	Benefits of physical, continual, low impact exercise

Source: the author's compilation.

A number of studies have demonstrated some psychosocial benefits of car use in contrast to public transport use. However, the factors considered are more in line with car use including mastery, self-esteem, and feelings of autonomy, protection, and prestige (Ellaway, Macintyre, Hiscock, & Kearns, 2003; Hiscock, Macintyre, Kearns, & Ellaway, 2002) because they are focused on individualism. Demographics impact the benefits that people get from their travel; with men gaining the most from the prestige of cars while women benefiting more from the protection. Other studies have noted the simple pleasure of driving (Ory & Mokhtarian, 2005; Steg, 2005). However, others have shown that people who travel with active transport are the least dissatisfied with their journey (Páez & Whalen, 2010). This may be a particularly important point for children, as it has been shown that for them, “slowing down, enjoying life's pleasures, and appreciating our friends, community, and environment are all linked to enhanced well-being.” (O'Brien & Tranter, 2006).

Transportation can lead to stress. This is due to a number of factors of travel, including the time constraints and lack of ability to control speed in congested traffic (Novaco & Gonzalez, 2009), on slow public transport or in difficult conditions for cycling. Stress is related to the length of the journey, the attentiveness and exertion required while driving a vehicle (Lutz & Lutz Fernandez, 2010) as well as the need for transfers on public transport (Poudenx, 2008). It was found that the greater control one has over where they travel, the less likely they were to be stressed (Novaco & Gonzalez, 2009). Modes of transport where people are in control of a vehicle, like driving a car or riding a bicycle, are associated with more control and therefore less stress (Gottholmseder, Nowotny, Pruckner, & Theurl, 2009). However, it has been found that people who commute by car report significantly higher stress levels than those who commute by train or active transport (Gatersleben & Uzzell, 2007). This may be related to the lack of predictability of road traffic as well as the opportunities on public transport to connect with other people or partake in other activities (Lutz & Lutz Fernandez, 2010). Walking and cycling journeys are found to be the most relaxing and stimulating (Gatersleben & Uzzell, 2007).

The stress of driving associated with traffic congestion is, for some respondents, a problem and a motivating factor for using public transport. For them the time spent on public transport was an opportunity to relax and read a book or newspaper. (Beirao & Sarsfield Cabral, 2007)

These stressful conditions can lead to higher blood pressure, lower frustration tolerance, more negative mood, more work absences, more colds and flu (independent of work absences), and lower residential and job satisfaction (Novaco & Gonzalez, 2009). Stress also has a serious economic burden, with workplace stress alone costing Australia \$14.81 billion per year (Medibank, 2008). The ability to control their environment and to travel in comfort and style is a consolation for the stresses and constraints one must go through to travel in cities. Comfort is a major impediment to greater use of public transport. There are a number of factors that affect people's level of comfort on buses including cramped, crowded and unclean conditions, old and shabby looking buses, drivers braking harshly and other people taking up too much space (S. Stradling, 2006). It is more likely that car users perceive that buses are uncomfortable, while regular users are more inclined to think that buses are comfortable (Beirao & Sarsfield Cabral, 2007). The comfort of cars on the other hand is often a selling point of vehicles and can be seen as a positive aspect of driving.

Public transport trips are cognitively ‘front-loaded’ and ‘planful’ (requiring expenditure of cognitive effort), and while they share the requirement for progress monitoring (more cognitive effort – to reduce uncertainty) with driving a car, instantaneous error correction is much more difficult on a journey with a scheduled route and timetable (S. Stradling, Meadows, & Beatty, 2000). Car users therefore tend to believe that the car is easier to use (Beirao & Sarsfield Cabral, 2007).

The nation has long clung to the idea that driving is easier than other modes of transportation.... We stubbornly associate driving with convenience, flow, speed, and pleasure, ideas fostered and continually reinforced by car advertising, which is replete with images of fleet driving and roads empty of other vehicles (Lutz & Lutz Fernandez, 2010)

Speed has been an important aspect of travel ever since trains allowed people to travel faster than walking pace (Paterson, 2007). It increased expectations of travel distances and initially provided thrill which promised “bigger living: quickened senses, aroused faculties, expanded powers of vision; acts of heroism, improvisation, and innovation; spectacular crashes and catastrophes; eruptions of laughter and glee” (Seiler, 2008). However, over time, speed has become routinized and an expectation (Redshaw, 2001) as people must “keep up with the traffic” (Lutz & Lutz Fernandez, 2010). The potential for speed in cars has also captured the imagination of car manufacturers and the public. Cars are equipped for speeds that are neither practical nor safe for drivers and which few people will ever use (Lutz & Lutz Fernandez, 2010). However, the speeds that people do reach still create a sense of power that takes people beyond an understanding of others at a human scale and makes them crave more speed (B. Ladd, 2008). The joys of speed are not limited to motorised vehicles: cycling rapidly, for example, can create fun and meaning for the cyclist (Spinney, 2009); however, the wider community doesn’t associate cycling for transportation with fun.

The way people move has long been a way of distinguishing someone’s position in society and identity (Glover, 2000). Transport offers a medium for expressing oneself as one’s travel behaviour is undertaken in public (as discussed in Chapter 3), the experience can be shared with others and it is also reflected upon during conversation. The mode of transport people use has come to signify certain aspects of the individuals using them. Freedom is a natural part of the expression of movement, and through people’s urban travel they are free to move to different places in different ways. Other aspects of life expressed through the way people travel includes social status, style, gender, culture and attitude. Cars have become

synonymous with freedom and opportunity for expression that they bring the car user (Jensen, 1999). This is in contrast to the regulations and restrictions that have accompanied the development of car use that have led to “apathetic and infantile citizenry that willingly abdicates its authority to a paternalistic power” (Seiler, 2008). In this way the car is seen to conceal the lack of autonomy of the average citizen. It acts as a symbol of individual will and choice, but at the same time is unlikely to challenge established arrangements of power (Seiler, 2008). The automotive industry has encouraged the idea that the car should be able to express the unique identity of the car user (Lutz & Lutz Fernandez, 2010) and at the same time introduced a mode of employment that reduced the worker to being part of a machine-like assembly line (Seiler, 2008). Freedom has come to mean a great deal and can be manipulated to demonstrate the importance of certain choices, such as the “ability to come and go as we like” (Seiler, 2008). However, many argue that while the freedom experienced through driving is real, it is relative and does not come without detracting from other freedoms, as it “isolates people from each other, which threatens family cohesion, which destroys community bonds and obligations and entrenches a selfish competitive, aggressive social form” (Paterson, 2007). Public transport doesn’t offer a sense of autonomy or freedom because the user doesn’t drive a vehicle (Seiler, 2008). However, the bicycle does offer freedom, and this freedom has been said to be justified as it promotes a safe and pleasant local environment (Aldred, 2010).

As in the USA, the car has become part of people’s sense of national identity in Australia (Davison, 2004). It is seen as an avenue for expressing one’s values.

...we hope the car will help us live out our values, many of which we share and can identify as particularly American, distinctive and adapted to the national way of life. These include the idea of freedom; a vision of the ideal man, woman, and family; an abiding faith in progress; and the belief that individuality is superior to collectivism and conformity (Lutz & Lutz Fernandez, 2010).

The status of walking and cycling has changed over the last century, particularly in face of the expansion of car use. Walking and cycling can express a great deal through the emotion and energy of one’s body language, for example, people walk with varying “speed, stride, gait, and associated posture, company, dress, place, load, condition, and occasion” (Amato, 2004). While much of the world’s population still relies on walking and cycling to access opportunities, these practices have been reduced to recreational activities with only marginal use for transport in car dominant cities. Car ownership has come to signify an achievement for people who aspire for prosperity (Beirao & Sarsfield Cabral, 2007). In contrast, those who ride

buses suffer shame (Lutz & Lutz Fernandez, 2010) and the status of the walker has been reduced because it is assumed that they must be too poor to own a car (Amato, 2004). In a similar way, while cycling can offer a sense of status for certain groups, the car always overtakes it as a status-signalling object of consumption (Horton et al., 2007b)

It is evident that different modes of transport provide diverse functions, logistics, experiences and symbolic value providing benefits to users (Novaco & Gonzalez, 2009). These can influence how much someone likes a mode of transport. In regards to overall likeability of modes of transport, more people favour active transport (66.7%), followed by personal vehicles (58.1%), while rail (30%) and bus (8.3%) have a much lower level of likeability (Ory & Mokhtarian, 2005). These factors have been important in how people choose to travel, with people's affective link with their private vehicle explaining 12% of the frequency of car use (Lois & López-Sáez, 2009). User satisfaction of bus travel demonstrates that time constraints, flexibility, freedom and convenience are the most important factors where more than 50% of respondents were disgruntled (S.. Stradling, Anable, & Carreno, 2007). The psychosocial benefits of car use represent an enormous barrier to behaviour change, as cars are seen to be not just about transport, but about freedom, convenience and personal identity for the car user (Hounsham, 2006). People's attachment to cars provides "an important source of sustenance to a sense of self, autonomy and so on and thus ideological support for forces wanting to resist moves away from the car." (Paterson, 2007)

For most of its users, a car is many things at once, and therefore not easily replaced. (B. Ladd, 2008)

It is also important to highlight the psycho-social benefits of other modes of transport such as walking. Walking allows access, experience and adventure in places where wheels cannot go. It also demonstrates a simplicity, freedom and defiance from the conventions of a society where people normally use vehicles (Amato, 2004). The first steps of a child's life are seen as a great milestone. It represents one's ability to move in order to access their needs and desires. While people have become more sedentary and have found other ways of travelling, the average person still walks almost nine thousand steps per day (Amato, 2004). The benefits and costs of the experiences of transport and their impacts on the wider community are particularly profound for people's health.

2.6 The public health context

Public health relates to how activities affect the health of the public at large, with a particular emphasis on the role of prevention. Some modes of transport offer an opportunity for people to get outside and move, which can be beneficial for one's health. Countries with high rates of walking and cycling, for example, have been shown to have lower rates of obesity (Bassett, Pucher, Buehler, Thompson, & Crouter, 2008). However, car transport poses threats to people's health because vehicles can injure other road users and motor vehicles can create pollution that is harmful.

Obesity, coronary heart disease, stroke, diabetes, some cancers and some mental health conditions such as depression are all related to the amount of exercise people partake in (Fox & Hillsdon, 2007). The opportunities for exercise while traveling are mentioned in the psycho-social context section in Table 2.7. Walking and cycling offer the greatest opportunities for sustained, low impact exercise, while public transport may also require people to walk to get to and from the transport nodes (TDC, 2002). The time used for car travel takes away from the time people could otherwise use to exercise. Each additional hour spent in a car per day was associated with a 6% increase in the likelihood of obesity. Conversely, each additional kilometre walked per day was associated with a 4.8% reduction in the likelihood of obesity (Frank, Andresen, & Schmid, 2004). Exercise is noted as a reason for people to ride bikes and walk (BTS, 2003), but this can result in people cycling and walking for the sole purpose of leisure and exercise rather than it also being used for transportation. Beyond the direct transport, the dangerous current conditions of road networks means children must avoid playing on the street and their recreation activities become more sedentary (Short & Pinet-Peralta, 2010). This extends the time that a child spends indoors, isolated from the community and often surrounded by electronic devices (Lutz & Lutz Fernandez, 2010).

Due to the combustion and vaporisation of petrochemicals, there are a number of harmful emissions from transport. These include carbon monoxide (CO), lead compounds, oxides of nitrogen (NO_x), particulate matter < 10µm (PM10) and < 2µm (PM2), and organic compounds (VOCs). Table 2.8 shows the estimated emissions of local air pollutants in Sydney. The health effects associated with air pollutants in epidemiological studies include *mortality* and a range of *morbidity* outcomes including hospitalisation for cardiovascular or respiratory disease, emergency room and urgent care visits, asthma exacerbation, acute and chronic bronchitis, restrictions in activity, work loss, school absenteeism, respiratory symptoms and decreased lung function (Sirikijpanichkul, Iyengar, & Ferreira, 2006).

Table 2.8 Emissions of local air pollution from on-road transport (Xu, 2007)

Substance	Emissions (tonnes/year)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
1.3 butadiene	199	14	9	35	256
Acetaldehyde	615	41	31	133	819
Benzene	1,833	130	80	314	2,356
Carbon monoxide	431,270	31,675	19,173	76,929	559,047
Formaldehyde	709	48	33	139	930
Isomers of xylene	2,678	190	116	459	3,444
Lead & compound	10.7	0.7	0.5	1.8	13.7
Oxides of nitrogen	65,996	4,947	3,255	14,409	88,608
Particulate matter < 10 μ m	2,552	177	119	501	3,349
Particulate matter < 2.5 μ m	2,426	169	113	479	3,188
Polycyclic aromatic hydrocarbon	173	11.3	7.4	27.6	220
Sulfur dioxide	1,254	98	59	249	1,660
Toluene	1,902	135	83	326	2,446
Total suspended particulates (TSP)	2,912	200	134	548	3,794
Total VOCs	50,171	3,556	2,195	8,572	64,493

In evaluating the health impacts of air pollution, there are a number of uncertainties due to the complex mixture of emission sources that contribute to air pollution in cities. This includes the numerous vehicles with different fuel types, fuel consumption and technologies. Exposure to polluted air is a continuous event as people are exposed to various amounts of air pollution throughout their daily lives. In addition to this, the health outcomes are not exclusively linked to air pollution. Therefore, the extent of the health impacts of transport cannot be completely understood (Kunzli et al., 2000). Studies which have aligned periods of low traffic, low levels of local air pollution and health outcomes have demonstrated that there are correlations (J. Schwartz, 2003). Living in heavily polluted cities such as Los Angeles has been likened to living with a smoker in regards to the exposure level of pollution (Tamminen, 2006).

Atmospheric ozone is a secondary pollutant which is formed from Oxides of Nitrogen (NO_x) and Volatile Organic Compounds (VOCs) in the presence of water and light. Depending on wind and temperature conditions, this can occur at different distances from the source of the primary pollution. This means that the areas of dense traffic may not suffer from ozone pollution as the wind will push the primary pollutants away before they react to form ozone. Ozone creates a photochemical smog which has effects of respiratory health of people and animals, harms vegetation as well as causes damage to the physical environment (Smith, 1998).

It has been estimated that in Sydney local air pollution from motor vehicles was responsible for 3000 deaths per year in 2003 (Beggs et al., 2007). The cost of different emissions is illustrated in Figure 2.7. It was estimated that the total annual cost due to local air pollution was \$1.04 billion (Sirikijpanichkul et al., 2006). The levels of exposure people encounter is higher for people who live near busy roads, for children who go to school near a busy road or for people who spend time working on or near roads (Krzyzanowski, 2005). While people commute they are exposed to heightened levels of particulate matter and this has an adverse effect on people's health. For people traveling on the road, cyclists were shown to have the most intense exposure to particulate matter (Int Panis et al., 2010). Noise pollution also affects people in the direct vicinity of transport corridors with noise levels near busy roads often going above World Health Organisation guidelines (UNECE, 2008). The problems associated with noise include loss of hearing, annoyance, interference with complex tasks and social behaviour (Stansfeld & Matheson, 2003). These problems are reflected in reduced prices of property along transport corridors (Litman, 2009).

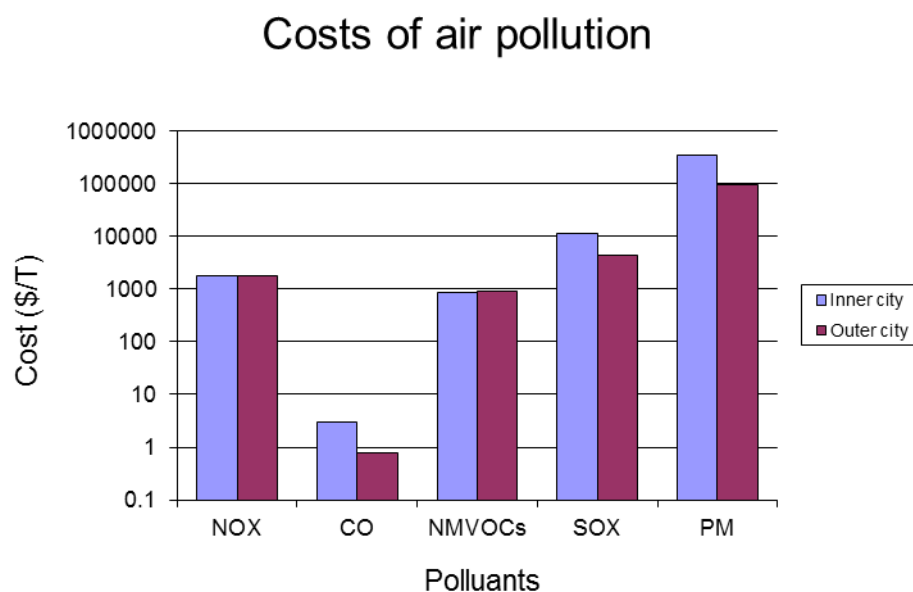


Figure 2.7 Cost of local air pollution in inner city and outer city areas of Sydney (Sirikijpanichkul et al., 2006)

To deal with local air pollution, a number of strategies have been implemented. The emissions caused by congestion have been used as a reason for constructing new infrastructure. Congestion charging has attempted to reduce the number of cars in the centre of cities such as London. Technological solutions, including catalytic converters and alternative fuels, have

also reduced the level of local air pollution in the exhaust from cars and buses. Reducing car use is noted to be a part of the solutions to local air pollution (L. Martin, Weiss, & Standen, 2007).

Transport use is associated with a number of risks, with the potential for injury and death. Using transport is, for the majority of people, the daily situation in which one puts oneself and others at the most direct risk of injury and death. In 2004 an estimated 20 to 50 million injuries and 1.27 million deaths worldwide occurred on the road. This costs an estimated \$518 million in medical care (WHO 2009) and there are other higher expenses due to loss of productivity and the trauma for the families involved. It is therefore important to understand the factors within a transport system that contribute to the risks that transport incidents pose to people's lives and health. Safety can be a real deterrent for the use of some modes of transport such as cycling (Horton et al., 2007a), whereas the risks associated with other transport such as car use have become accepted. Private motorised vehicles are a major contributor to the risks of urban transport, with both an increase in mass and speed of the individual increasing the likelihood of conflicts as well as the severity of impacts.

... a heavy piece of metal – the average weight of a US car in 2006 was 4142 lbs. [1878 kg] – traveling at even 30 miles per hour, operated by someone, perhaps listening to the radio, drinking coffee or using his cell phone, times the thousands of other drivers on a road in the average city constitutes a complex technological system with lots of room for human error. (Short & Pinet-Peralta, 2010)

Safety costs of transport involve the risk of injury or death to the users of a mode of transport, the damage to the vehicle used, as well as the damages that the vehicle can cause through collisions with other vehicles, pedestrians or objects. It is difficult to assign costs to each particular mode of transport on the roads as the cause of the accident may be from one form of transport such as a car, bus or truck with the victim being a more vulnerable road user such as a motorcyclist, cyclist or pedestrian. Worldwide, roads are the highest cause of deaths for teenagers, the second highest for children older than five years and the third highest for adults under the age of forty-four (WHO 2009). People in these age groups are in the prime of their lives, and therefore the burden of these deaths is immense, due to the years of life lost and the distress it brings families and friends in losing someone in their youth (Lutz & Lutz Fernandez, 2010). This can also be an economic burden as these are the most productive years of one's life. In NSW there were 42,299 recorded crashes during 2010, with 405 people killed and 24, 623 injured. The estimated cost was approximately \$5 billion (RTA, 2010).

The risks posed by car use are not only to the user of the vehicle, they pose a threat to other road users. There is a disproportionate risk to pedestrians and cyclists – the road users that pose the least risk to other people. A large proportion of road deaths involve pedestrians, particularly in developing countries where pedestrians are not as separated by infrastructure and regulation (WHO 2009). Higher speeds of cars result in a much higher risk for pedestrians (Archer, Fotheringham, Symmons, & Corben, 2008) as can be seen by the fatality risk increasing three fold between 40km/h and 60 km/h as shown in Figure 2.8. This can act as a deterrent to greater uptake of walking and cycling and subsequently create a barrier to a reduction in car use (Crombie, 2002). A NSW study found that a disproportionate number of people from a low socio-economic background were at risk of traffic injuries (WHO 2009) and in the USA, it was found that Negro and Latin American boys were much more likely to die than their Caucasian counter-parts (Lutz 2010).

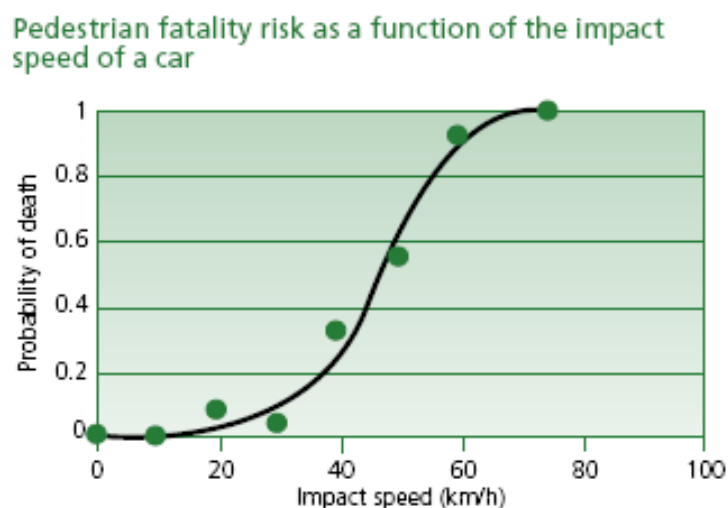


Figure 2.8 Pedestrian fatality risk as a function of impact speed of car (WHO, 2004)

Transport safety, particularly road safety, is therefore a massive problem through both the high level of risk, how it is distributed amongst the population and the subsequent effects of this risk. However, the risk associated with urban transport has become an accepted part of daily life which is often not considered a real issue when exploring threats to people's safety. Deaths due to crime and terrorism are seen as atrocities, while those from automobiles are seen as unfortunate but normal (Short & Pinet-Peralta, 2010). However people have a well-established understanding of the relative risks of different modes of transport as can be seen in Figure 2.9. People's perception of the risks associated with cycling and walking in a Norwegian study were lower than the actual risk, but perceptions of risk associated with other modes of transport were consistent with actual risk (Elvik & Bjornskau, 2005).

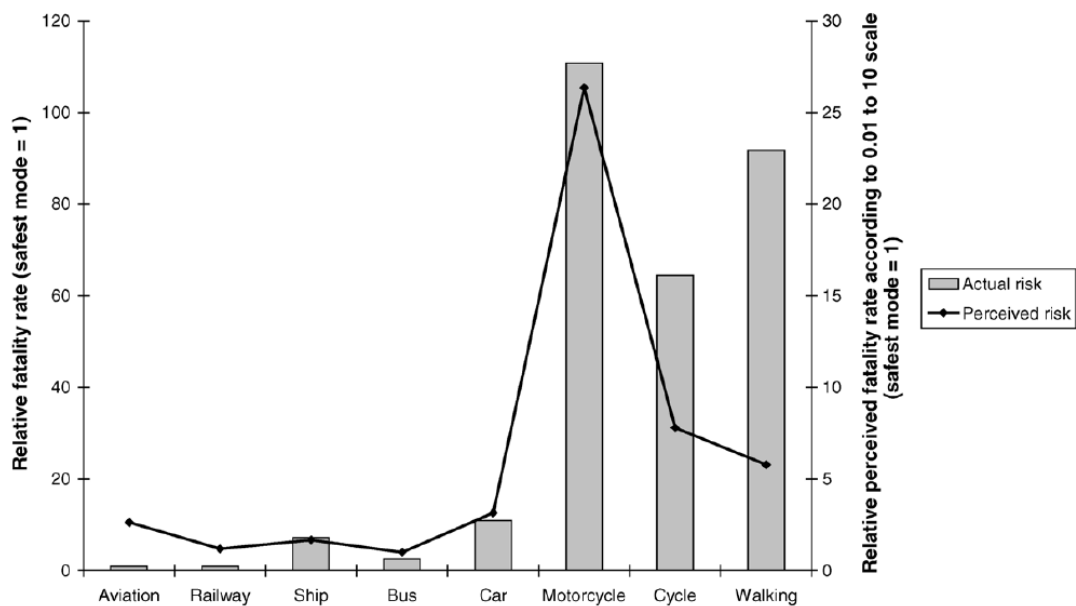


Figure 2.9 Perceived risk and real fatality risk for modes of transport in Norway (Elvik & Bjornskau, 2005)

The way in which safety statistics are presented assigns the responsibility of the problem to the people who are the victims rather than those who create the risks. This is illustrated in Figure 2.9 and Table 2.9 which show the number of fatalities suffered by people using different modes of transport and not what modes of transport may have been responsible for causing the deaths. Some studies, however, have looked at how the presence of particular vehicles, such as cars that are much larger than the average size, adds to the risks on the road (Noland, 2005), while others, such as increased cycling rates, improve the safety of the road. In cycling literature the concept of ‘safety in numbers’ has demonstrated the potential for increased bicycle use to reduce the risks to cyclists (Jacobsen, 2003). Public transport is a much safer mode of transport than cars as can be seen in Table 2.9. Buses also increase the safety of the road as shown in an empirical study (Tay, 2003). This may be because they slow traffic as they stop for passengers. While incidents with trains and buses colliding with pedestrians are often fatal due to their size difference, these are far fewer than those involving cars as there are far fewer public transport vehicles.

Table 2.9 Fatalities per 100 million passengers in Britain in 1992 (Litman, 2009)

	Per Km	Per Trip	Per Hour
Air	0.03	55	15
Bus	0.04	0.3	0.1
Rail	0.1	2.7	4.8
Van	0.2	2.7	6.6
Car	0.4	4.5	15
Water	0.6	25	12
Pedalcycle	4.3	12	60
Foot	5.3	5.1	20
Motorbike	9.7	100	300

Improving safety is also an important part of transport solutions. In reaction to the inherent risks of individual motorised vehicles, there have been responses from a number of key stakeholders. Car manufacturers, along with related regulation, have moved towards improved handling and passenger protection systems. Road authorities have invested heavily in infrastructure to reduce potential road hazards (Noland, 2003; Seiler, 2008) and have introduced awareness campaigns and speed reduction (Archer et al., 2008). Table 2.10 gives a list of some of the strategies:

Table 2.10 Strategies to deal with road safety issues

Strategy	Authorities involved	Aim of strategy	Benefits of strategy	Pitfalls of strategy
Improve handling of cars	Automobile associations, car manufacturers	Improve driver control to reduce conflicts	Fewer accidents for people who continue to drive in same fashion	Perception of control can lead to less safe driving style – more risk taking (see below on risk compensation)
Improve passenger protection	Automobile associations, car manufacturers	Decrease risk of injury/death to passengers	Passengers are less likely to die/injure themselves in the case of a crash	Risk compensation could lead to riskier driving (Stetzer & Hofmann, 1996) – less safe for people exterior to the car – some protection systems directly decrease safety to others – rigidity of structure etc.
Reduce road hazards	Road authorities	Decrease risk of conflicts due to a hazard	Traffic flows more freely and risks associated with hazard are reduced	Speed of traffic increases, encourages and legitimises further car use
Mass media safety campaigns	Road authorities	Reduce unsafe driving practises	More awareness of risks involved	Lack of effectiveness if not accompanied by other reinforcement

Source: compiled by the author.

These attempts to reduce the impact of individual motorised transport have shifted people's perception as to what it means to be responsible in the context of using transport and how much at risk one feels. Risk compensation is therefore a key issue for safe transport use. Logic and statistics may therefore play a less significant role in determining people's mode of transport. (However, the logic and statistics related to different makes of vehicles have proved important, as they have been standardised in ANCAP (Australasian New Car Assessment Program) ratings.)

Since the 1960s after the release of "Unsafe at any speed" (Nader, 1965), the car industry has developed technical solutions to risk management by improving the occupant safety of vehicles. Twenty years ago, in Australia, compulsory helmets were introduced as an occupant protection measure for cycling (Piper, Willcox, Bonfiglioli, Emilsen, & Martin, 2011). Reducing potential hazards on the roads has also been a solution to safety. However, risk compensation by drivers can lead to increased speeds and reduce the benefits from improvements to vehicles and infrastructure (Stetzer & Hofmann, 1996) as shown in Table 2.10. Social marketing

targeting hazardous driving behaviour has become an important part of driver safety improvements.

The lethal capacities of the automobile provided that rationale for various projects, initiated by the state, industry, and advocacy groups, intended to shape the behaviour of drivers as well as pedestrians, establish legal codes and monitoring mechanisms, and transform and regulate the built environment. (Seiler, 2008)

Most responses to road safety issues do not explore the role of modal shift to reduce the risks posed by motor vehicles. It is commonly believed that fatalities will eventually be eliminated through the development of very safe cars (Lutz & Lutz Fernandez, 2010). However, it is argued that modal split may have a significant role in determining fatality rates (Mohan, 2008).

2.7 Summary and implications of contexts for travel behaviour

There are numerous factors to consider when studying different modes of transport. By defining different contexts, many of these factors have been revealed in this chapter. The sources of literature for each context have revealed the disciplines that are associated with examining transport. The discussion of each context has revealed the relevant processes, issues and perspectives illustrated in Table 2.11. This table is not exhaustive, yet it does highlight the typical considerations within examinations of urban transport in different contexts. It demonstrates that considerations within each context vary greatly, with different disciplines guiding the way transport is regarded and examined.

Table 2.11 Characteristics of different contexts related to urban transport

	Disciplines	Processes	Issues	Perspectives
The material and energy context	Engineering, science	Processing raw materials; fuel use in vehicles and emissions; construction and maintenance of vehicles/infrastructure; waste streams; technological development	Need for energy to create movement; heavy, high speed and individualised movements need more energy and materials; source of energy and materials; efficiency of energy use, emission reduction; waste minimisation; lifespan of vehicles and infrastructure	Consideration of environmental issues; association (or disconnect) between environmental concern and transport use; awareness of impact of transport use on environment; faith in technological solutions
The urban planning context	Urban planning, traffic engineering, architecture, sociology	Changes in land use; flow of vehicles; flow of people and activity; development of planning processes	Distances between activities and opportunities limit access; transport systems impacting on communities (positively or negatively) – including barrier effects; space requirements for transport infrastructure; inertia of established transport infrastructure	Perceptions of appropriate use of public space; expectation of unimpeded but regulated vehicle movement;
The economic and industrial context	Economics, finance, commerce	Flow of money; industry development; employment and expertise development;	Expense of transport for users and government; inertia of well-developed transport industries and expertise;	Perception of cost of transport; sense of dependence on established industries and employment opportunities; sense of unfairness for financial barriers to car use; public transport as expense for government
The psycho-social context	Psychology, sociology	Flow of value that transport offers to people; changes in lifestyle expectation; flow of time in daily life	Transport provides a range of negative and positive experiences to users and others; how symbolic and instrumental values form around transport; expectation of car ownership and use	Expectations of one's travel time – both total time, reliability of time and how it is experienced; perceptions of effort and risk; association of transport use with symbols; desire to use transport to access opportunities
The public health context	Medicine (preventive), public health, epidemiology, psychology	Flow of risk; hazards created through movements (or lack of movement); flow of responsibility	Transport systems creating dangerous spaces; the allocation of responsibility; some transport options can give health benefits	Fear of using transport; perception of risk and responsibility; association (or disconnect) between health concerns and transport use;
The political and cultural context	Political science, policy, history, sociology, anthropology, the arts	Changes in culture; political processes; evolution of planning priorities	Role of transport in identity, socialisation and other aspects of culture; cultural values influencing attractiveness of transport modes; political inertia of transport policy development	Perception of appropriate transport strategies (based on engineering/ economic approach); what modes of transport are normal to use

This chapter reveals that there are numerous factors that can be used by individuals and governments in evaluating and supporting different modes of transport. One of the most interesting conclusions from this chapter is the need to further examine how people perceive different modes of transport within these contexts. A focus on (or neglect of) particular urban transport contexts may lead to very different understandings and priorities in transport planning and transport use. Indeed, car travellers have been shown to be so rigid in their needs within one context (such as travel time in the psycho-social context) that they do not consider other contexts. This is in contrast to train travellers, who are more willing to compensate attributes within one context with others in another context (Bronner, 1982). When examining messages in this thesis, it is therefore of interest to note which contexts are prioritised and how. Here I summarise some key aspects that have come out of the examination of each context with a particular focus on the last column in the table, because perceptions are highly influenced by the social context, the main subject of this thesis.

The examination of the energy and material context demonstrates that, while cars use more energy and resources and generate more emissions and waste than other transport modes, this is not a key consideration in people's transport choice. Even though people express concern about environmental issues, there is a lack of correlation with attempts to reduce car use and many people try to distance themselves from the environmental implications of car use. In parallel, there has been an emphasis on the improved efficiency and reduction in the environmental damage caused by the car through technological innovation and this has been widely accepted by the public.

The urban planning context presents an interesting array of issues because high levels of car use have been associated with many issues in cities including social equity and urban amenity. In order to cater for cars, people who use other modes of transport have suffered due to a reduction in opportunities available to them and a lack of consideration in the layout and operation of the streets. Intuitively, it therefore seems equitable to reduce car use. However, given the current dependence of many people from the lower socio-economic groups on using cars, any strategies that introduce an extra burden on these people may actually reduce the equity of the city, even if it does increase the welfare of non-car users. There is significant discourse that demonstrates burdens associated with car use for poorer people, such as fuel prices, and therefore strategies designed to reduce car use, which increase these burdens, can be seen to be inequitable and that "affordable" car use must be preserved.

In regards to the economic context, it is evident that there are misconceptions about the cost of different transport options, partly due to the cost structure but also due to a lack of consideration of all the expenses of using a car. There may be different messages from varying sources that are reinforcing this misconception, and there may be the potential to introduce messages which attempt to rectify people's understanding of costs. In a similar way, the framing of government spending on roads and public transport also creates the misconception that road spending, identified as investment, is positive, while spending on public transport infrastructure, categorised as expenditure, is seen as a burden. On a more general level, the employment and economic impacts of the industries associated with car manufacture and maintenance are framed as being extensive and irreplaceable, as well as intimately connected with the public through shares and other investments the public make in these organisations.

Perceptions clearly play an important role in the psycho-social context, with the way people understand time, effort, risk and experience being dependent on people's exposure and contemplation of relevant messages. As a counterpoint to messages that convey the idea that cars are faster and safer than other modes of transport, it may be necessary to establish messages to clarify the overall time devoted to using different modes of transport, and the risks they pose to other members of society. A better understanding of how people experience their time in transit, while using various modes of transport, may also enhance people's perception of the benefits of using active transport and public transport. There are some key symbols that play a role in how travel is experienced, with the symbol of freedom playing a particularly important role. The symbols associated with car use could be scrutinised and potential positive symbols that could be linked to other modes of transport could be established. With transport being a public display and potentially a shared experience, the potential for people to use the symbols associated with their transport use to demonstrate their status and values is quite powerful.

With respect to public health, while cars are seen to cause more damage to the general population through air pollution, risk of injury and encouraging a sedentary lifestyle, car use may nevertheless be considered more responsible. This is because safety is framed as the responsibility of the people who could get injured rather than of those who could cause the damage, with road rules defining people's understanding of their obligations and privileges. It may therefore be interesting to examine how the responsibility of public health issues is framed within transport-related messages.

The political and cultural contexts demonstrate community-wide expectations of people's use of modes of transport and how they are facilitated by the government and other transport authorities. They show the constraints that transport policy has been subject to and that have influenced how people have adopted the use of modes of transport. This contributes to the understanding of the social context which is explored in more detail in the next chapters, and which builds up an understanding of the causal links between messages in people's social context and their travel behaviour.

3 Determinants of Travel Behaviour

3.1 Introduction

This chapter focuses on various determinants of behaviour relevant to travel and how they are influenced by messages. This involves the study of a wide range of psychological and sociological literature to find theoretical mechanisms that link messages, and other behavioural determinants and behaviour. Theories which encompass a range of elements and interactions have been the guiding principles for many empirical studies into travel behaviour (Fujii & Garling, 2003a). Behaviour is shown to depend on a range of factors, most of which are not consciously and deliberately considered.

Behaviour is not only the product of rational, deliberative and individual evaluations. It is also based on habit and cultural tradition, emotional impulses, the influence of family and friends and social norms. (Uzzell & R  thzel, 2009)

Instead of employing a single model to explain behaviour, the theoretical framework for this thesis is developed by considering a number of mechanisms presented in the literature which show causal links to behaviour. These causal links involve at least one of the main determinants of behaviour identified and examined in this chapter. There is a focus on travel behaviour and how the characteristics of urban travel affect the way behavioural determinants influence behaviour. Understanding the formation of behavioural determinants guides the examination of messages in the next chapter. Interpretations of messages which could significantly affect behavioural determinants are considered. Chapters 3 and 4, along with the contexts of urban transport provided in Chapter 2, develop a theory-based approach to assessing how messages within one's social context affect travel behaviour. This is applied in later chapters to gain preliminary insights into the role of social context in travel behaviour and transport policy.

This chapter is divided into three main sections which are illustrated in Figure 3.1. An understanding of how determinants of behaviour can be studied is firstly established by examining different perspectives and factors involved in behavioural studies. Section 3.2 focuses on different behavioural determinants, their characteristics and associated theories. This builds an understanding of what factors are influential in determining travel behaviour. Finally Section 3.3 summarises the features of travel that affect how behaviour is determined. This highlights which causal links between interpretations of message and travel behaviour may be particularly significant.

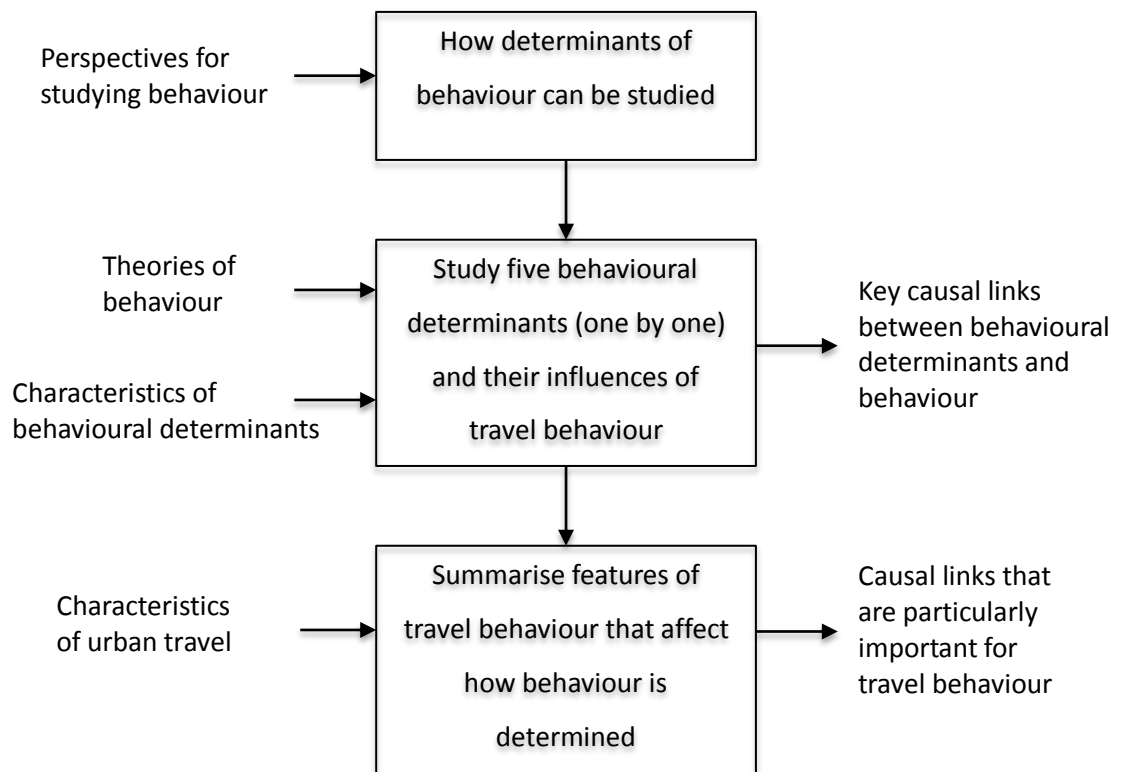


Figure 3.1 Plan for investigating determinants of travel behaviour

3.1.1 Different perspectives in studying behaviour

There are different levels or perspectives through which one can examine behaviour (Anable et al., 2006):

- the psychological perspective, which is based around abstract constructs that represent states of mind of an individual;
- the interpersonal perspective, which focuses on immediate social interactions and how they provide support, expectations and role models (Halpern et al., 2004); and
- the community perspective, which deals with broad scale influences from various institutions and networks, and examines the aggregate characteristics of the population (Anable et al., 2006).

Different perspectives provide different insights on behaviour. They address different behavioural determinants suited to that level of observation. While the psychological perspective focuses on abstract constructs that represent states of mind, the interpersonal focuses on properties of groups and the expectations and thoughts of others, and the community perspective considers the interactions and the trends within the community. Figure 3.2 illustrates the examination of the determinants of behaviour within the three

different perspectives. There are feedback loops within this system, because both behaviour and determinants of behaviour can affect the messages people are exposed to and how they interpret them. Behaviour can also directly influence the determinants of behaviour, as discussed in more detail in Chapter 5.

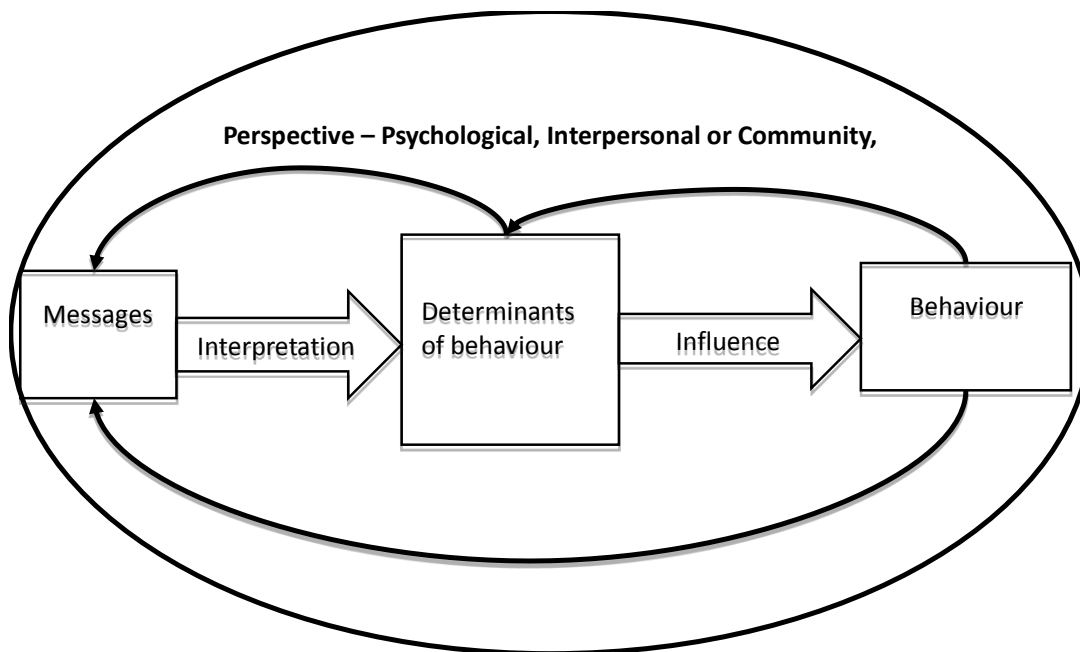


Figure 3.2 System for studying determinants of behaviour with three levels of perspectives (Conceptualised by the author)

Investigating behaviour from these three perspectives permits a wide range of determinants of behaviour to be considered. This chapter focuses on key determinants of behaviour which are represented as states of mind within the individual, within groups or within the community.

3.2 Key determinants of behaviour

Five determinants of behaviour were chosen based on how well developed they were in behavioural theory and empirical studies (Darnton, 2009). These determinants of behaviour feature in well-established models of behaviour such as Triandis' Theory of Interpersonal behaviour or the Theory of Planned Behaviour, which are discussed in this chapter (Jackson, 2005). The five determinants of behaviour that are studied are:

- Attitude
- Values and norms
- Perceived and actual efficacy
- Habit and past behaviour

- Emotion

Many studies have concentrated on the utility and feasibility of a behaviour to an individual, with a focus on attitudes and perceived self-efficacy as the key determinants of behaviour (Bronner, 1982; Dieleman et al., 2002; Iftekhar & Tapsuwan, 2010; Vredin Johansson, Heldt, & Johansson, 2006). Other studies have shown that norms, values and emotions correlate more closely than attitudes with travel behaviour (Grob, 1995; Steg & Tertoolen, 1999). The inclusion of habit as a determinant of behaviour is less evident than the others, because some question whether habit could be classified as a state of mind (Shove, 2010). However, habit is associated with the consideration given to different behaviour and the relatively small cognitive effort required to partake in the behaviour that is habitual to the person (Steg & Vlek, 2009). Many of these determinants of behaviour can be shared throughout the community, while others are internalised with only the need for personal reinforcement to sustain them (Thøgersen, 2006). The selection of these five determinants of behaviour is not exhaustive but is convenient for analysis. The main factors discussed for each determinant of behaviour are:

- The definition of the behavioural determinant
- The different ways it can be characterised (e.g. strong attitudes, low self-efficacy)
- The characteristics particularly relevant to travel behaviour (e.g. attitudes towards speed)
- The formation of the behavioural determinant (e.g. how people learn/obtain values)
- The influence of the behavioural determinant on behaviour, including theories that incorporate it (e.g. high perceived self-efficacy and the likelihood of undertaking behaviour)

While determinants of behaviour are interrelated (Wall, Devine-Wright, & Mill, 2008), they all lend themselves to be studied individually. Therefore, these determinants of behaviour are discussed separately, with mention of interactions where relevant. Theories which involve multiple determinants of behaviour are discussed in the first relevant section. For example, the Theory of Planned Behaviour is discussed in the section on attitude.

3.2.1 Attitude

Attitude is a fundamental concept in behavioural studies. Many studies assume that there is a widespread intuitive understanding of what attitude is, so much so that its definition has often been overlooked in literature (Byrka, 2009). It is generally recognised that attitude encompasses the notion of a disposition of an individual to evaluate some symbol or object or

aspect of their world in a favourable or unfavourable manner (Katz, 1960). An alternative definition is a “learned tendency to act in a consistent way to a particular object or situation” (Glendon & McKenna, 1995). This tendency to act can be suppressed or expressed depending on the context of the situation, the role of the individual, as well as other intervening variables. Attitudes that arise in particular situations commonly come about through a predisposition to make certain evaluations of general symbols, objects and aspects of the world (Katz, 1960).

Ordinary situations are attitudinally complex, attitude concepts are ill defined and the understanding of attitude functions is underdeveloped. (Parkany & Gallagher, 2004)

Attitudes are formed in various ways, serve a variety of functions and have a number of qualities that cannot easily be recorded and quantified. These qualities can affect how resistant the attitude is to potential change and how it influences behaviour (Glendon & McKenna, 1995). There are a variety of attitudes linked to any one behaviour, so attempting to alter one of these attitudes may achieve little in the way of behavioural change when other attitudes are also influential (Nordlund & Garvill, 2002). It is necessary to consider the strength of the attitude with respect to intensity and how it relates to the individual’s self-identity. The awareness of the person to the attitude, in other words the *salience* of the attitude (Entman, 1993), may determine whether and how people’s attitude may be altered. If someone has little awareness of their attitude, they are less likely to question it and may also express it through their actions rather than verbally (Janiszewski, 1988). Segmenting the market into groups which have different strength and salience of attitudes may be effective in efforts to change attitudes and behaviour (Anable, 2003).

Attitudes have three components, summarised as affect, cognition and behaviour (Parkany & Gallagher, 2004). Affective attitudes are related to feelings and concerns; cognitive attitudes are related to understanding and information; and behavioural attitudes reveal tendencies to act in different situations. Appeals to the affective or cognitive component of attitude may be used to change attitudes. When investigating messages it is worth considering how they appeal to the different components of an attitude (G. Day, 1972; Parkany & Gallagher, 2004). It may also be the case that the affective component of attitude is more closely associated with verbal expression than with behaviour. In other words, people derive satisfaction from expressing attitudes through talking about the issues rather than by expressing the attitude through their behaviour (Katz, 1960).

The function of the attitude also affects how attitudes are formed and the role they play in determining behaviour (Shavitt, 1990). Incorporating the function of attitude as a dimension of various behavioural theories can increase their explanatory power (Herek, 1987). The functions of the attitude may affect how it can be altered, because they give reasons for its existence, including utility, social identity and self-esteem (Shavitt, 1990). A functional approach to attitude has identified four particular ways this is achieved (Katz, 1960).

- Attitudes are used to ensure the potential to satisfy needs. Therefore an understanding of how modes of transport satisfy needs is important when transport-related attitudes serve this function. Underlying such attitudes is the way different needs have been framed, with some being seen as more critical than others.
- If an attitude is used as protection from harsh realities, it may be the perceptions of these realities and potential ways to deal with these realities that need to be addressed, rather than directly appealing to changes in the attitude.
- Where attitudes are based on knowledge and a desire to give structure to one's universe, the knowledge that is available to people about different transport options affects their attitudes.
- Attitudes may also be used to express values and therefore values need to be altered or appropriate values need to be made salient.

Attitudes are formed and altered by a range of messages from different institutions and people including parents, peers and media (Lau, Quadrel, & Hartman, 1990). The formation of attitudes is dependent on how willing one is to accept this attitude, how it fits with one's ability to attain their goals and how influential the source of the message is (discussed further in Chapter 4) (Holbrook, 1978). In order for an individual to adopt an attitude for themselves, there needs to be compliance, identification and internalisation of the attitudes (J. F. Jones, 1970). Conditioning techniques for introducing different attitudes and values include associations with good and bad, rewards and punishment, logical argument and observation (Glendon & McKenna, 1995). How different transport-related messages condition attitudes and values with respect to travel behaviour should be considered. For example, the characteristics of people who use a different mode of transport, and their behaviour while using it, would create good or bad associations of using that mode of transport. Attitudes towards various social and environmental concerns would also be influenced by people's experience with the effects of the problem (M. Nilsson & Küller, 2000).

Behaviour doesn't always follow from attitude (Anable et al., 2006) and this has been well acknowledged with respect to travel behaviour (Davidson & Jaccard, 1979; Whitmarsh, 2009). The complexity of attitudes is often overlooked in travel behaviour research. Many studies have taken a limited examination of attitude, which may simplify and underestimate the influence of attitude on behaviour. These studies have often been limited in which attitudes they examine and which aspects of the attitudes they consider (Bamberg et al., 2003). The predominance of quantitative methods has limited the number of attitudes that can be considered, which is particularly problematic when there are many relevant attitudes. However, there are some studies that examine which characteristics of attitudes affect behavioural outcomes (Parkany & Gallagher, 2004), and others that investigate the interactions between attitude and other determinants of behaviour (Gardner & Abraham, 2008).

The influence of pro-environmental attitudes on behaviour has been considered extensively (M. Nilsson & Küller, 2000) and these attitudes have been shown to have a low level of influence on travel behaviour (Anable et al., 2006). The function of such attitudes may relate to expressing values and making sense of knowledge, but may not serve an ego-defensive function, which might better be served by attitudes which are more favourable to car use, such as the attitude to one's use of time and to one's comfort. In order to reconcile these attitudes people may see the potential for technological innovations as an option to reduce the impacts of the car. This protects them from needing to acknowledge the harsh realities of the environmental problems caused by car use.

Attitudes relevant to all feasible modes of transport need to be considered along with associated institutions and other aspects of transport. A negative attitude to one mode of transport may be overridden by stronger negative attitudes to other modes of transport. Many studies only focus on attitude to cars and public transport (Gatersleben & Uzzell, 2007), which omits the role of attitudes to active transport and other options. Given the exploration of the six contexts of urban transport in Chapter 2, the attitudes relevant to these contexts should be considered when examining travel behaviour. These include:

- Attitudes to fuel consumption, resource consumption and emissions, which are linked to people's attitudes, to efficiency, future security and the environment
- Attitudes to urban spaces, to other urban dwellers (living in different neighbourhoods and with different backgrounds), to movement and congestion, to other urban activities, to privacy, to transport infrastructure and to noise pollution

- Attitudes to personal finances and spending, to broader economic activity, to employment and to industry
- Attitudes to time use, to speed, to comfort and convenience, to identity, to appearance, to the various symbolic values, to exercise and to other activities that can take place while travelling
- Attitude to risk, to one's health and to the health of others
- Attitude to the culture around different modes of transport, and to transport policy

This array of attitudes is not exhaustive, but it does create a basis for some of the key attitudes to consider when examining the causes of travel behaviour and messages which are relevant in examining these causes.

While noting its limitations, attitude does have explanatory value in models of travel behaviour (Garling et al., 1998; M. Nilsson & Küller, 2000; Parkany & Gallagher, 2004). Attitude's specificity to particular circumstances and its relation to expected utility of behaviour make it an attractive determinant in psychological studies into travel behaviour (Røe, 2000). Studies into travel behaviour have often relied on self-reporting of the reasons why individuals use or don't use a mode of transport (Beirao & Sarsfield Cabral, 2007; Bronner, 1982; Iftekhar & Tapsuwan, 2010). These reported reasons for travel behaviour are often translated as being the objective motivations for one's travel behaviour. Other studies employ stated preferences, which assume that, given particular choices with particular attributes, the mode of transport chosen will be stable (Fujii & Garling, 2003a). These studies do offer some insights into travel behaviour. However, a broader examination of the motivations behind behaviour is required. Hence a number of models have been developed, which employ attitude along with other determinants of behaviour.

Theory of Planned Behaviour

The Theory of Reasoned Action and the Theory of Planned Behaviour rely on attitude as a central and direct determinant of intentions to behave in a certain way (Ajzen, 1991). In the Theory of Reasoned Action, attitude is accompanied by a subjective norm term to account for beliefs about the normative expectations of others (Finlay, Trafimow, & Moroi, 1999). The Theory of Planned Behaviour introduces another term, 'perceived behavioural control', to account for the beliefs about impediments or facilitating factors that could influence the likelihood of a behaviour being successfully undertaken (Ajzen, 1991).

This model, with weightings placed on attitudes, subjective norms and perceived behavioural control, is expected to predict whether a person will form the intention to behave in a particular way and, given a level of actual control, whether they will carry out the behaviour when the opportunity arises (Bamberg et al., 2003). This can be seen in Figure 3.3.

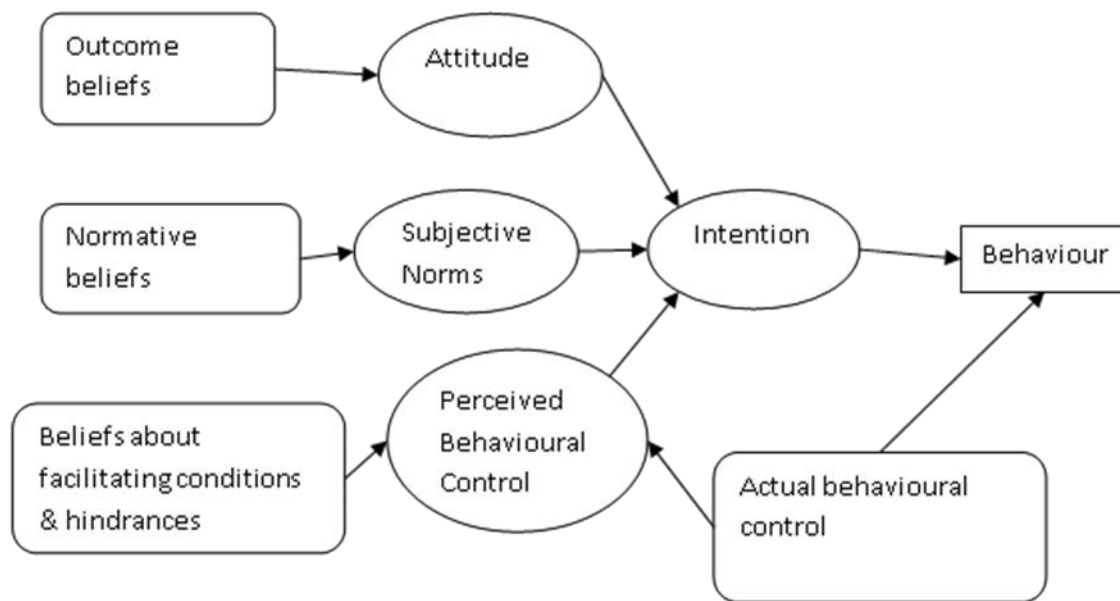


Figure 3.3 Theory of Planned Behaviour (Ajzen, 1991)

In this theory, the expected gains to be made from carrying out the behaviour are the main drivers of the behaviour (Jackson, 2005). The understanding of these gains has come from deliberation by the individual over the outcomes and associated probability. This theory has been used extensively in environmental behaviour research and attempts have been made to introduce new variables and relationships to improve its predictive and explanatory powers for travel behaviour, including anticipated emotion (Perugini & Bagozzi, 2001), perceived mobility necessity (Haustein & Hunecke, 2007) and past behaviour (Bamberg et al., 2003).

Experimental findings demonstrate the causal links between the constructs featured in the Theory of Planned Behaviour and travel behaviour (Bamberg et al., 2003; Gardner & Abraham, 2007; Heath & Gifford, 2002). It is argued that the deliberation in determining behaviour, while it might come from unfounded beliefs, means that new information regulates behaviour by altering these beliefs (Bamberg et al., 2003). The Theory of Planned Behaviour has been shown to account for the behaviour before and after an intervention, such as when university bus passes were introduced that changed the conditions of bus travel (Heath & Gifford, 2002).

A meta-analysis of psychological research into travel behaviour examined the constructs of the Theory of Planned Behaviour (Gardner & Abraham, 2007). The study found that, in determining people's use of cars for transport, negative attitudes to alternatives to car use were more important than positive attitudes to car use. This demonstrates that it may not be the appeal of the car, but rather than the lack of appeal of other options, that needs to be addressed in order to motivate behavioural change.

The Theory of Planned Behaviour assumes that intention plays a role in governing travel behaviour. However, people partake in urban travel for diverse reasons, and this includes habitual travel (commuting to work) and impulsive travel (a last minute trip to the shops), where intentions and behaviour may not be aligned (Garling et al., 1998). This is in contrast to planned trips (such as going to an organised meeting), where behaviour is more likely to follow from intentions. Travel behaviour models therefore benefit from the inclusion of determinants of behaviour that capture the characteristics of impulsive and habitual behaviour.

Theory of Interpersonal Behaviour

Triandis' Theory of Interpersonal Behaviour (Figure 3.4) is a highly comprehensive model of social behaviour developed in the late 1970s (Triandis, 1977). It features a vast array of determinants of behaviour, shown in Figure 3.4, covering to some extent all the identities that are examined in this chapter under the broad elements of attitudes, contextual factors, facilitating conditions, affect and habits. There are similarities to the Theory of Planned Behaviour, in that intention is formed through the influences of attitude and other factors, which then leads to behaviour. However, it separates itself through the significant recognition of social factors and emotions in forming intentions. The social factors extend from subjective norms, which represent the social influences in the Theory of Planned Behaviour, to also include self-concept and the role of the individual.

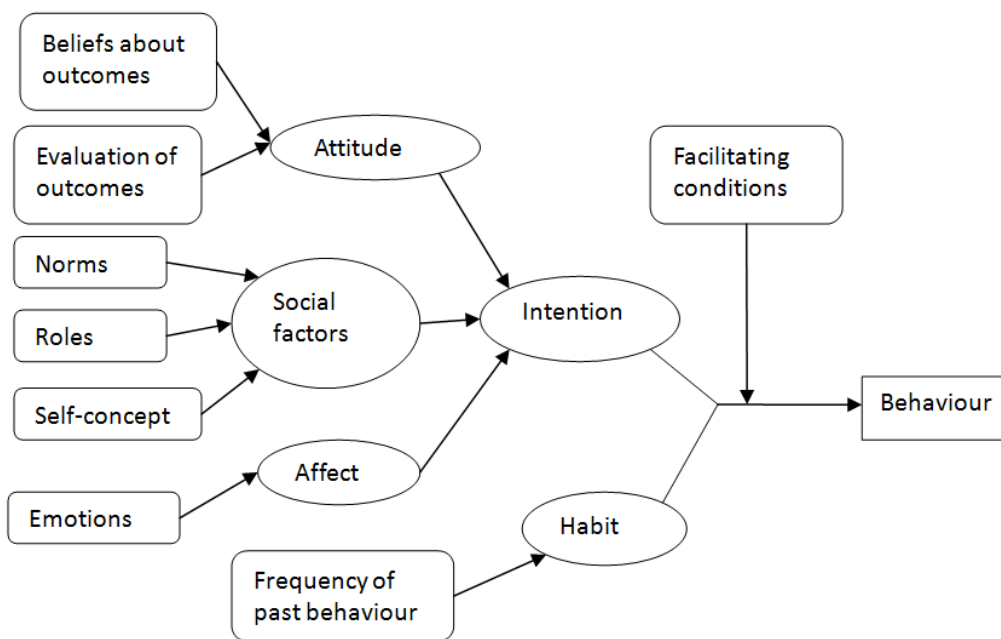


Figure 3.4 Triandis' Theory of Interpersonal Behaviour (Triandis, 1977)

This theory has not been employed as extensively as other theories of behaviour. This may be because of the added complexity due to the number of factors and relationships that are considered. However, it has proved to have additional explanatory power compared with other theories (Bamberg & Schmidt, 2003; Valois, Desharnais, & Godin, 1988).

3.2.2 Values and norms

Motivations to act are set within a framework of norms, providing a background to our behaviour of "regularities or consistencies in actions to some objects among individuals in a social system" (Hashimoto & Egashira, 2001). Values are principles which guide the way people think about different issues and actions. They are conceptions of desirable ways of behaving or desirable end states (Kujala & Vaananen-Vainio-Mattila, 2007). Norms and values are closely related in that norms are embedded with a system of values. Values can also be an antecedent to norms as discussed later in this section.

Norms provide both certainty and stability (Dewey, 1910). They help people make sense of the world, which "give the otherwise perplexed individual ready-made attitudes for comprehending his universe" (Katz, 1960). Unlike attitudes, norms and values are not specific to a situation or object. They underlie our general approach to life, where "living up to a value fulfils a particularly, highly abstract goal" (B. Verplanken & Holland, 2002). Norms and values provide a guide on how to behave and what goals are important. They are therefore much more embedded in the culture and psychology of individuals than situation specific attitudes.

Values and norms can either operate at a social level or at a personal level. While social norms and values depend on social sanctions to reinforce them, personal norms and values are maintained through internal support mechanisms of the individual (Bamberg et al., 2007). Personal value systems concern people's own judgement on how to live and they are linked to people's sense of self (S. Schwartz, 1977). Meanwhile social value systems are related to other people's judgements and reflect interactions with other people or groups (A. Nilsson, von Borgstede, & Biel, 2004). Personal norms and values are harder to shift than social norms and values because once they are established they do not rely on external reinforcement through interactions with others. They can be derived through the adaption and internalisation of social norms (Klockner & Matthies, 2004). The reason why norms become internalised is that they embrace conceptions of desirable ways of living for the individual, originating in personal and social values. Social context also influences how personal norms are formed, as it is a source of information to help people judge what is moral, as well as how favourable and easy a behaviour is (Bamberg et al., 2007; J. F. Jones, 1970).

There are two main types of social norms: injunctive and descriptive. They are distinguished by how they are formed and reinforced. 'Injunctive social norms' refer to rules about what is morally approved or disapproved (Cialdini, 2003). The base for these norms comes from some system of beliefs which determines the framework for what is acceptable (Seethaler & Rose, 2006). These norms are manifested by expressing views and behaving in a way that is considered acceptable in social settings. 'Descriptive social norms' involve the perception of which behaviours are typically undertaken and are derived from the observation of the conduct of others (Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). Therefore, while injunctive norms are reinforced by accepted moralities associated with behaviour, descriptive norms are reinforced by the accepted normality of the behaviour.

In a similar way to attitudes, values are formed through a variety of conditioning and learning experiences. Some values may be explicitly shared through established texts, such as those in religion. Most values are more subtly integrated into our society and emerge through a variety of social interactions and experiences. Depending on the extent to which values and norms are integrated into one's life, it may be a large feat to shift values, as it requires a reassessment of all issues to which a certain value is relevant. Attempts to change values, which are linked to one's self-concept, can potentially create great uncertainty for the individual's identity. Therefore values and norms need to be shifted slowly, so that people can

adjust their lives to these new values. This may include their patterns of behaviour and shifting how people identify themselves.

Injunctive norms are developed within the context of an array of belief systems and organisational factors that send signals as to what is socially acceptable conduct. Through the way one is brought up, one is instilled with certain values that are in turn built into injunctive norms. Through education and through their exposure to the world of politics, economics and status pressures, people are constantly changing and rearranging their injunctive norms. Descriptive norms also serve as a type of injunctive norm with the belief system being of conformity. Through one's perception of how the world works around them, and what other people are doing in this world, people form norms about what is prevalent practice in certain situations, in certain roles and for certain types of people. With evidence of car use being so public, with dense road systems, car parks and regular mentions in media and conversation, this may present a real challenge for behaviour change away from car use. However, the following marketing strategy effectively uses a descriptive normative message around bus use.

a bus advertisement colourfully suggesting that "everyone rides the bus" acting as enough endorsement to entice a bystander to use the bus (Parkany & Gallagher, 2004)

Descriptive norms are not shaped by what should be happening and do not provide a judgement on what is happening. They can be formed through any evidence of what is prevalent behaviour, not only through witnessing the behaviour. For example, a report on the problems of congestion on a city's road could evoke a descriptive norm around people using cars, as congestion implies car use is prevalent. Through this logic, in situations where undesirable behaviour is common, when one attempts to describe the undesirable behaviour that is currently taking place, one actually also describes what is typical behaviour, which helps reinforce descriptive norms related to this undesirable behaviour. As noted in experimental research on the interaction of descriptive and injunctive norms:

Within the statement "Many people are doing this undesirable thing" lurks the powerful and under cutting normative message "Many people are doing this." (Cialdini, 2003)

Descriptive norms have often been underestimated as a tool for social change according to research that demonstrates the effectiveness of normative messages (Cialdini & Goldstein, 2007). Normative messages of this nature are not prescriptive and may be powerful in situations where people don't want to be challenged. The influence of descriptive norms

involves less cognitive processing than injunctive norms. This means they can be more powerful because they can escape the attention of people who are unreceptive to new information that they see as threatening or taxing for them to contemplate. Normative messages were shown to be 34% more effective in encouraging people to reuse their towel at a hotel than messages that appeal to people's attitudes and values (Griskevicius et al., 2008). The potential for using strategies that address social norms is therefore seen to be significant for different social issues. In a number of applications for various behaviours, an appeal to descriptive norms has proved to be more effective than traditional messages.

Whereas many economists, political leaders, and policy makers emphasize that climate change can only be managed by using costly financial incentives or developing expensive technology, we argue that a strategy harnessing social norms provides an effective and low cost strategy to help reduce our impacts on global warming. (Griskevicius et al., 2008).

There are several theories on the ways descriptive norms influence people. When one examines the probability of others all being wrong in their behaviour, provided that they are independent actors, one concludes that there is a very small chance that the dominant behaviour is wrong even if it goes against one's better judgement (Shiller, 1995). He quotes from a famous study which observed this phenomenon through an experiment in which a subject of a study was in a room of actors pretending to be other participants who would systematically answer questions incorrectly.

"To me it seems I'm right, but my reason tells me I'm wrong, because I doubt that so many people could be wrong and I alone right". (Asch, 1952 cited in Shiller, 1995)

By using descriptive norms, an individual makes use of other people's knowledge without having to develop one's own knowledge through one's own experiences in reality (Egashira & Hashimoto, 2002). The effects of normative messages around other environmental behaviours has been examined, such as the tendency to litter in clean or littered environments, in which a littered environment demonstrates the prevalence of littering (Griskevicius et al., 2008). Although there has been little research on the effects of descriptive social norms on travel behaviour, the principles should be transferable.

Social norms have been demonstrated to be particularly important for health behaviours (Finlay et al., 1999) and for environmental behaviours (Marshall 2005). Travel behaviour fits both these categories of behaviour, so it is worthwhile to further investigate the role of social

norms in travel behaviour. The Theory of Planned Behaviour includes the subjective norm as a determinant of behaviour. Subjective norms towards car use have been found to have a significant effect on intention to drive. This implies that a social environment that endorses, promotes and facilitates people driving has an important influence in people's decision to intend to drive (Gardner & Abraham, 2007). Attitudes are also potentially dependent on values, as value expression is one of the functions of attitude (Katz, 1960).

There are a range of values that could be relevant for travel behaviour. Basic values have been described as a way to conceptualise other values. These are self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition and benevolence (S. Schwartz, 2005). Certain values can encourage the uptake of sustainable transport options, while others can be detrimental to modal shifts away from cars. In travel behaviour research, self-interest has been shown to be more important than norms related to the welfare of others (Nordlund & Garvill, 2002).

the present societal norm of self-interest threatens people to be ridiculed by others for displaying such 'soft' pro-social behaviour (Warlop, Yzebyt, Corneille, Liegeois, & Cornelissen, 2006)

This poses a challenge to the promotion of behaviours that offer many benefits beyond the individual, which is the case for using public transport and active transport (C. M. Collins & Chambers, 2005). However, appeals to changing behaviour need to be consistent with people's current values in order for people to see the appeal as justified.

If the target behaviour is not recognised as an injunctive social norm but rather as an unjustified, unfair external constraint to current behaviour, the recipient of the persuasive message is likely to respond with reactance and refuses to respond positively to the message content. (Seethaler & Rose, 2006)

In developing campaigns to reduce car use, it is important that people do not feel they are unjustly being asked to change their travel behaviour. It is therefore necessary to consider the roles of various values which indicate people's readiness to adopt socially responsible behaviours.

Norm Activation Theory and Value-Belief-Norm Theory

The Norm Activation Theory and the Value-Belief-Norm Theory are the two most established theories focusing on the roles of values and norms. Norm Activation Theory was established

to understand pro-social, altruistic behaviours (Jackson, 2005; S. Schwartz, 1977). Personal norms play a role in behaviour when people have awareness of the consequences of their behaviour for the welfare of others and also ascribe some of the responsibility for the consequences to themselves, thus arousing a feeling of personal obligation (Harland, Staats, & Wilke, 1999). The process of normative decision-making can only start if one is aware of the need to address social issues (Klockner & Matthies, 2004). In other words, if one doesn't recognise the use of cars as being problematic to the environment, no normative decision-making will occur.

The Value-Belief-Norm Theory links Norm Activation Theory with Ecological Value Theory. It predicts that the influence of values on behaviour is mediated by a number of steps which could potentially be used to explain why the incoherence between values and actions occurs. It should be noted that personal norms rather than social norms are central to the theory. This is because social norms reinforce current social situations and the theory is the basis for how social change can occur (P. C. Stern, Dietz, Abel, Guagnano, & Kalof, 1999). Figure 3.5 demonstrates the stages of the Value-Belief-Norm Theory.

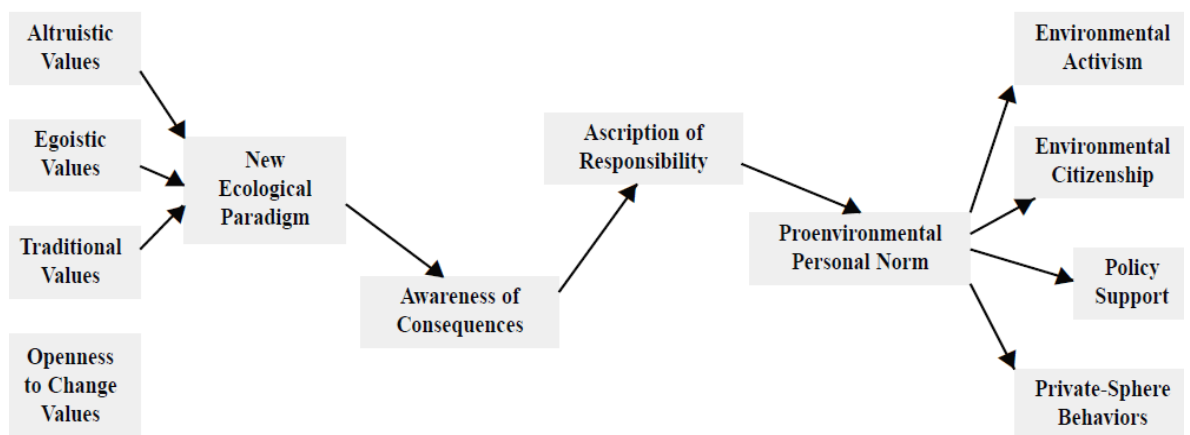


Figure 3.5 Value-Belief-Norm Theory (P. C. Stern et al., 1999)

The three values that provide inputs for the new ecological paradigm are altruistic values (which are also referred to as self-transcendent values because they go beyond the individual), egoistic values (which are also referred to as self-enhancement variables) and traditional values (P. C. Stern et al., 1999). Openness to change values also influences the stages of the Value-Belief-Norm Theory (P. C. Stern et al., 1999). Although some individuals may expect enough personal gain to justify provision of the collective good on egoistic grounds, most are

also motivated by a broader, altruistic concern — a willingness to take action even if some others won't (P. C. Stern et al., 1999).

Self-transcendent values and self-enhancement values have been used to explain pro-environmental behaviour, where the environmental problems occur at a local or global level. Self-transcendent values acknowledge others as equals and the needs of others, while self-enhancement values focus on one's own success and dominance (A. Nilsson et al., 2004). It was found that only action on self-transcendent values motivated action for global issues (Milfont, 2007). This may be relevant to urban transport, with an array of local and global environmental and social issues present, as demonstrated in Chapter 2. Transport users were shown to be more concerned with the welfare of others with respect to travel time while they were more interested in the costs associated with their own travel (Tilahun & David, 2006). Therefore, different issues afford different levels of altruistic and egoistic considerations.

There are a number of different pro-environmental behaviours that can result from the activation of personal norms in the Value-Belief-Norm Theory. These are consumer (or private sphere) behaviour (e.g. the way someone commutes to work), environmental citizenship (e.g. advocating cycling) and policy support (e.g. supporting investment in public transport infrastructure). Policy support was shown to be influenced the most by norms while consumer behaviour was the least affected (M. Nilsson & Küller, 2000; P. C. Stern et al., 1999). There are clearly other interpersonal factors influencing environmental action. In a study which also considered the role of group identity, communication patterns as well as social norms, the explanatory power of the Value-Belief-Norm Theory increased significantly (Rimal & Real, 2003). There are factors which affect the translation of personal norms into actions, which are not discussed in the Norm Activation Theory (Jackson, 2005), such as external social or institutional constraints. In the case of car use, this could be the expected structure of one's working day, the separation of different activities and the requirements for flexibility in travel.

The salience and priming of values

In making decisions, values are used in determining which outcomes are desirable and what actions are acceptable. However, there are two phenomena that hinder the use of values in deciding on which course of action to take.

- Often a number of competing values need to be traded-off; an action may therefore compromise one or more values in order to be in line with another value.

- People do not always have all their values at the forefront of their minds when making decisions. This is particularly relevant for everyday decision making when there are numerous factors and distractions. These values will therefore not influence the decisions (B. Verplanken & Holland, 2002).

Verplanken & Holland (2002) have conducted research to examine how the self-centrality of the values and priming the values influenced the coherence between values and behaviour. The self-centrality of a value is how much a person uses this value to define who they are. Priming pro-social values involves unobtrusively bringing subtle cues in the environment, which activate available pro-social memory content and subtly guide behaviour in pro-social directions, typically without the recipient of the information being aware (Warlop et al., 2006). It was found that behaviour was more in line with the values a person held if that value was central to the person and the value was primed prior to making the decision to seek information and choose to behave in a particular fashion, as shown in Figure 3.6.

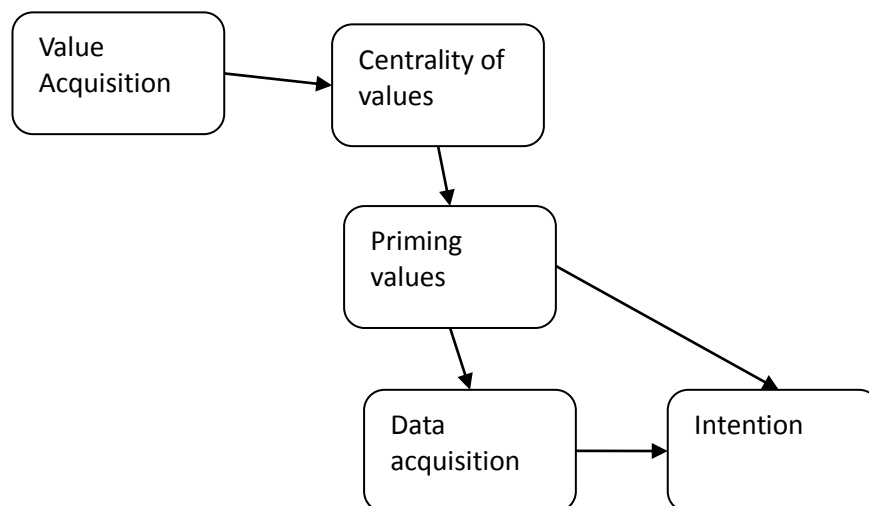


Figure 3.6 Priming values affects data acquisition (B. Verplanken & Holland, 2002)

This priming would lead both directly to intentions to behave in line with this value as well as the promotion of the acquisition of data which is related to the primed value. As Verplanken concluded:

...it seems that in spite of our capacity to hold elaborate value systems, we do not always live up to them. On the other hand, once we perceive the situation as being relevant for a value that is central to our self-concept, we have the cognitive and motivational architecture to act on that value spontaneously (B. Verplanken & Holland, 2002).

3.2.3 Perceived and actual efficacy

Forethought about future states and the results of attempting behaviour have been linked to whether people undertake behaviours (Schwarzer & Fuchs, 1995). The concept of efficacy, which is the ability to attain a desired result or affect, has therefore frequently been noted as a determinant of behaviour. This relates to both one's ability to successfully undertake the behaviour, known as self-efficacy, as well as whether the completion of this behaviour leads to desired outcomes, defined as outcome efficacy (Maddux, Norton, & Stoltenberg, 1986). It is not only the actual efficacy, but the perceived efficacy that influences whether one attempts the behaviour and how persistent they are in their attempt (Tavousi & A., 2009). Self-efficacy and outcome efficacy characterise aspects of the steps required to attain the desired result, as illustrated in Figure 3.7.

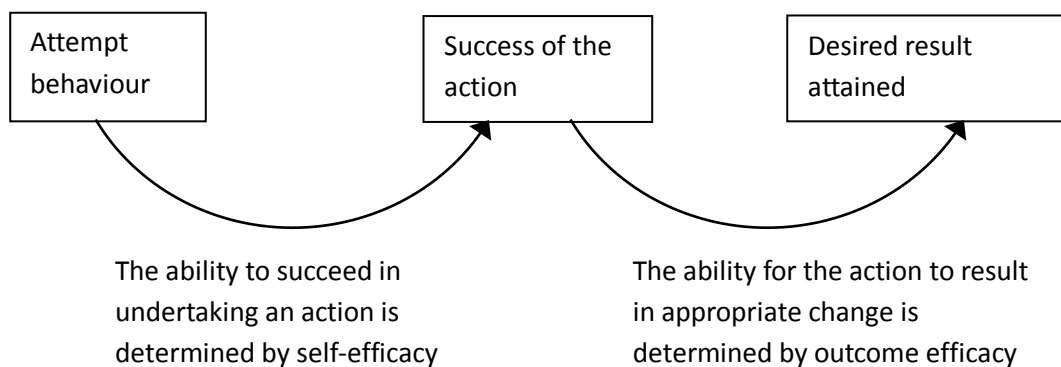


Figure 3.7 Efficacy in attaining desired outcome through behaviour (Conceptualised by the author from (Maddux et al., 1986))

Complex behaviours, such as urban travel, may involve numerous factors that could impede or facilitate the success of the behaviour. In order to attain the desired result, it may be necessary that a number of steps are completed, involving a series of actions and co-operation from others. Support from governing bodies may be required to facilitate such actions and co-operative effort (Maddux et al., 1986). Outcome efficacy may also rely on the occurrence of events that are not controllable or predictable. With large-scale problems, such as climate change, there is uncertainty as to how the change in behaviour will affect large-scale issues. With the need for mass participation in efforts to reduce greenhouse gas emissions and the uncertainty due to limitations in the ability of science to predict future climates, people may have low perceived efficacy of behaviours. If people believe that car use isn't going to be reduced in the wider population, this reduces people's sense of outcome efficacy, particularly when there are constant reminders of the current prolific use of cars in the streets, socialisation and media. This can lead to complacency for changing behaviour (Kaplan, 1983).

There's a feeling that as an individual, no one can make much difference. People are easily overwhelmed by the scale of the problems and the effort they think is needed from them and they default to the "I can't do everything, so I'll do nothing" response. (Hounsham, 2006)

In contrast to understanding how behaviours could affect the future, it is also of interest to examine the concept of situation-outcome expectancy, a term used to describe the anticipation of how the future will look while maintaining similar patterns of behaviour (Schwarzer & Fuchs, 1995). Indeed, if one believes that the future will be sustainable and liveable without the need for action, this may be a deterrent to use of more sustainable modes of transport. Therefore this interferes with one's efficacy, because they can feel that they don't need to take action in order to achieve desired results.

With broad issues with levels of uncertainty, such as climate change, the formation of self-efficacy in the community is highly important (Kaplan, 2000). It is necessary to promote people's self-efficacy through different means that create a sense of consistency and confidence in people's ability to be part of solutions.

There can be disagreement about the most appropriate way forward for some aspects of environmental amelioration, leaving the individual feeling that there is no point in doing something they don't want to. (Hounsham, 2006)

Both internal and external factors need to be addressed in order to build up or reduce one's efficacy. Certain strategies to address these problems may indeed cause a reduction in one's sense of power and control over the situation, i.e. agency. This could be through information provision about the problem, particularly in the absence of messages about actions individuals can take (Anable et al., 2006). In supportive environments for particular behaviours, people have higher actual self-efficacy. People's capacity to undertake the behaviour also needs to be built up and this can occur through developing initiatives and institutions that:

- Demonstrate the steps that are being taken on a population level
- Provide support through social networks (Hounsham, 2006)
- Show that peers and a diverse group of people are able to undertake the behaviour
- Show that there is community co-operation to adopt behaviours that address environmental and social problems
- Facilitate people to set incremental goals, so that the behaviour won't seem daunting – as a casual commitment or a more formal and public contract (Anable et al., 2006)

- Provide monitoring and reinforcement through scheduled feedback about how their efforts are helping to reach various desired outcomes (A. Bandura, 1977)
- Develop plans to implement behaviour. In the Theory of Planned Behaviour it was found that the influence of intention on behaviour was stronger when participants were induced to form an implementation plan of the behaviour (Garling et al., 1998; Garling & Steg, 2007).

Actual self-efficacy is determined partly by perceived efficacy as people develop their actual control from previous attempts attaining outcomes (Garling et al., 1998). In turn, perceived self-efficacy is influenced by the number of times an action has been attempted, where someone may attempt behaviour more if they have a greater success rate, which is governed by actual behavioural control. This reduces the negative impacts of the occasional negative failure (A. Bandura, 1977). So there is a positive feedback loop between actual and perceived self-efficacy.

Efficacy plays an important role in attaining sustainable urban transport. It is, by definition, the governing factor as to whether different actions will be successfully performed and lead to desirable results. The perceived efficacy of individual's modal choices as well as that of transport policy makers (whether or not they believe their strategies will yield desirable outcomes) determines the resulting urban transport landscape. Transport users contemplate whether they can make a difference to social and environmental problems, as well as whether they can follow procedures for using different modes of transport and arrive safely and reliably. Given the very different nature of different modes of transport, this may prove to be a barrier to behavioural change, thus perceived efficacy should be given substantial consideration.

As adoption of new behaviour involves a lot of uncertainties and therefore risks, the assurance from the credible neighbours demonstrate that the change is worth making (Olga, 2009).

People are required to have a different range of skills and different concepts of timing and navigation to move through transport systems. The potential to be lost, confused or late represents different ways someone could fail in taking a mode of transport. Self-efficacy in transport does not only refer to being able to use a mode of transport to get to a destination, but also the ability to achieve this efficiently, without becoming overly stressed or frustrated.

If people foresee themselves failing in these ways, this could reduce their willingness to change their mode of transport.

People fear and tend to avoid threatening situations they believe exceed their coping skills, whereas they get involved in activities and behave assuredly when they judge themselves capable of handling situations that would otherwise be intimidating (Bandura, 1977)

Beyond this, the achievement of embracing the attributes of different modes of transport is also required for people to willingly sustain a modal shift. With the lack of similarity between attributes of certain modes of transport, this could require substantial adjustments. For example, someone who is accustomed to the flexibility of car use will have to adjust to the lower flexibility of public transport. Through enhancing and increasing the profile of attributes of public transport and active transport, people may become more willing to believe they will be able to, and more importantly, that they will want to sustain a modal shift.

The basis for efficacy theories is that people are motivated by the potential value of possible outcomes as well as the likelihood of the outcomes. The combination of perceived self-efficacy and outcome efficacy directly influences the likelihood of obtaining an outcome. It was shown that people with a lower perceived outcome efficacy, were more easily persuaded about their self-efficacy (Maddux et al., 1986). This implies that people who don't conceptualise a strong link between their ability to change modes of transport and improvements to sustainability may be more receptive to information on self-efficacy than outcome efficacy.

Efficacy plays a role in a number of behavioural theories and has been shown to have additional explanatory power in other theories. The inclusion of perceived behavioural control in the Theory of Planned Behaviour increases the explanatory value of the model significantly. Perceived behavioural control is similar to self-efficacy in that it refers to the perceived ease or difficulty of undertaking behaviours. In models of travel behaviour, it has proved to be particularly important, with perceived behavioural control over non-car use yielding a strong effect on behaviour. This demonstrates that in comparison to car use, there is a lack of a supportive environment and community capacity to use of non-car forms of transport (Gardner & Abraham, 2007). In the norm activation theory, perceived self-efficacy has been found to inhibit the influence of personal norms on travel behaviour (Wall et al., 2008). The Theory of Interpersonal Behaviour does not explicitly include the role of perceived behavioural control or self-efficacy in determining intention. However, the effect of intention on behaviour

is mediated by the actual ability to complete the behaviour, expressed through the terms 'facilitating conditions'.

Health Belief model

The Health Belief Model emphasises how intention to undertake risk-reduction behaviour is informed by perceived threat of a health issue along with the self-efficacy of the behaviour (S. Day, van Dort, & Tay-Teo, 2010). The threat is determined by the perceived susceptibility and perceived seriousness of the health issue. The perceived benefits and barriers of the behaviour in dealing with the threat determine self-efficacy in this model. Motivation to be concerned about health matters and triggers to activate health behaviour are both factors that enhance the potential for action. This can be seen in Figure 3.8.

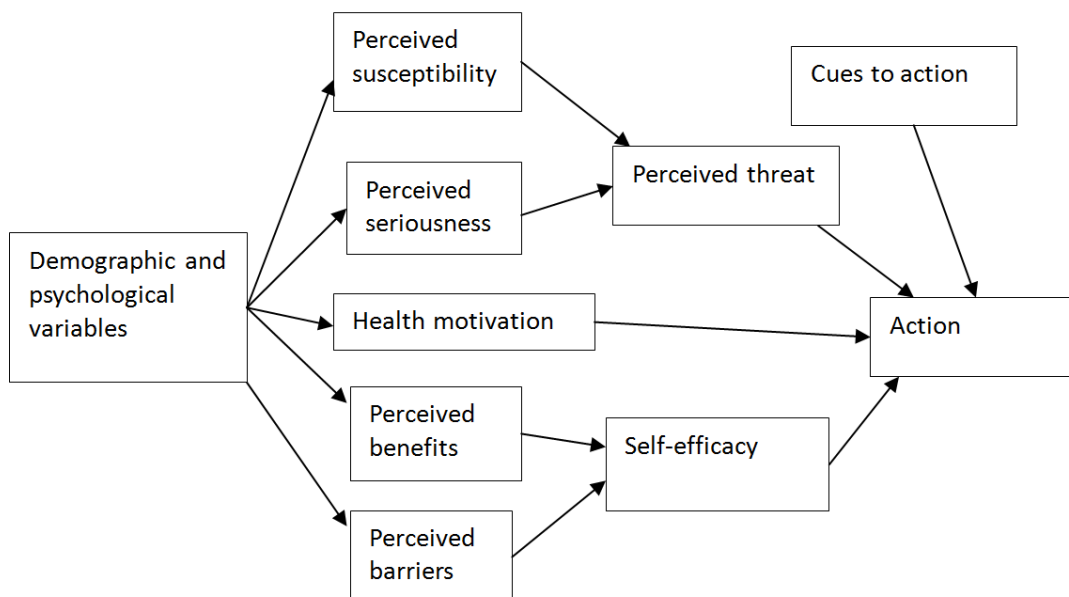


Figure 3.8 Health belief theory - Source: (S. Day et al., 2010)

Such theories have proved to have some utility, particularly in considering strategies to encourage direct health actions, such as screening mammography. However, in a similar way to the Theory of Planned Behaviour, these theories assume people operate rationally for their own gains.

3.2.4 Habit

Intuitively people have an understanding of habit as a behaviour that is regularly undertaken. Therefore it is confusing for people to think of habit as a behavioural determinant (Shove, 2010). The term 'habit' refers to the way behavioural choices are made and not the regularity of the behaviour (Steg & Vlek, 2009). However, it is related to past behaviour, repetitive

behaviour and a reduction in the need for deliberation over decisions about behaviour (Fujii & Garling, 2003b, 2007; Gärling & Axhausen, 2003). Habitual behaviour is described as learned sequences of acts or scripted behaviour that become automatic responses to specific situations or environmental stimuli, which may be functional in obtaining certain goals (Bamberg et al., 2003; B. Verplanken et al., 1997). While researchers previously believed that consciousness was not required while undertaking habitual behaviour, consciousness has since been shown to be involved throughout the behaviour (Eriksson, Garvill, & Nordlund, 2008).

The strength of habit can vary and depends on the conditions in which people undertake the behaviour. The habit strength increases if many scripts¹ from different situations are stored in memory and the script is easier to retrieve if there are no alternative scripts stored in memory. Therefore the script for car use would be stronger if there was a script for driving to the shops, to work, to school and to other activities (Fujii & Garling, 2003b; B. Verplanken et al., 1997). However, it is weakened if there are also scripts for using public transport, riding a bike or walking to travel to these places. It should be noted that there is not always an equivalence between repeated past behaviour and habit, as one could repeat the original rationale when choosing to undertake the behaviour again (Aarts, Verplanken, & Knippenberg, 1998; Bamberg et al., 2003). Repeated action could also result in a number of positive feedbacks between behaviour and behavioural determinants, including increased perceived and actual behavioural control, favourable attitudes and even social norms. One becomes more familiar with the actions required to successfully take a mode of transport, with its attributes and with the other people who use the mode of transport. It is only when scripts are developed that the behaviour becomes habitual.

Habit can affect the way people seek and respond to messages. The inhibiting effect of habit on information acquisition was examined in a series of experiments. These demonstrated that people who had strongly habitual behaviour were less likely to seek information or to take notice of information about the behaviour (B. Verplanken et al., 1997). Indeed, habitual behaviour shapes how people see the various messages that they are exposed to.

Over time, we develop habits of thought and expectation and configure incoming information to conform to this frame (Anable et al., 2006)

¹ Scripts organise an understanding of event-based situations to guide a sequence of behaviours (Abelson, 1981)

Satisfactory experiences when undertaking the behaviour enhance the tendency to repeat the same course of action. The behaviour becomes more strongly associated with the goal that one initially wished to attain (Aarts et al., 1998). Frequent performance of an action in a specific situation facilitates the ease of activating the mental representations of this action by situational or environmental cues, thereby increasing the chance of this action being pursued (Steg & Vlek, 2009). In the domain of urban travel, behaviour can often be repeated on a daily basis. The development of habit reduces the costs and effort associated with undertaking this repeated travel behaviour (Bamberg et al., 2003). In contrast, other non-habitual options for travel still require an extensive degree of cognitive effort and involve uncertainty. This is because transport is complex with respect to the related attitudes, the steps involved in taking transport and the unknown social repercussions (Gärling & Axhausen, 2003).

Mode choice normally involves many alternatives, which can be chosen in different combinations, and the frequency at which transportation behaviour occurs is greater than the frequency of other kinds of consumer behaviour. (Bronner, 1982)

With the predominance of car use, habit formation around car use has been the subject of numerous studies (Eriksson et al., 2008). Evidence has been found for the strong mediating effects of car-use habit on the other determinants of behaviour for travel, including inhibiting effects on intention (Garling et al., 1998) and personal norms (Staats, Harland, & Wilke, 2004). Habit mediates intention in the Theory of Interpersonal Behaviour. Habit has been shown to weaken the influence of attitudes and subjective norms (Eriksson et al., 2008). Therefore behaviour change strategies which address these determinants of behaviour, without dealing with habit, risk failure (Klockner & Matthies, 2004).

To reduce the negative effects of habit on behaviour change, one can break the habit. This could be done by focusing on the determinants of behaviour that still have an influence under habitual conditions. Surges in effort to create social norms and “facilitating conditions” around other modes of transport may be effective. Events such as Ride to Work Day demonstrate their ability to break car-use habit through such efforts (Rose & Marfurt, 2007). The ability to reduce the strongly habitual behaviour of smoking also demonstrates that changes in the social support and the context in which a habitual behaviour is carried out creates opportunity for people to engage cognitively in decisions about their behaviour. Currently, this lack of social support is more in line with the habitual use of non-car modes of transport. Therefore, individuals who use active transport and public transport may be able to break their habitual mindset more easily to engage in cognitive processing than people who currently use cars. If

social norms (rather than only personal norms) around car use are addressed, this may decrease the social support for car use and hence prove more fruitful in unfreezing car use habits.

Verplanken et al. (2008) looked at the ways behavioural change could be improved by mitigating the effects of habit. They attempted to break effects of habit by manipulating either accountability demands, level of attention or context. A change in context was found to be the most effective way of breaking habits. Accountability did not significantly affect people's habitual behaviour, although they did spend slightly longer studying information than people with no accountability. Breaking habits was shown to be possible by temporarily changing the conditions of travel (Fujii & Garling, 2003b), but in order for long term behavioural change, it was necessary to then target other determinants of behaviour such as personal norms (Klockner & Matthies, 2004). Forced reflection on the contextual factors of car use combined with the availability of alternatives and sufficient information about these alternatives was shown to change some habitual behaviour (Anable et al., 2006).

Changes in life situation or other environmental cues can offer potential stimuli to reconsider habitual behaviour as the environmental cues and constraints change (Klößner & Matthies, 2004). When circumstances in one's life change, one may be forced to change behaviour, as previous travel patterns are no longer viable. Such a change could be travelling to work in the city where there is only high-cost parking available. Figure 3.8 demonstrates that people go through a range of events during their lives (marked with black dots in the figure) that could affect their travel behaviour. The level of influence of these events is shown by the scale on the right of the figure. The percentage of people who experience the life event is in brackets and the average age that this event occurs is in the scale at the bottom of the graph. These represent potential times for breaking habits (Klößner & Matthies, 2004).

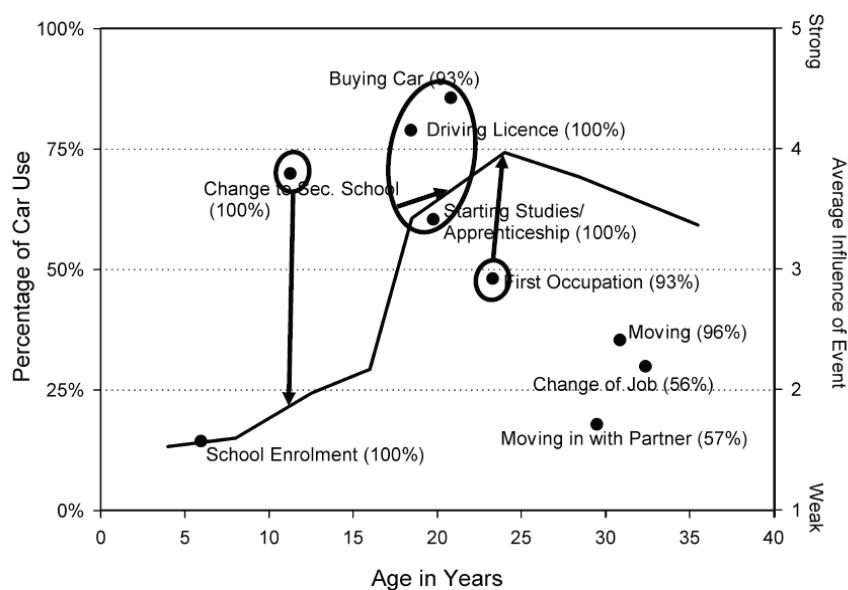


Figure 3.9 Influence of life changing experiences on car use (Klöckner & Matthies, 2004)

During these times of instability in one's life, people may be more receptive to new information which could change one's behavioral, normative or control beliefs and therefore influence behaviour (Bamberg et al., 2003). Therefore, strategies to target social influences at these points in people's life may prove to be more effective. The life events in this study include education, employment, moving house and purchasing a car. Once a habit is broken, people are more likely to partake in deliberative decision-making.

By inducing a more deliberate decision process (i.e. reducing habit), more attention was paid to contextual factors such as the weather, distance, time, cargo and available alternatives and their consequences. Hence, the role of habit was revealed and the relationship between intention and behaviour was increased (Garvill et al. 2003 cited in Anable 2006)

There are a number of stages for someone to go through from behaving in one way to behaving in another as shown in the Stages of Change Model (Anable et al., 2006; Halpern et al., 2004). This model recognises that due to the habitual nature of the behaviour along with other factors, behaviour change occurs over time and through stages, which can involve different mindsets and actions. These are pre-contemplation, contemplation, preparation, action and maintenance. During the pre-contemplation stage, the person is usually still engaged in a habitual behaviour which they haven't considered changing. Contemplation and preparation take the person through increased awareness of the issues associated with existing behaviour and the needs and opportunities to change. Action involves people taking

steps to change their behaviour, such as attempting to use a different mode of transport. Maintenance implies that the new behaviour becomes a part of the person's life as it is established as a habit (Anable et al., 2006; Halpern et al., 2004).

3.2.5 Emotion

Emotion can be treated as a multi-faceted phenomenon because it comprises expressive reactions, psychological reactions and subjective feelings (D. Martin et al., 2008). Affect is the conscious experience of emotion. Emotions are often characterised by the intensity of the experience that makes up a response to a situation, although weak emotions also exist (Sjoberg, 2006). Emotions are not only developed by conscious processing, but they can also come from the automatic processing of a situation. Emotion has been closely related to the concept of instinct (Gross, 1999; McDougall, 2003). Therefore emotions can either act with or without the awareness of the individual (Mesken, 2006).

Emotion as a determinant of behaviour can be manifest through experienced emotions and anticipated emotions (C. P. S. Fong & Wyer Jr, 2003). It has often been associated with other determinants of behaviour, such as the affective component of attitudes (G. Day, 1972) or the emotional antecedent to personal norms (Prinz, 2006), but it has been poorly understood or neglected in much literature. Nevertheless, the importance of emotions in governing decision-making and behaviour is becoming more widely researched (Gross, 1999; McDougall, 2003). It is the matter of characterising emotions that is difficult. There are general emotions, which are not situation specific. They have a clear positive or negative orientation, which gives the individual a level of pleasure or displeasure. There are emotions which are social and arise in relations between persons or other social artefacts and are generally strong and compelling (Manstead, 2005). There are a number of theories which postulate the existence of primary emotions from which all emotional experiences are derived from (J. Russell, 1980). Ten primary emotions noted in literature are interest, joy, surprise, sadness, anger, disgust, contempt, fear, shame, and guilt. (Izard, 1977, cited in (C. Allen, Machleit, & Kleine, 1992)).

The way people respond emotionally to behaviours comes from a range of factors, including previous experiences, stories which convey emotions and the social context in which one expresses the emotion. Associations between different events and emotional responses can be developed through previous experiences with similar responses. Appraisal theory, for example, explores the idea that when an event arises, the sense one makes of this event determines how one will react emotionally (Manstead, 2005). Emotions are developed and transferred through a number of social experiences with people being compelled to share their

emotions. It has been shown that a large proportion of emotional experiences are shared with others as they recount emotional events. This in turn elicits emotions in the listener who may then continue to share this emotion (Manstead, 2005). The formation of emotions throughout social networks could be powerful in developing the emotions about modes of transport at a societal level, with people making “use of others’ emotions in interpreting the emotional meaning of situations and events” (Manstead, 2005). The way that social relationships and emotional responses interact demonstrates the social nature of emotions. Speculations about how others will react to one’s emotional behaviour may dictate whether one behaves emotionally or not. It has been shown that people are more likely to express their emotions in the presence of others. This indicates that emotions may indeed have a social function, in that they help regulate social relations (Manstead, 2005).

Emotional responses are not as easily suppressed or as completely inhibited as conscious actions, because the responses can be independent of awareness. They are therefore independent of consciously made evaluation. However, there are other factors that govern emotional responses. For instance, emotions are dependent on an individual’s characteristics such as mood, temperament and personality, as well as social context. It is argued that context mediates the role that social interactions play in determining both the appraisal of an event and the reactions to it. The object that the emotion is about is frequently social, such as a person, group, event or an artefact, such as a car. Many emotions are also social, to the extent that they rely on the existence of others for their existence and purpose (Manstead, 2005). The fear of rejection that someone may feel for not driving a car is dependent on the people who may reject them, as well as a desire for their acceptance.

The determinants of affect in some theories of behaviour are represented as beliefs or perceptions. In the Theory of Planned Behaviour affect arises from the sum of the weighted evaluated belief scores (Brunner, 1982). In order for perceptions to influence behaviour, it was found that perceptions had to lead to affect which in turn led to behaviour. With the absence of affect, perception had no significant effect on behaviour (Parkany & Gallagher, 2004).

Emotional responses are said to be disorganised, which leads to ineffective behaviour. Emotions have often been perceived negatively in decision-making, as they are seen to inhibit people’s ability to acquire useful information, leading to irrational behaviours (Baumeister, Vohs, Nathan DeWall, & Liqing Zhang, 2007). While emotions can be seen to detract from appropriate actions and create weaknesses in people, they have proved to play a functional

role in governing behaviour. They have been said to be an indispensable precursor to any action (Wenstøp, 2005). In fact, emotions are thought to have evolved from functional behaviours which protected the species (Richins, 1997) and have proved essential in rational decision-making (Wenstøp, 2005). Both positive and negative emotions are used in discerning the appropriate course of actions to take.

“...a serial processor that has to deal with many different problem situations needs a mechanism for interrupting its work in one problem to direct its attention to another. It therefore needs a hierarchy of goals to set priorities. Emotions are interrupting mechanisms directing the processor’s attention to newly perceived threats or opportunities affecting urgent needs. Their function is to rearrange priorities and set a new hierarchy of goals.” (Wenstøp, 2005)

The need for emotion in rational decision-making has become evident from a series of experiments conducted by Damasio (1994). He examined the decision-making processes of people with damage to their prefrontal lobe which had affected their capacity to have emotions. It was found that the stimulus and guidance of emotion is a necessary component of rational decision-making without which rational thought slows and disintegrates (Wenstøp, 2005). For complex situations where multiple and potentially conflicting emotions arise, it may prove difficult to form meaningful attitudes. Hence, behaviour may develop directly from emotions rather than through the evaluations they help establish (C. Allen et al., 1992). Emotions should therefore be seen as an integral part of behaviour, which should not be completely suppressed, and could be used constructively as part of behaviour change strategies. It is beneficial to recognise and understand the emotions associated with both using modes of transport and changing behaviour in general. While thoughts are often discussed and analysed during public consultation, there is less effort put into uncovering the emotions that people feel when using, observing or contemplating different modes of transport.

The social dimension of emotion has shown the ways that emotional experiences can spread through community and can guide future emotional responses. With the currently high presence of car use in people’s lives (not only through their use, but also in public spaces, socialisation and mass media), the emotional responses associated with their use are likely to be significant in the spread of car culture or a change in transport culture. The extent to which emotion contributes to the current level of car use has been studied by a number of

researchers. One study demonstrated that people's affective link with their private vehicle explained 12% of car use for a variety of trips (Lois & López-Sáez, 2009).

The Theory of Planned Behaviour has been expanded to include terms related to emotion. The anticipated emotion associated with an action was found to be an additional determinant of behaviour which increased the explanatory power of the theory (Perugini & Bagozzi, 2001). Emotion, in this instance was related to the personal goals associated with the behaviour rather than the action being undertaken. Emotion also contributes to the expectancy value of attitude. However, this is mediated through conscious interpretations of one's emotions, in order to use the emotion to evaluate the object of the attitude.

The theory of interpersonal behaviour has emotion as a distinct element which directly influences intention (Erevelles, 1998). The affective term in this theory accounts for immediate emotional effects that are not mediated by cognitive processing and evaluations.

Expectancy-value calculations represent the 'cold' cognitive assessment and evaluation of long-term behavioural consequences, whereas the affective measure should represent the 'hot' evaluations of consequences associated directly with the performance of the behaviour (Bamberg & Schmidt, 2003).

The importance of emotion in transport use is still not well researched. However, emotion has been shown to facilitate the organisation and prioritisation of people's behaviours which could be a key determinant of behaviour in complex behaviours such as urban travel. Emotions are less dependent on consideration of the attributes of the mode of transport than on associations with symbols and perceived reactions of others. They are therefore highly dependent on the social and cultural context of the individual. It is therefore interesting to investigate the messages that are part of these social and cultural contexts and how they could affect the emotions of people using different modes of transport. Because people have a strong propensity to recount emotional stories and for people to feel the emotions portrayed, messages conveyed through storytelling in film and conversation may be powerful in people's emotions towards different modes of transport.

3.2.6 Investigating determinants of behaviour

Researchers must find appropriate ways to investigate the determinants of behaviour discussed in this chapter. This can be done by either directly asking participants about how they perceive their determinants of behaviour, known as self-reporting, or through less direct methods of inquiry that may be done through experiments or empirical observations. With

the abstract nature of these determinants of behaviour, it can be difficult to find a reliable method to gain an understanding of them or measure them.

Habit has been measured traditionally by requesting participants to reflect on past behaviour (Aarts et al., 1998). However, because recall of the frequency of behaviour may be difficult and “habits refer to the way behavioural choices are made, and not to the frequency of behaviour” (Steg & Vlek, 2009), other methods have been established. One method involves requesting participants to state quickly the mode of transport they would use for an array of urban trips. It was thought that the time restraints would enhance the use of script-type representations involving that particular activity (B. Verplanken et al., 1997). In another study, participants were asked to rate their agreement to the two statements which reflected behaviour as “a matter of course” and “automatically” taken (Staats et al., 2004).

Self-reporting has been used to gain insights into attitudes (Bamberg et al., 2003), personal norms and values (Bamberg et al., 2007), self-efficacy (Plotnikoff, Pickering, Flaman, & Spence, 2010), emotion and to an extent habit (Wood, Witt, & Tam, 2005). There are some problems with the prevalent use of self-reporting (Haustein & Hunecke, 2007). Certain determinants of behaviour are more salient to participants and are therefore more likely to be reported than others, such as social descriptive norms, which involve a low level of cognitive awareness. People may also be unwilling or unable to express an accurate account of their determinants of behaviour. This may be because they are not aware of their attitudes (Janiszewski, 1988) or because people are triggered to quickly reconstruct general impressions when asked for a response rather than admit to not having a clearly defined attitude (G. Day, 1972). People also tend to give socially acceptable or function-oriented responses in order to leave a sound impression (G. Day, 1972; Garling et al., 1998). It is also difficult for the responses to be consistent, because interpretations of the valence (intensity) of participants’ attitudes may vary and people’s behaviour can be context specific (Kjellberg, 2008).

Therefore, it may be more constructive to use less direct ways to examine determinants of behaviour. This could be through examining related beliefs which are then used as descriptors of attitudes and values (Bronner, 1982) or considering previous or related behaviour. Experiments which involve manipulating the presentation of normative messages and observing the resulting behaviour have been used to gain insight into the effects of social norms (Cialdini, 2003). Emotion can be measured through observation and analysis or can be controlled by inhibiting parts of the brain which control the physiological responses associated with emotions (Damasio, 1994).

However, any evaluation of behavioural change that involves measuring one's state of mind within a time frame will have another problem. It is hazardous to generalise conclusion of behaviour research which is made within an experiment or short timeframe of an empirical study (Katz, 1960). Determinants of behaviour could change temporarily during the time of the experiment and revert back as stimuli lose their potency. There may also be cases of very gradual attitude change that cannot be recorded during the timeframe of an experiment. It is therefore important to acknowledge the limitations of studies which examine attitude using self-reporting and short timeframes.

Qualitative methods, which examine a variety of elements of discourse, also offer potential insights into determinants of behaviour. These include discourse about people's perceived barriers to different travel options to provide insight into self-efficacy and discourse demonstrating values in one context which can provide insight into values in other contexts. However, even within qualitative methods it is also possible that some people express guilt to present themselves as reasonable people within the context of the group where anti-driving social norms had been mentioned (Wall et al., 2008). Comparisons between people in different cities, from different socio-economic backgrounds and in different cultures may provide some broad ideas about how behaviour is affected by community-wide determinants of behaviour.

3.3 Implications for travel behaviour

It is evident from this chapter that the way people travel in urban settings has been heavily researched from a psychological perspective and to some extent at an interpersonal and community level. The theories and insight into behaviour that have been used or could be developed to explain travel behaviour are summarised in Table 3.1. These indicate how links can be made between interpretations of messages, determinants of behaviour, and actual travel behaviour. The insights provided by each of the theories are worthwhile using when exploring potential causal relationships.

Table 3.1 Summary of implications for travel behaviour

Theories or idea of links	Implications for how messages influence determinants of behaviour	Implications for how determinants of behaviour influence travel behaviour
Theory of Planned Behaviour (TPB)	The determinants of behaviour, attitudes, subjective norms and perceived behavioural control are based on beliefs. New information alters beliefs and therefore regulates behaviour.	Behaviour is determined by actual behavioural control and intention, where intention is a product of attitudes, subjective norms and perceived behavioural control
Theory of Interpersonal Behaviour (TIB)	Social factors, including norms, roles and self-concept influence intention. One should therefore consider what messages are involved in these social factors.	Intention is a product of a wide range of determinants of behaviour. Habit interferes with the influences of other determinants of behaviour
Functions (and other characteristics) of attitude affect how they are altered	Appeals to attitude should address the relevant function of the attitude (knowledge, value-expressive, ego-defensive, instrumental)	Attitudes with multiple functions are harder to alter and therefore behaviour which is in line with such attitudes will be harder to shift
Norm Activation Theory (NAT) + Value Belief Norm Theory (VBN)	Messages promote awareness of consequences and ascription of responsibility	People are more likely to behave according to personal norms when they are activated through awareness and ascription or responsibility
Priming central values	Values can be primed by messages which allude to that value. This is particularly the case for highly central values.	People are more likely to behave according to their central values when the values are primed
Descriptive social norms developed from evidence of prevalence	Messages from observations and other sources that demonstrate a prevalent behaviour evoke social norms with little cognitive effort (less inhibition from habit)	People may undertake a behaviour alluded to by descriptive social norms with little cognitive consideration
Information to facilitate how to perform/optimize travel behaviour	People's perceived and actual self-efficacy can be improved by knowing how to optimize their travel experience	People are more likely to attempt a behaviour, to persist and to be successful when they have high perceived and actual self-efficacy
Through incremental steps and scheduled reinforcements, one's perceived self-efficacy increases	Providing plans and scheduled feedback through messages increases one's perceived self-efficacy	People are more likely to attempt a behaviour and to persist when they have high perceived self-efficacy and when their incremental goals are achievable
Social learning theory	Observations of other people will affect one's self efficacy and social norms	People will mimic what other people do because of self-efficacy and social norms aligned with their behaviour

Theories or idea of links	Implications for how messages influence determinants of behaviour	Implications for how determinants of behaviour influence travel behaviour
Health Belief Model	Effective messages convey the risk along with the perceived efficacy in dealing with the risk (if only risk is portrayed this may lead to a lack of action)	People are more likely to act if they understand both the risks associated with transport problem and the potential for their behaviour to help
Habit inhibiting information acquisition	The stronger the habit of taking a car, the less attention people pay to new information	People are unlikely to behave according to other determinants of behaviour when they have a strong habit
Life changing events offer potential for breaking habits	Targeting messages to people who are undertaking life changing events	People may break habit and form new habits more easily when their context changes
Behavioural change occurs in stages	Different messages are appropriate to motivate people at different stages of behaviour change	It should be expected that behaviour change will take place over time and that different people are at different stages
Emotions are socially expressed and shared through stories	Emotional messages may penetrate through social networks and media	Emotions are likely to be an important where behaviour takes place in public or where it can be seen
Emotions help organise rational decision-making	Emotional messages can lead to different ways people rationalise their travel behaviour	Emotion is a powerful trigger for the contemplation of behaviour change

By examining behavioural theory in the context of travel, it is evident there are many particular features of travel behaviour that separate it from other behaviours. While travel behaviour has been linked to other environmental behaviours, health behaviours and consumption behaviour, it has unique qualities. This uniqueness is evident both through the way people are motivated to use modes of transport and the way that current travel patterns affect one's social context. As shown in Table 3.1, a vast number of factors may play an important role in influencing urban travel behaviour. Travel behaviour requires a choice between using modes of transport with very different characteristics. By examining relevant determinants of behaviour, an insight is gained into which particular features of travel behaviour could affect the importance of different determinants of behaviour and how they are formed. The way these features of travel behaviour would affect the role of different determinants of behaviour is now discussed.

Many attributes and issues

There is a complex array of issues involved in urban travel as described in Chapter 2. These issues have associated feelings and thoughts and there are a variety of emotions, attitudes and values that play a role in determining behaviour (Lois & López-Sáez, 2009). The tendency to use one mode of transport over others requires frequent decision-making. This decision may come from evaluating the positive or negative aspects of different options as well as through processes that one is not aware of. Therefore, the decision actually requires a culmination of multiple smaller choices about different modes of transport. This compounds the complexity of urban transport issues as they must be considered in relation to a number of different modes of transport. This is in contrast with other simpler pro-environmental behaviours, such as recycling, which only involves the choice to recycle or not.

Behavioural research that examines simple and linear relationships between attitudes and travel behaviour may be particularly limited because of its complexity. Where the situation leads to conflicting emotions, which may be the case in transport, attitude formation may prove difficult and emotional responses may play a more important role (C. Allen et al., 1992). Many theories of behaviour, such as the Theory of Planned Behaviour, lack consideration of the dimensions or functions behind attitudes or the complex array of attitudes that are related to any particular situation. Emotion may prove to be an important tool to trigger reanalysis of the attributes of one's transport choices and focus one's attention on relevant attributes. Priming values may also be important. In order for this to be effective, values that will guide people to use sustainable transport modes could be promoted as central values through family, education, marketing and other social influences during times where people are developing their identity.

An everyday occurrence

Urban travel is a routine part of most people's day. Whether one works, studies or participates in the commerce and culture of a city, they travel to get places. Current behaviour trends and the lack of change in travel behaviour are often attributed to the formation of habit amongst members of the travelling population associated with the frequency at which people travel.

An activity people prepare for

A choice to take one mode of transport over another cannot usually take place spontaneously, unlike some other environmental behaviours, such as whether to litter or not. People may require resources, prior knowledge and planning in order to take a mode of transport. The

preparation to take one mode of transport may create a barrier through a reduction in self-efficacy. However, once this preparation has taken place, a lock-in effect may be developed, because the person has reduced the effort required for one mode of transport but not for others. This is due to the long-term decisions about where people live and work as well as the purchase of vehicles and the acquisition of licences and skills.

Involves co-operation throughout society

Many of the negative impacts of travel, such as climate change, are diffused throughout society and are caused by the travel behaviour of many individuals. In order to make an impact on these problems associated with travel, a co-operative effort throughout society is needed. Increasing people's sense of outcome efficacy could prove to be difficult under these circumstances. People with values that are socially orientated are more willing to co-operate (Vugt, Meertens, & Lange, 1995), so promoting and priming such values may lead to a better uptake of public transport and active transport use.

Takes place in public

When people travel in cities they move through public places where their travel behaviour is on display to other members of the public. People who are conscious of this may want to show that they abide by social norms in order to gain social sanction. It becomes apparent as to what modes of transport people are taking by just being in the street of a city. Through observing this street scene, descriptive social norms may be evoked by seeing the prevalent modes of transport being used. This will reinforce current patterns of travel behaviour, particularly when this behaviour is more public than other travel. For example, the public cannot as readily see how well patronised trains are because they take up less public space than individuals driving cars.

Involves a complex mix of skills, protocols and navigation

To use a mode of transport, a variety of skills may be required such as driving a car, riding a bicycle, understanding a ticketing system, or entering and exiting vehicles. These skills may require learning and practice to stay confident and increase one's self efficacy. The more one uses a particular mode of transport, the more confident they will be in the skills needed to use it. Similarly, one needs to know the appropriate protocols and navigation in order to negotiate the transport system successfully. These depend on how legible the transport system is. One gains confidence in one's ability to undertake these protocols and navigation through experience. Habit may play an important role, as the processes required to undertake these

complex task become more automated through repetition. Confidence in undertaking these tasks for the habitual behaviour may therefore be high.

Pervasive presence

Transport infrastructure is a dominating element of cities (Kido, 2005). Exposure to roads, parking, footpaths, bus stops and railways is a part of everyday life. Consequently, they reinforce descriptive social norms around travel behaviour, because they provide evidence of the use of the various modes of transport. Large car parks and roads do not need to be filled with cars for people to see that they cater for a substantial population of cars. Evidence of public transport, cycling and walking, such as bike paths and bus shelters, could evoke social norms around the use of these forms of transport.

Confronted by a number of situations while travelling

While travelling, people are confronted by a number of different environments and sensations. This is part of the evolving nature of urban transport and the diversity of environments within the city. This may lead to a range of emotions being experienced. It may also put people in situations where they feel they have less control, such as driving on a congested road or waiting for a train that is late. This may decrease people's perceived self-efficacy.

3.4 Summary

While there has been extensive research into travel behaviour through the discipline of psychology, there has been little link between this and the potential for its use in policy. Psychologists have acknowledged that policy, which encourages behavioural change, has not been built with a strong theoretical base.

It remains largely unclear which (if any) cognitive antecedents of driving are targeted by these policy measures [personalised travel planning and travel awareness campaigns], and on what basis behaviour change techniques are chosen (Gardner & Abraham, 2007).

It is therefore important to expand from this research to explore how determinants of behaviour fit into real world experiences and transport policy. Understanding how interpersonal relationships and social networks affect travel behaviour could prove to be fruitful given that there are strong cultures built up around transport. A broad range of theories and ideas related to the links between interpretations of messages and travel behaviour has been described in this chapter. The next chapter continues from this work by focusing on how messages in our society could influence determinants of behaviour.

4 Implications of messages

The aim of this chapter is to examine how messages are portrayed and received and how this creates various implications for the behavioural determinants described in the previous chapter. The determinants of behaviour discussed in Chapter 3 are often assumed to be independent variables within psychological literature, but this chapter develops an approach to understand the influences behind them.

Arguing that values and norms are the decisive reasons why people do or do not engage in sustainable behaviour implies that dependant variables are being treated as independent variables. (Uzzell & Rätzsch, 2009)

The insights into the behavioural determinants found in the previous chapter guide this investigation into messages by establishing links between interpretations of messages and travel behaviour. Therefore this chapter focuses on the messages that are relevant to these behavioural determinants. Literature on the content, conveyance and interpretation of messages is examined. The findings of this chapter help develop a framework for the potential links between social context and travel behaviour by understanding the messages that one's social context transmits.

Messages play an important role in societies. Passing on messages allows populations to adapt to difficult environments, scarcity of resources and other outside threats. It also creates bonds, continuation of customs, development of knowledge bases and technologies, as well as an understanding and respect for social constructs and awareness of current conditions (Branscomb, 1994). Messages have become prominent in westernised cities with modern society being referred to as the 'information society' (Tsoukas, 1997). This has occurred with a growth in reasons for communicating, the development of communication technology, high levels of economic activity, employment dedicated to processing and distributing information, the emergence of information networks and the increased presence of media (Heylighen, 2002; Sholle, 1999). It is therefore crucial to examine these messages, which have become such an important part of modern society, to gain insights into how they could influence travel behaviour.

4.1 Content of message

The content of a message is essentially what is being communicated. Without appropriate and well-constructed content in communication, there may be a lack of attention, understanding,

interest, or responsiveness (Heylighen, 2002). Messages convey information, but they also portray frames through which people see this information. Framing occurs through the use of metaphors, presuppositions, myths, symbols and other linguistic constructs. These constructs impact on the engagement and empowerment within the community. Building an understanding of these constructs facilitates an explanation of some of the ways that messages can mould behavioural determinants. The potential lack of awareness of these implications means that their importance may be overlooked by the public and policy makers. It is important to acknowledge both the power of these implications and the omnipresence of them, because they are a part of all discourse.

Language is not used in a contextless vacuum; rather it is used in a host of discourse contexts, contexts which are impregnated with the ideology of social systems and institutions. (Simpson, 1993)

It is therefore important to gain insight into these constructs which manipulate words, phrases and pictures within a context. This insight sheds light on the underlying interpretations of texts. The implications of information and frames are now discussed.

4.1.1 Information

There are multiple interpretations of the concept of information. It can be interpreted as any “communicative construct which is produced in a social context” (Turminen & Savolainen, 1997), which is similar to the definition of message within this thesis. For this thesis, information refers to the contents of messages that are consciously registered by one’s mind and have meaning attributed to it (Hill, 1999). Contents of messages that are not fully understood or salient to the receiver are examined later in the section on framing.

Information is an intermediate between “knowledge” and “data”. Information is either created by an expression of knowledge, or by processing and analysing data. It then only becomes useful if it is captured and stored as data or it is internalised and interpreted by the human mind as knowledge (Liew, 2007). Knowledge is defined as “a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information” (A. Ladd & Ward, 2002). Data exists without any observation, analysis or interpretation. It is the sources or symbols from which information can potentially be derived. Through its symbolic nature, it can be seen as storage of intrinsic meaning (Liew, 2007).

Information can be categorised as primary or secondary. Primary information is acquired through observing or experiencing a scene or event. Secondary information is acquired from other people who communicate using symbols. Secondary information has been processed by another and has been internalised and interpreted and then expressed as information for other people (Hill, 1999). Secondary information sources may present different characteristics which affect how people react to the information. This thesis uses the terms primary and secondary messages to refer to messages which are acquired through one's own observations or through other people, respectively.

The value of information has been compared with a commodity and a tool for control (Sholle, 1999). Information is the part of the message which contains relevant meaning, implication and input to aid decision-making and problem-solving or realising an opportunity (Liew, 2007). It is argued that, through the daily acquisition of information, people can select the information they want and use it or store it for future use and pass it on to others (Hill, 1999). Unless other factors such as cognitive dissonance or strong habit impede information acquisition, the way people acquire information alters the knowledge-function of attitudes. However, people can acquire information in ways that are not under their control and can acquire information that doesn't benefit them.

Travel behaviour may be affected by a range of information including the messages which inform people of the schedule, navigation, costs and formal protocols associated with a mode of transport. This information increases the perceived self-efficacy of the individual, provided the information is clear and simple to use. Information which is explicitly stated in advertising or news, such as the safety rating and the road death statistics, can also influence attitudes and social norms relevant for travel behaviour. Other information can explicitly state problems and identify who is responsible for the problems, thereby increasing people's awareness and the potential for them to ascribe responsibility to themselves. As described in Chapter 3 this can lead to personal norms being activated. If the severity of the problem portrayed in information is emphasised jointly with a lack of information on how individual actions will help solve the problem, such information can lead to a reduction in outcome efficacy. Information can influence a range of determinants of behaviour, provided people are receptive and capable of processing it. However, framing, which does not rely on such processing, can reinforce or alter behavioural determinants without one's effort or awareness.

4.1.2 Framing

Framing occurs when the context of words or a concept creates an implication that isn't explicitly stated. Such an implication may be developed intentionally by those responsible for the communication, or it may happen unwittingly. Sometimes the ideas that are not explicitly stated are the most powerful. Ideas can be reinforced, manipulated or weakened through implications. This 'conceptual baggage' creates frames by means of myths, presuppositions, metaphor and other constructs of language (McConnell-Ginet, 2008).

Speakers might not want to activate the inferences triggered by the conceptual baggage particular words bring with them and interpreters might hesitate to endorse them, but their non-explicit yet virtually automatic character makes them difficult to escape (McConnell-Ginet, 2008).

Framing is a conceptual mental structure through which people understand ideas and words, as well as the context that surrounds it. The use of words and ideas within a context creates norms or expectations as to their use and meaning (Lakoff, 2004). This allows people to understand abstract and complex ideas by associating these words to more graspable and concrete concepts. Framing is not limited to discourse; people frame thoughts and actions too. By the deliberate use of framing, certain institutions and interest groups can manipulate the way an issue is perceived and its importance in society (Gruning, Strunck, & Gilmore, 2008). Framing increases the salience of a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendations (Entman, 1993). For example, road authorities frame the road as the space for the movement of cars where congested streets need to be fixed or bypassed in order for flow to be unimpeded. The morality of certain positions can be put under question through the generation of certain ideas and beliefs about values and associating these values with certain positions.

The development of strong frames leads to automatic associations with certain imagery and scenarios, even when negating the concept (Lakoff, 2004). The imagery of current practices will have a looming presence when attempts are made to evoke imagery of improvement, because the words describing the change will always have current practice as a reference. For example, in telling someone to imagine a city where there was no pollution and no congestion, it is likely that images of pollution and congestion will most probably enter their imagination as well. This imagery may evoke descriptive social norms of current unsustainable practices and it may create negative emotional responses and a lack of perceived efficacy to change transport behaviour, as described in Chapter 3. Even without the negation of concepts, in

delivering a message it is possible to evoke the contrary images to those intended. Prime examples of this are the constant references to improving cycling safety. While this appears to be a principled cause, making cycling a more attractive option, it actually induces the idea of cycling being an unsafe activity because safety is an aspect of cycling that needs to be addressed and emphasised (Horton et al., 2007a). This can influence injunctive social norms around use of bicycles being irresponsible, as described in Chapter 3.

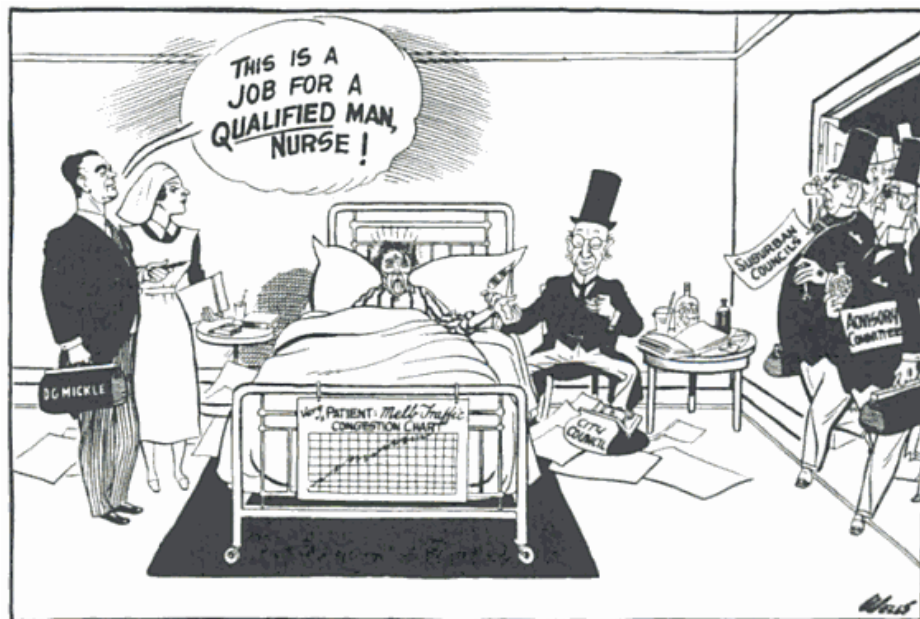
Once a concept has been established in connection to a frame, it is risky to ignore this framing, because the audience will perceive the communicator as lacking credibility (Entman, 1993). Seeing a concept or word in a context which has never been associated with it, makes little sense, as the word has been framed in a certain way that doesn't fit with this new context. An example is a businessman recounting his life's fortunes with a family, a job that pays well, a house with harbour views and a bicycle. A bicycle doesn't normally fit into this context and there is an expectation that a sports car or a luxury car will be mentioned as it is usually framed in this context. Framing is therefore an important consideration in trying to decide how to change social norms (Lakoff, 2004).

Metaphor

Conceptual metaphor refers to how ideas are associated with other concepts. These occur without conscious thought and, through repetition of use, become embedded in both the way people talk and think (Lakoff & Johnson, 1980). It is believed that, in order for people to understand the complexities in the world, through a brain that has been primarily developed to deal with concrete issues, metaphor "allows us to apply Stone Age ways of thinking to abstract subject matters" (Pinker, 2007b). Metaphor is "pervasive in our ordinary everyday way of thinking, speaking, and acting" (Lakoff & Johnson, 1980) and it is recognised by cognitive scientists as part of much of our language (McGlone, 1996).

In urban transport the road system of a city has been given the metaphor of the circulatory system of a body. This metaphor has been used as a way to summarise the problems that arise in urban transport and the potential 'cures' for these problems. The need for constant free flowing blood through arteries and the physicians concerns about congestion was compared to traffic flow and the concerns of the traffic engineer (Davison, 2004). This analogy was embraced by economic neoliberals who saw the free flow of vehicles as integral to the prosperity of the city. While such analogies may seem practical, it is important to see the different complexities embedded within the two systems and how this metaphor was powerful in promoting road construction to 'improve' a city's 'congested' transport system without

more systematic studies of different urban transport problems. This can be seen by the propaganda poster in Figure 4.1.



US traffic doctor Grant Mickle arrives just in time to save a city fainting from the ministrations of feuding local authorities. (ROYAL AUTO, 1954)

Figure 4.1 A cartoon of Melbourne's traffic as a patient suffering from congestion (Davison, 2004)

Presuppositions

Presuppositions are statements which are not explicitly stated, but are implied as truths in order for what is explicitly stated to have meaning. The foundations of sentences require a common discourse, that is a shared understanding of certain aspects of the world, and indeed they reinforce these by the very fact that this shared understanding is *assumed*. Presuppositions therefore have a higher truth value than the entailment (the information explicitly portrayed in the sentence) as it is harder to argue with something that isn't explicitly stated (Simpson, 1993).

The existence of objects and subjects as well as the logic of phrases must be assumed in order for one to make meaning of a sentence. Social norms are therefore engaged and reinforced in the assumptions about what exists and which events are logical. An example of a sentence which assumes existent (an existential presupposition) and assumes certain logic to the sentence (a logical presupposition) is:

The motoring authority made use of its power to increase the speed limits to an acceptable level

Using ‘the’ implies that there exists a particular object that can be identified, namely a ‘motoring authority’. Using ‘its’ implies that there is a particular object that is owned by a particular subject; in this case it implies a ‘motoring authority’ possesses ‘power’. There is also an implied logic that a speed limit can be unacceptably too low as an increase in the speed limit leads to ‘an acceptable level’. Another way to imply logic is to use cleft sentences, such as “the man who drove a fancy car was waiting for me”, which implies a fancy car was driven. Using comparisons and contrasts in time and between different objects also gives sentences implied logic. The phrase “we don’t drive like hooligans anymore” implies that we once drove like hooligans and it implies that people understand that hooligans drive in a certain way.

Presuppositions are not only semantic, but can also be pragmatic, because they can depend on the context of the phrase and shared knowledge (described further in Section 4.3). These are referred to as implicatures and they are widely used in media and other social institutions. Implicatures are the meanings which unfold when it is clear that the semantic content of an utterance alone is not a reliable guarantor of the meaning of that utterance in context. In this way, implicatures can be regarded as inferences that develop from a mutual understanding between speakers engaged in interaction (Simpson, 1993). An example is an advertisement for “The Economist” which states “If your assistant reads The Economist, then don’t play too much golf”. This implies that having an assistant who reads The Economist is a reason not to relax (golf is something that bosses do to relax) because the assistant is becoming more knowledgeable, ambitious and savvy in economics, and hence a potential competitor (Simpson, 1993). Implicatures can be powerful in reinforcing the shared understanding which reinforces social norms, as well as subtly introducing new ideas which could affect the knowledge function of attitudes. They may be particularly useful in advertising, where messages must be portrayed succinctly and engagingly.

The language of causality

The use of a variety of structures within texts can alter how problems and solutions are perceived. For instance, the way language is used to describe events involved in a causal loop affects the way different causes are observed. This alters how problems and solutions are perceived. The ways experiences are packaged and measured define what is knowable and quantifiable. The use of tense gives the audience an understanding of what is known and what

can be believed as real phenomena. This, in turn gives a background to potential for assigning responsibility and the confidence and conviction of this assignment (Pinker, 2007c).

Beliefs of causality are integral in the way people take initiative in social change. When dealing with sustainability, indirect causation is prominent and this can make one's sense of moral and legal responsibility feel more ambiguous (Pinker, 2007b). Language also affects how experiences are packaged and measured as well as what is knowable, factual and willable. This affects the sense of responsibility felt by various people. This can affect the potential to activate relevant personal norms as discussed in the Norm Activation Theory in Chapter 3.

It is possible for an agent to have an impact on a problem without directly acting on the problem. Questions can be framed in a way in which an action appears to either have a clear contribution or no contribution to a certain impact. This is because questions can be framed in a way that only a direct causal action can be seen to act on a situation or it can consider all potential causes (Pinker, 2007b). The questions "Could emissions from cars flood homes in Bangladesh?" and "Could emissions from cars cause homes in Bangladesh to be flooded?" both ask whether there is causality between car use and future floods. However, the first implies more directness, and would only be answered positively if there were no intermediate steps between the action and the effect. The second question is more open to include indirect causes. The second framing of the question is more appropriate for complex problems with multiple influencing factors. However, the first question can be used in public when one wants to avoid recognising an indirect consequence of an action and hence divert responsibility. These linguistic constructs are crucial when one is justifying actions both internally and to the world. They are also used in media coverage and general debate.

In the sphere of urban transport, road incidents are another example of causation being manipulated through the language used. There is inevitably a complex array of factors which lead up to any road injury or fatality, but certain factors are often singled out in the media and private discourse as the reason. In Australia, a person cycling without a helmet, who is hit and killed by a car, will be perceived as having a higher responsibility for the death resulting from the crash than if they were wearing a helmet. However, in other parts of the world, which condemn the compulsory use of helmets, for several reasons (Jacobsen, 2003; Robinson, 2006), the fact that a person was or was not wearing a helmet would not be seen as a primary factor for the outcome of the crash. The cause of the death would more likely be attributed to other factors, including driver or cyclist error and the general conditions of the way the road functions.

Myths

Myths and symbols bring together and objectivise ideas and emotions, thus making them more accessible. Myth refers to any real or fictional story, recurring theme or character type that appeals to the consciousness of a group by embodying its cultural ideals or by giving expression to deep, commonly felt emotions (Chapman and Egger 1983). Myths can be powerful in framing, legitimising and perpetuating certain worldviews, and therefore affecting social norms and attitudes around different issues. The use of myths in messages aims at causing an immediate impression independent of rational thought processes (Chapman and Egger 1983). The mythical dimension of car advertising could provide insight into the phenomena and roles of car use in Australia:

myths reinforce our positive emotions about and intense desire for the car, prompting us to focus on its real and imagined benefits. (Lutz & Lutz Fernandez, 2010)

Advertising requires a concentration of symbolism and imagery for the sake of portraying a message in a tight timeframe. The use of myth in advertisements is able to portray the use of the product being advertised as a promise to solve problems through this imagery (Chapman and Egger 1983). Other mediums can also use myths to communicate a viewpoint succinctly, and myths are sustained and reinforced through their repetition in other communication.

From this array of language constructs, the contents of messages can present a mosaic of meanings through what is implied rather than through what is explicitly stated as information. These can determine how people see the world through the development and reinforcement of ideologies.

Decades of relentless advertising and corporate lobbying have helped fashion and disseminate a pervasive set of beliefs – a full-blown car ideology. That car ideology, like many elements of culture, is invisible to us because it is what we see with rather than what we see. (Lutz & Lutz Fernandez, 2010)

Framing is therefore a key element to the examination of how messages affect behavioural determinants. Therefore, the different ways that framing occurs within transport-related messages are a key consideration when examining the links between social context and travel behaviour.

4.2 Conveying messages

For the sake of diplomacy, self-preservation and the potential to communicate effectively, one takes particular measures when conveying messages. Different techniques can be employed. Some of these are deliberately developed to direct the way the audience receives the messages. Others are more subtle and occur as a natural part of one's communication. People negotiate a relationship through communication and they tend to take care not to be too direct, intrusive, drawn out and offensive towards the recipient's belief system (Pinker, 2007b). These restraints affect the consequences of the message and could influence the formation of behavioural determinants.

4.2.1 Negotiating relationships and indirect speech

The negotiation of social arrangements through language is an important part of communication. People need to convey messages in a way that preserves or develops the relationship with the message's recipient in a desired and appropriate way. Due to the complexity and quantity of contents that one may need to convey, in combination with the limited attention or time of audiences (Heylighen, 2002), it is necessary for communicators to reduce their dialogue to what is deemed sufficient and it may be that "what remains is the gist or connotation of the dialogue" (Pinker 2007).

The relationship between different actors in a conversation is not fixed and through conveying some content, potential changes in the perception of the relationship can take place. In order to preserve the relationship, it may be better that one does not say precisely what one wants to convey, but instead expresses it through potential implications and ambiguous remarks. As described by Pinker, Nowak et al. (2007), they 'veil their intentions in innuendo, euphemism or double speak'. There are various reasons why this occurs. These range from general politeness to a search for optimal gain by dodging legal or social institutions. Figure 4.2 illustrates the situation of the people communicating and receiving a message before and after the communication, as well as the way that communication takes place in light of these situations.

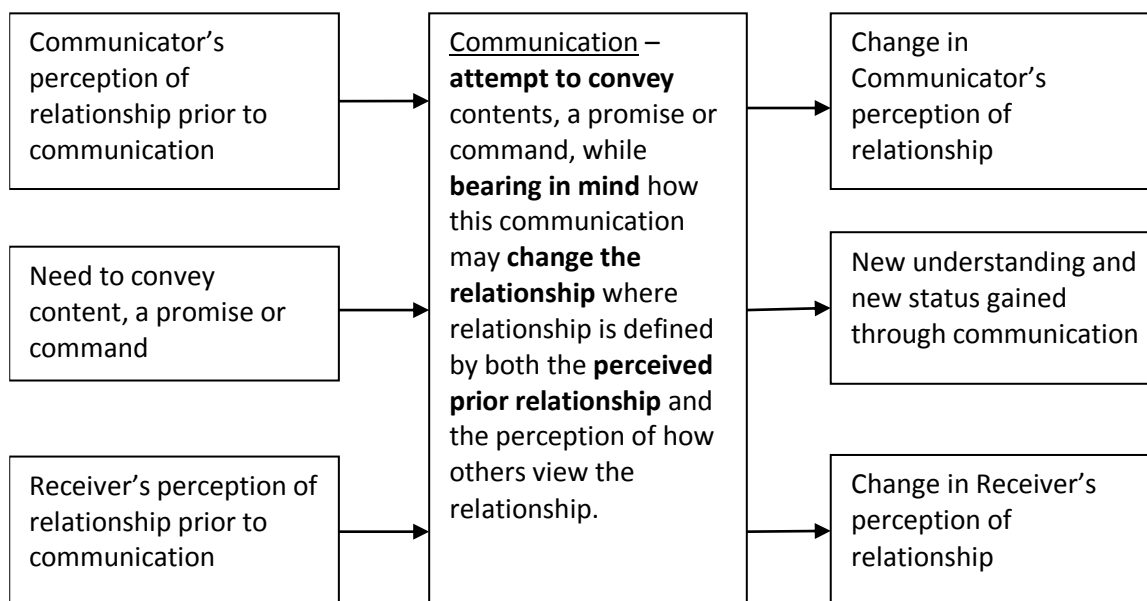


Figure 4.2 Consideration of relationship dynamics during communication. Source: the author, drawing on Pinker (2007)

It is therefore appropriate to avoid discourse that has the potential to jeopardise a relationship. There may be the use of purposeful ambiguity which allows the receiver of the message to interpret it in the way that best fits the desires of the two parties. An example is a broadcast news report which avoids mentioning evidence that could make the public feel responsible for the problems or solutions to climate change: the audience of the news is being offered a service by the broadcaster and they may complain or stop wanting to watch that broadcast if it makes them feel guilty. This could lead to a reduction in the activation of personal norms through the Norm Activation Theory because the audience is not challenged. The use of indirect speech will always carry with it the potential for some meaning to be lost. It is therefore important to calculate how much room for interpretation is desirable, how much attention one can expect and how solid or unwavering or even how unimportant is the status of the relationship between the communicator and the receiver. In looking at the language used, it is important to remember that there is a much larger body of thought and imagery behind it, with the discourse just providing a hint as to what all this could be (Pinker et al., 2007).

The negotiation of relationships and the selection of content to convey are pertinent in social campaigns. While there may be a wealth of knowledge, it is important to gain and use the attention of the public wisely. The dynamic of the relationship between the messenger of information and the public is also a key consideration in campaigns. The community embraces

messages which come from sources they trust, so they empathise with them and are prepared to facilitate change rather than just being arrogant and self-righteous (Hounsham, 2006).

4.2.2 Appealing to the rational

Rationality is seen as a positive attribute of a sensible citizen and consumer. It is the basis of our political, social and economic systems. A responsible person is seen as one who can make appropriate judgement and decisions based on rational thought (Caplan, 2007). During the era of enlightenment, the assumptions of reason were formed by Descartes. These all worked together to demonstrate that reason had a solid foundation and was a purposeful pursuit that did not leave anything to chance. These include the assumptions that reason is conscious, it is disembodied and dispassionate, it is for self-interest and it can fit the real world (Lakoff, 2004). Researchers have recently argued that these assumptions are flawed, because the roles of emotion, social context and unconscious processing have been shown to be important (Damasio, 1994). Often attempts to change behaviour fail to recognise the shortcomings of these assumptions (Thaler, 1980). This is evident in the lack of success of social campaigns which have adopted the deficit model. The deficit model works on the principle that people simply need to be given enough information (usually of a scientific nature) so that one can reason more appropriately and make decisions that are more in line with the optimal way to act. This of course fails to recognise that our conscious reasoning is a very small part of our total reasoning, with Lakoff (2004) arguing that 98% of reasoning is unconscious. However, these assumptions have been worked into so many systems which hold society together as well as people's general understanding of how they reason. It is therefore a challenge to ensure communicators do not offend people's beliefs in their rationality, but are also able to convey messages effectively, to ensure that the frames are able to influence the behavioural determinants appropriately.

4.3 Interpreting messages

People who receive messages can interpret them in a number of ways. This interpretation may depend on personal qualities, the relationship with the source, the context within which it is presented and the type of society they are a part of. It has been noted in Section 4.1 that there is content within messages which is not consciously sought or processed. The interpretation of these messages has been discussed earlier in Section 4.1. This section is focused on interpretation of information contained within a message as this takes place consciously and requires cognitive effort to process.

Ultimately the impact of the information will be determined by the individuals that receive it. It is dependent on the existing knowledge of the person, their intellectual abilities and the readiness of the person's mind to exploit this information (Hill 1999).

Therefore, a study of the factors affecting how people receive and interpret messages is undertaken in the present section. Factors considered include:

- How people come across information
- Activating mechanisms
- Intervening variables
- The context including intervening variables
- How information is processed

Literature that informs this section includes research into trust, attribution theory, shared knowledge, information environments and information behaviour. Literature on information behaviour has come partly from applications in particular settings (Jerit, Jason, & Toby, 2006; Savolainen, 1995), as well as broader examinations of information behaviour (Niedzwiedzka, 2003; Pettrigrew, Fidel, & Brude, 2001; Sonnenwald & Iivonen, 1999; T. Wilson, 1997a, 1999). Information behaviour research provides models of the factors that affect how people receive and interpret messages (T. Wilson, 1997a) and can be seen in Figure 4.3, which illustrates the processes and context of information acquisition.

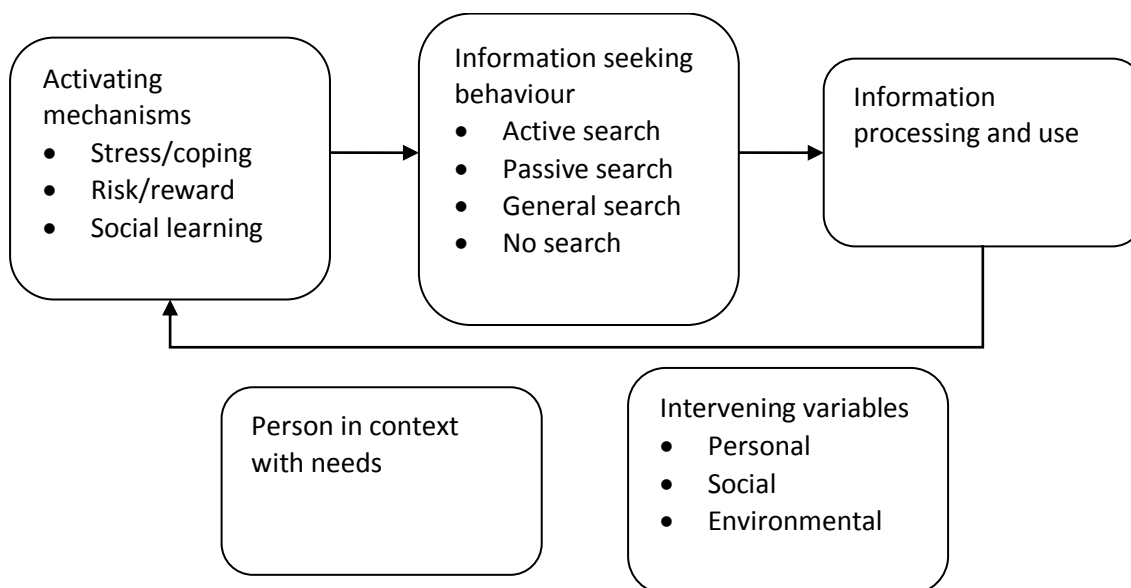


Figure 4.3 Factors affecting information behaviour. Source: Adapted from Wilson (1996)

The processes involved in information behaviour are shown by the flow of arrows, while the context within which information behaviour occurs, is shown by the boxes below the boxes representing the processes. Next each of the components of information behaviour is described.

4.3.1 How people come across information

Information can be found in a number of ways. As shown in Figure 4.3, information can be:

- Actively sought – effort is put into the search; hence improving the effectiveness of the activation and methods of this search can optimise the quality of relevant information found for this effort (T. Wilson, 1999);
- Passively sought - one is primed to take notice of information related to a certain topic, while one is receiving general information as entertainments, informative material or during an exchange for social obligations (Erdelez, 1999; Williamson, 1998);
- without searching – information can be provided to an audience which has had no interest in it; this includes observations in everyday life as well as advertising (Erdelez, 1999).

While there is the possibility of coming across information coincidentally, much information is found through being at least partially engaged in seeking the information. There are many social factors affecting the extent to which people engage in seeking information. When examining different sources of messages, it is of interest to understand how people come across them and how one's exposure to the message can be enhanced or lessened.

4.3.2 Activating mechanisms

Certain mechanisms can activate information behaviour. This may be through activating an intentional search for information or by someone prompting an individual to take notice of something that was not actively searched for. Activating mechanisms can work at different stages of information behaviour and can cause engagement with the information source in different ways. People may come across messages for a number of reasons including psychological motives, such as hunger; unlearned motives, such as curiosity or sensory stimulation; and social motives, such as desire for affiliation, approval or status (T. Wilson, 1997a). The existing literature examines activating mechanisms through a number of theories and meta-theories. These include work on sense-making theory, risk/reward theory, social learning theory and stress/coping theory. The following theories address how various motivations lead to the activation of information behaviour.

In **gratification theory** the needs that are satisfied through observing messages are diversion (escapism, emotional release), personal relationships (companionship, social utility) and personal identity (comparison with life; reality explored; value reinforcement) (Fiske 1990 cited in Wilson 1997). This is of particular relevance to the thesis, as some of the messages which can influence travel behaviour are not accessed deliberately to satisfy an information need. Sources which satisfy these needs could represent important sources which impede or encourage travel behaviour change.

Sense-making theory employs the metaphors of situation, gaps and uses to examine how, as both individuals and the world evolves, people acquire information to make sense of their experiences (Dervin, 1999). The gap is in the information requirements and bridging the gap is the act of seeking and acquiring information (Savolainen, 1995). Information acquisition is therefore the process which allows for sense-making and sense-unmaking as people come to terms with new internal and external conditions. This affects the knowledge function of attitude described in Chapter 3. People do not seek information if their situation does not warrant a search for change or for further understanding, as has been demonstrated in Chapter 3 in the case of habitual behaviour interfering with information acquisition.

They have enough certainty, comfort and situation predictability that the need to seek information is negated (Pettrigrew et al., 2001)

Additionally, not all information needs trigger people to seek information (Niedzwiedzka, 2003). This could be due to a lack of awareness of the need for information, that is to say, believing one's current state of knowledge is sufficient or believing that one could become more stressed upon obtaining further information (Case, 2005). Therefore, to activate information behaviour, an individual must lack conviction that they have sufficient knowledge to deal with the situation (Niedzwiedzka, 2003).

Stress/coping theory considers the direct reason why someone would act on a need of information. It is claimed that only when there is sufficient stress will information-seeking take place, where stress is defined as "...a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and as endangering his or her well-being" (T. Wilson, 1997a). The greater the stress associated with the consequences of a lack of information, the greater the motivation there is to look for information. However, it is argued that once the stress is beyond a certain level, it can paralyse information seeking behaviour.

High anxiety coupled with feelings of low self-efficacy are likely to invoke fear-control responses like denial, anger, guilt or hopelessness (Case, 2005).

These responses will subsequently impede engagement with information behaviour. This is a crucial point to note, because the sheer array of problems associated with urban transport could induce such responses if communication avenues are not managed correctly. The theory states that the need to cope with a situation or to resolve a problem can also activate information behaviour. Coping is defined as "...cognitive and behavioural effects to master, reduce or tolerate the internal and external demands that are created by stressful situations" (T. Wilson, 1997b). Wilson sees the role of coping as both dealing with problems that cause distress as well as regulating the effects of the distress. Explicit information-seeking behaviour is usually in an attempt to cope with the problems as this can be seen as useful in reducing uncertainty. However, information is often provided (without needing to be actively sought) which regulates the emotions involved in the distress. Information, which reinforces both current practices or current transport modes and a lack of responsibility of the "consuming" public for problems (Kensicki, 2004), regulates the potential stress and guilt one feels in contemplating complex issues, such as climate change, and impedes the activation of personal norms.

Cognitive dissonance occurs when there are conflicting cognitions. It is considered that people are uncomfortable with this. They therefore seek to resolve this conflict when cognitive dissonance arises (Festinger, 1957). Information seeking or information avoidance may be employed in resolving this conflict and increasing the coherence of ideas, beliefs and actions (Case, 2005). When new information presents, beliefs are adjusted only when it would reduce the uncertainty of one's beliefs. If new information confirms previous beliefs, then it is adopted as reinforcement for one's beliefs, whereas information that is slightly contrary to one's beliefs would cause confusion and therefore it would be dismissed. It is only when information is both definitive *and* contrary to one's belief that one may consider changing their belief (Frey, 1982). For complex issues such as beliefs that affect travel-related attitudes, there is little chance that information will be definitive and if people wish to reduce dissonance, they will selectively acquire information that confirms their beliefs. This may reduce motorists' acceptance of information that demonstrates the problems with driving, while they seek information that reinforces the acceptability of driving.

Risk/reward theory states that information behaviour is only worthwhile if the gains prove to be important in comparison to the effort required, where the information gain is the reward.

Therefore, the way people assess risk and reward in their information behaviour may act as an activating mechanism, determining how people chose to seek information and what effort will be put into it (T. Wilson, 1997a). The risks include performance risk, safety risk, physical risk, social risk, ego risk and time/inconvenience risks (Settle and Alreck 1980 in Wilson 1997) . The employment of active searching is deemed feasible only when the risk of not seeking information is high. Currently the perceived risk associated with not seeking information that could induce travel behaviour change away from car-use is very low. This leaves very little incentive for searching and using such information. It must be noted that while increasing the salience of certain risks may have adverse effects, there is a large range of risks that can be employed and made relevant to the individual. The ego-defence function of attitude and the associated social and ego risks could be a prevalent aspect of avoiding information that promotes travel behaviour change.

For the information that people receive through general observation in their everyday life, certain mechanisms can promote the acquisition of this information. **Social learning theory** examines how people learn through observing the behaviour of others. It was developed to explain how the learning of behaviour was not just motivated by individual beliefs and experiences (A Bandura, 1977). In order for people to partake successfully in social learning, they must possess attention, retention, reproduction and motivation. These processes are more likely to be effective if the person they observe is attractive, influential, successful, powerful or likeable to them, or is experiencing positive emotions (Jackson, 2005). Successful information acquisition through social learning mainly leads to enhancing skills, competency and one's behavioural capability and self-confidence (Halpern et al., 2004). These are all factors which contribute to increasing one's perceived self-efficacy.

Attribution theory considers how recipients of persuasive messages consider "different possible inferences or causal attributions based on mini-theories from previous experience" (Seethaler & Rose, 2006). Therefore, messages must be constructed in a way that people can assess their validity against their own position. For example, from their understanding of environmental problems, they can assess whether they believe claims about the damaging effects of cars is valid. Therefore, it is important to create messages which are not too confronting to preconceptions about problems, or the messages will not be considered valid.

4.3.3 The context in which information behaviour occurs

Context influences why people partake in information behaviour and what their approach to acquiring information is. Within different contexts, there are different boundaries, constraints

and privileges that are perceived by different participants of information behaviour. These features of the context may also be understood very differently and it is therefore important to consider the different interpretations of the features of the context when studying how information is affecting people's behaviour. It is also important to consider that, within one's experience, one could partake in information behaviour under multiple contexts (Sonnenwald, 1999).

the contextual nature of information means that the way in which a version of information is constructed always depends on the interactive nature or argumentative context of talk, as well as on the pragmatic social purposes this version is designed to accomplish. (Pettrigrew et al., 2001)

Savolainen (1995) looks at how the 'order of things' leads to certain information-seeking habits by using the concept of **Everyday Life Information Seeking (ELIS)**. This concept refers to various elements of information which are employed by people to solve problems and orientate themselves in daily life (Savolainen, 1995). Figure 4.4 illustrates the personal, social and environmental variables (featured on the right of the Figure) which affect how people keep the order of things in their way of life and master this through the development of projects in their life and through undertaking problem-solving behaviour.

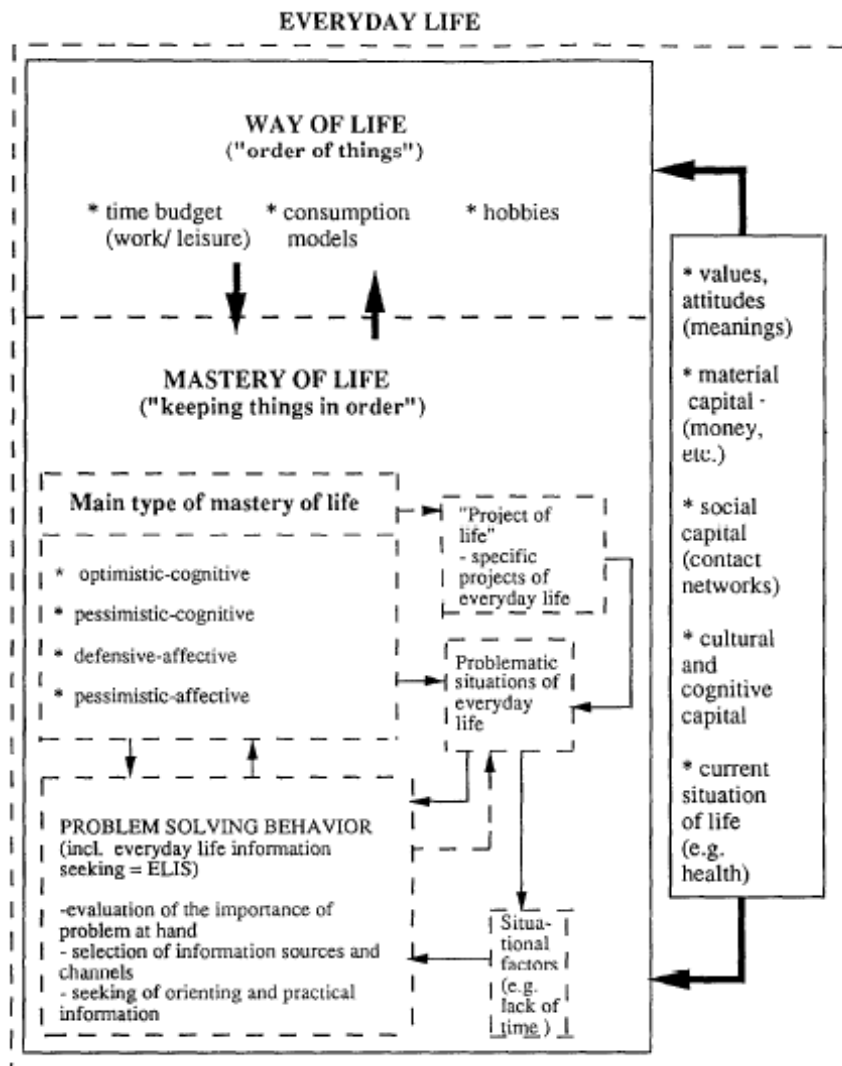


Figure 4.4 Information seeking in the context of everyday life (Savolainen, 1995)

Because information behaviour takes place in many different ways under very different circumstances, it is important to study the variables which influence how information behaviour takes place. These can be categorised as personal characteristics, social/interpersonal variables and social/cultural (or environmental) variables (T. Wilson, 1997a). Before examining them, the role of trust in the context of information behaviour is described, because it plays an underlying role in many of the other variables.

Trust is a property of individuals, social relationships and social systems (Misztal, 1996) and is defined as the firm belief in the reliability, ability or strength of someone or something ("trust," 2010). Trust is based on the belief that a person, who has a degree of freedom to disappoint our expectations, will meet an obligation under all circumstances over which they have control (Misztal, 1996). The concept of trust implies that there are expectations within

an exchange in a situation with a low level of certainty. This certainty could be applicable to the immediate reactions of someone, or it could be an action on a future occasion. With high levels of trust, there is more predictability and increased value in future states.

Trust encourages the effective exchange of relevant information. People's response to messages is governed by their trust. The level of trust in information sources and other actors may determine whether someone who receives a message is guided by it or not. Trust grants "the conditions in which others can colonize our minds and expecting the conditions which allow us to colonize theirs" (Shapin, 1994).

Trust is dependent on characteristics of the society and of social interaction, and on the roles and attitudes of peoples. Trust in institutions can be developed by positive interaction at a personal level. For example, positive contact can increase the community's trust in the medical system (Misztal, 1996). Trust breeds more trust as it creates the opportunity to build up a history of positive exchange. There are certain institutions and people who have gained a certain level of trust throughout the community while others are not trusted. It has been found that trust in 'medicine' and the scientific community is quite high, while there are low levels of trust in institutions involved in policy-making (Anable et al., 2006), workforce organisation and the media. Interestingly, trust in television was inversely proportional to trust in other people (Alesina & La Ferrara, 2000). This could be related to television promoting insecurities within the community, but the causation has not been established. Symbols, such as a doctor's white coat, can create a signal that a person can be trusted (Jackson, 2005).

Trust is influenced by community status and life situations. In communities which are more homogeneous or where people share group norms individuals trust one another and for that reason more and more trust is built (Alesina & La Ferrara, 2000; Jackson, 2005). There are low levels of trust in systems where individuals are given low levels of freedom and responsibility, and are monitored and controlled (Misztal, 1996). An example of such a system is the assembly lines of Ford which engender principles of Taylorism. It was also found that people were less likely to trust others if they had recently had a traumatic experience, if they belonged to a group that felt discriminated against or if they were economically unsuccessful (Alesina & La Ferrara, 2000). People were also less likely to trust generalised claims and required proof or endorsement from someone they trust (Anable et al., 2006). There are a number of areas where trust is important in travel behaviour:

- Ability to trust messages that advocate the use of different modes of transport
- Ability to trust transport systems to get oneself to where they need to be
- Trust on the streets – for people to show respect to other road users
- Trust in others and oneself to change their behaviour
- Trust in political discourse and media messages
- Trust in transport planners to improve the alternatives to cars

With a reliance on certain responses to this information within the public at large, the level of co-operation is governed by both whether people trust the information available as well as trust in others to co-operate.

Personal characteristics

Interpretations of messages are not always in line with the way that the communicator intends them to be. Even when the communicators of messages are clear about the message they wish to convey and know the proper meaning of words and phrases, the audience can misinterpret the message and thereby receive connotations that were not intended. This might be caused by the varying levels of education of the audience. It might also be through the way various institutions, such as media, have established ways of interpreting messages. It is therefore interesting to investigate how messages are interpreted by various members of the public and what characteristics affect these interpretations (Boroditsky, 2009).

People's response to information is dependent on various personal characteristics. These include emotional characteristics of the person as well as educational, demographic and psychological variables (Wilson 1997). They affect how information is sought, is attended to and is processed. Acquiring information is subject to the behavioural determinants which affect the way people undertake information behaviour. How people respond to information depends on the beliefs, values, norms and emotions which shape how they can interpret, respond and ultimately cope with the world in which they exist (T. Wilson, 1997a). One's perceived self-efficacy in partaking in information acquisition and processing is a factor in how information is received (Hill, 1999). One's internal aptitude to access the source and carry out a search determines how effective the individual is at selecting, analysing and interpreting information (T. Wilson, 1997b). Different information sources will be more attuned to the information processing abilities of different people with appropriate aptitude, while other information will cater for wider audiences (Jerit et al., 2006). This is a key consideration when examining how different members of the public are accessing information. The meaning that words and phrases evoke differs across the population. Education and general knowledge

development can increase one's ability to gain the intended meaning from words and phrases. Mass media and political rhetoric that has a particular agenda may sway how people conceptualise and relate to different words and meanings (Jerit et al., 2006). Therefore information campaigns might benefit the well-educated more than people who struggle to understand the meaning of them.

Information was disproportionately incorporated into the behaviour of those with advantages in acquiring and processing information and those with higher valuations of health (T. Wilson, 1997a).

The emotional response to information will vary from person to person and can be a significant barrier to information acquisition. A study found that the most significant limiting factor for accessing health services is emotional barriers (T. Wilson, 1997a). It was found that receiving information about a health concern increased the anxiety of 10% of people while it decreased the anxiety of over 50% of the sample (Case, 2005). We should therefore not discount the significance of emotional response in determining how information behaviour unfolds. Physiological issues can influence the effectiveness of communication with hearing or visual impediments affecting how well people receive information.

Cognitive styles govern the strategies people employ in processing information (T. Wilson, 1999). The classification of holist/serialist (how holistically or piecewise one deals with information), field-independence/field-dependence (whether one uses internal or external frames of reference for analysis) and imager/verbalise (whether people represent their thought in words or images) were established (T. Wilson, 1999). It was found that people from different demographics (specifically gender) possessed differing approaches, with males being imagers and holists more than females who were verbalisers and serialists (Wilson 1999). It is therefore necessary to provide information through a range of mediums and in a range of formats to cater for the different ways people effectively acquire information.

Social/interpersonal variables

Social variables play an important role in determining what information is sought and how it is processed. The flow of information through social networks and the expectation of other people in these networks influence how information is processed. Information, that people know is important and relevant, may be ignored if it entails a high social cost because it is contrary to established worldviews held in society (Pettrigrew et al., 2001).

...people will not cross boundaries of their small worlds to seek information and that people will only cross information boundaries when information is perceived as critical, the information is collectively perceived to be relevant, and a perception exists that life in the round is no longer functioning (Pettrigrew et al., 2001).

However, with the right conditions, social networks and interpersonal relationships are powerful in information acquisition and processing. An understanding of how ideas spread through social networks is the basis of the **Diffusion of Innovation Theory**. New social movements must spread ideas and behaviours throughout society in competition with traditional social norms. Diffusion research focuses on the elements of these ideas or behaviour and the social networks that increase or decrease the potential for the ideas or behaviours to spread through the networks. Some key elements of the idea or behaviour being diffused include (Anable et al., 2006):

- Relative advantage
- Compatibility of idea
- Complexity – people will be more attracted to courses of action that are easy to understand. This is reflective of the idea of perceived self-efficacy.

These demonstrate aspects of information contents that make it more likely to be acquired in a social setting. The Diffusion of Innovation Theory also explores the segments of the population that will most likely adopt and spread the behaviour. The segments of the population range from innovators, who conceptualise and develop ideas, to early adopters, to those who are conservative in their approach to new ideas and behaviours.

Understanding **shared knowledge** in the community is also important in establishing how people will acquire and use information. One's ability to engage as an active citizen is often influenced by both how much support they believe there is in the community for their action and how many other people are prepared to get involved in the activities. Knowledge of the level of support and commitment of the community is therefore a necessary precondition for action to take place. Knowledge is a personal experience that cannot be completely shared, because it originates and is applied by the minds of the knower (Nitecki, 1985). However, it is through information avenues with a wide audience, such as mass media messages, that this knowledge is "mutual". When recipients of information are aware that other people are receiving similar information and assume they have similar interpretations of this information, this knowledge is "shared" (Pinker, 2007a). Through exposure to primary and secondary

information avenues, large quantities of individual knowledge are shared throughout the community (Gerbner, 1969). The awareness of other people's knowledge creates a greater utility to the knowledge, as there is a greater potential for action and growth in knowledge to stem from members of a community who are connected with some common ideas (Pinker, 2007a). People can be more direct with their communication as they have a better understanding of how others think about certain issues.

Everyone may have known that they were disgruntled but now when they come together, everyone knows that everyone knows they are disgruntled. That mutual knowledge can embolden people to challenge the authority relationship (Pinker, 2007c).

A feeling that other people also believe in what you do and want to take similar action could subsequently improve perceived outcome efficacy (Bandura, 1978) and improve the chances of successful behavioural change.

Social/cultural variables

Social and cultural variables relate to the logistics of conveying messages within a certain social context and the social norms of how messages are communicated and received. The requirements of time, attention, money and access to technologies, resources and spaces may limit how people access messages. There may be limitations on the time and money allocated to portray the message. The time and money allocated to conveying messages affects the quality and the quantity of information. For example, a bus stop may provide minimal information about the routes that pass through, because the budget for conveying this message is low. Time allowances put constraints on television advertisements that must portray a message within a short timeslot (T. Wilson, 1996). Some information may be difficult or impossible to access in certain conditions. People without internet access may struggle to find some transport information in places where authorities rely on the internet as their medium for disseminating information. People who do not read newspapers may miss out on accessing information about proposed infrastructure or policy changes.

Information behaviour varies with different cultural dimensions. These dimensions include the hierarchical nature of society, the dominance of individualism or collectivism, the masculinity/femininity of the values, the uncertainty avoidance of the society as well as the long-term/ short-term orientation to life (Hofstede, 1991). These cultural factors affect whether people would search for various types of information and how they accept or avoid

acknowledging the implications of the information. Australia is less hierarchical and more individualistic which promotes participation in information behaviour.

4.3.4 How information is processed

When information and frames from messages are internalised and interpreted by the human mind, they contribute to an individual's knowledge. The different forms of knowledge, such as the framed experiences, values, contextual information and expert insight, have all originated from exposure to messages. The interpretation of messages varies, with some information being well understood and deliberately applied while other information may act at a subconscious level. This information has come from either recent experience or through memories; it can be sought or incidentally acquired. No matter where it comes from, it helps to form the framework of human knowledge and is applied in a number of ways. There are three main types of knowledge, which may each provide a different source of influence in travel behaviour (Liew, 2007; Nitecki, 1985).

- Cognition or recognition – know-what
- Capacity to act – know-how
- Understanding – know-why

Liew's evaluation of the purpose of knowledge is that it creates value and betters people's lives. This interpretation of knowledge assumes that all knowledge will firstly be constructive and secondly be used with good intention. However, knowledge can be conflicting with other internalised cognitive and affective constructs. It can be dangerous and it may increase capacity to discriminate, damage and participate in other socially and environmentally destructive behaviour.

4.4 Lessons learnt and contributions for methodological framework

This work has demonstrated that the way messages are interpreted is dependent on a number of characteristics of the messages and the context in which they are developed and received. There are different levels of deliberation and control in how messages are sought, received and interpreted. While information is consciously registered and contributes to shaping behavioural determinants of an individual, the different ways that messages are framed are also influential, although their influence is not always apparent to the individual. Table 4.1 summarises the characteristics of messages with implications for how the messages are formed and how messages affect determinants of behaviour.

Table 4.1 Summary of implications for behavioural determinants

Theories or idea of links	Implications for how messages are formed	Implications for how messages affect determinants of behaviour
Conveying information	Communicators may not understand the full implications of the information they portray	Information may aid decision-making or problem-solving or realising an opportunity – thereby increasing self-efficacy and activating personal norms, but may also lead to cognitive dissonance, sense of helplessness or may evoke social norms because of the prevalence of the problems.
Framing in general	Can be used by communicators to manipulate how ideas are understood. However, it also often occurs as a result of the way concepts are commonly understood and is therefore a product of accumulated ways that concepts have been put in context	Reinforces established social norms – ways of understanding concepts and words. It increases the salience of a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendations
Framing – using metaphors	Used in messages as a short cut to express more complex ideas and associations	Develops associations between concepts which may guide how concepts are understood
Framing – using symbols and myths	Used in messages as a short cut to portray emotions	Reinforces associations between symbols or myths and emotions
Framing – the language of causality	Communicators can choose whether to make causal links clear or uncertain	Directs attention towards certain causes of a problem and reflects attention away from others, particularly indirect causes
Framing – through presuppositions	Common knowledge and sentiments within the community are assumed and used by communicators	Reinforces social norms that are assumed common beliefs of the audience
Negotiating relationships while communicating	Reliance on audience's support may lead to messages which are neither confronting nor challenging	Avoidance of challenging the audience may affect the sense of outcome efficacy of individuals
Appealing to the rational or the deficit model	Assumption that people will act rationally according to material given to them	People do not always act according to assumptions of rationality and there can be unintended consequences of information provision
How people come across information	Communicators place messages in a way that the target audience is exposed to them	One needs to be exposed to the information in order to be influenced by it
Gratification theory	Messages can be designed to gratify the audience in one way or another	Information is sought for diversion, personal relationships and personal identity

Theories or idea of links	Implications for how messages are formed	Implications for how messages affect determinants of behaviour
Sense making theory	Messages may be presented to ensure that certain information gaps can be bridged	When information is sought to bridge an information gap, the knowledge function of relevant attitudes can be altered
Risk/reward theory and stress/coping theory	Messages can be designed for people to deal with distress through action or through regulating people's response to the stresses without action	People seek information to regulate distress caused by perceived stresses. However, information seeking can be impeded by too much stress
Cognitive dissonance	Designers of messages should consider people's prior knowledge and how new information will be in line or in conflict with this knowledge	People will seek or avoid information depending on whether it reduces the dissonance between their different psychological constructs and behaviour
Social learning theory	People are more likely to be responsive to others who are attractive, influential, successful, powerful or likeable to them, or are experiencing positive emotions	To learn from observations one must possess attention, retention, reproduction and motivation
Attribution theory	Messages need to be constructed so that people can assess their validity against their own position	People consider information in reference to mini-theories found through previous experiences
The context of information behaviour - personal	Communicators must be aware of the determinants of information behaviour and cognitive styles of their audience	Similarly to other behaviour, behavioural determinants are important in how people engage in information behaviour. Cognitive styles and prior knowledge affect how information is processed.
Diffusion of innovation theory	Communicators of messages can promote ideas that would be diffused more easily and disseminate them through networks that are more or less receptive at taking up the idea and effective in spreading the idea.	The potential for an idea to spread through networks is dependent on its relative advantage, the compatibility of the idea with existing beliefs and its complexity. Certain actors will be more important in taking up and spreading ideas.
Shared and mutual knowledge	By emphasising the wide distribution of messages, the audience understands that knowledge gained from such messages is probably mutually shared.	Mutual knowledge is more likely to lead to people taking action as it improves one's perceived outcome efficacy and evokes social norms.
The context of information behaviour - culture	Development of messages occurs within certain social constraints.	Some cultures are more receptive to new ideas because of their values, such as a high openness to change.

The relationships shown in this table can be used to analyse messages and demonstrate potential links between social context and behavioural determinants. These can be applied particularly for transport-related messages and behavioural determinants that are particularly important for travel behaviour, as mentioned in Chapter 3.

By combining this work with Chapters 2 and 3, a framework to develop theoretical causal links between social context and travel behaviour is formed. One can examine how various transport-related messages influence different behavioural determinants from Chapter 3 with reference to how the contexts in Chapter 2 are portrayed and viewed. The next chapter applies this work to prominent ways that people receive transport-related information, by using causal link diagrams, where causal links are based on the relationships found in this chapter and in Chapter 3.

5 Transport-related messages

5.1 Introduction

There is an array of ways that people receive transport-related messages. Messages come from sources that have been designed to support certain modes of transport (Seiler, 2008), as well as those that exist naturally and unintentionally within society. The aim of this chapter is to reveal links between some of the principal ways people receive transport-related messages and their travel behaviour. These links are based on the theoretical causal links established in Chapters 3 and 4 along with observations by the author, by a sample of Sydney residents and by existing literature related to transport-related messages. Through this work, this chapter produces ideas on what are some of the causes of travel behaviour. These ideas can be used to guide empirical studies as well as highlight areas to focus on for policy development.

Before considering the causal links, it is necessary initially to explore the different sources of messages that could influence travel behaviour. There was no list of such transport-related messages found in the literature; therefore, it is necessary to develop this list. This is done by searching literature and by brainstorming the possible ways people receive messages related to urban transport. This list was combined with statements made by people about where they receive transport-related information through a travel information diary. Causal links related to these sources of messages are then identified and examined. While it is impossible to take into consideration every possible pathway of influence from different types of messages, this approach permits an extensive search. The work in this chapter is complemented by a more detailed study of mass media in Chapter 6, which includes analysis of various media samples. By examination of the influence of messages to guide the analysis of media samples valuable insight into gaps in the current governance of transport are identified.

Figure 5.1 illustrates where the attention of this chapter is focused. This chapter is concerned with the theoretical causes of travel behaviour rather than the current trends in travel behaviour, except for instances where current travel behaviour trends feed back to be influential in travel behaviour.

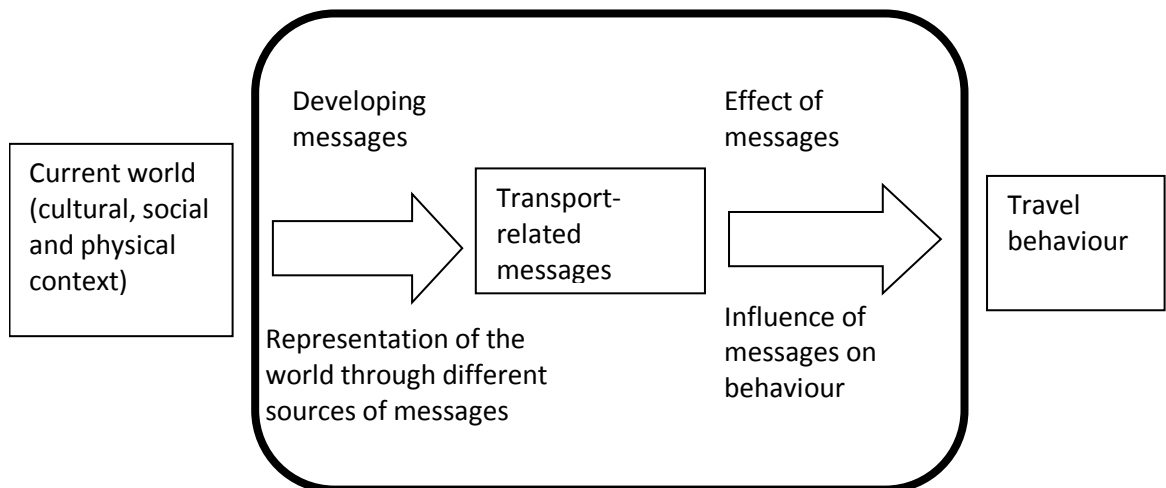


Figure 5.1 Focus of examination on urban travel behaviour

Which are the main relevant messages that come from different sources? Examples from a travel information diary are presented throughout this chapter to demonstrate real situations when such messages may influence transport users. The following characteristics of messages are investigated:

- Use of framing (metaphors, presuppositions and implicatures, myths and symbols)
- Information portrayed and received within messages
- Requirements of existing knowledge, shared knowledge and behavioural determinants
- How the audience is exposed to messages and what activates them to use information
- Intentions of the message source to persuade and to develop or maintain a relationship with the audience
- Behaviour of the audience in relation to seeking, noticing and interpreting the message
- How characteristics of the message influence different aspects of the psychology of individuals, namely:
 - Attitude – through enhancing readiness to see and/or express the positive/negative aspects, or through contributing to the pool of knowledge about a mode of transport
 - Norms and values – through demonstrating the prevalence or proximity of using a mode of transport, through judging the appropriateness, or through activating personal norms related to a mode of transport

- Efficacy – through demonstrating or facilitating the way to use a mode of transport, or through establishing an appreciation of how using a mode of transport is contributing to broader objectives
- Emotion – through demonstrating the emotional appeal and creating emotional associations with a mode of transport
- Habit – through enhancing the development of new habits or overcoming the barriers associated with habit

These characteristics are considered along with the more extensive list of factors found in Tables 3.1 and 4.1 in Chapter 3 and Chapter 4 respectively. These form the guide for defining the causal links between transport-related messages and travel behaviour. Transport-related messages are now explored through the application of a travel information diary.

5.2 The messages noticed: travel information diary

The “travel information diary” has been designed to gain a better picture of the prominent, noticeable and memorable ways people are stimulated and influenced in regards to their urban travel behaviour. Observations by members of the public add insight into where people come across transport-related messages and how they react to them. It was not possible to expect members of the public to notice messages which are normally processed subconsciously, as is the case for framing; therefore the information component of messages was the focus of this investigation. This has been done by taking a week-long sample during which people notice potential transport-related information. Along with this, participants were asked to comment on the content of the information as well as what thoughts and emotions it provoked. A copy of the travel information diary can be found in Appendix A. The justification and methodology of the diary is now explained.

Diaries are used for a number of topics of research, particularly those that investigate typical behaviour in an everyday setting.

...topics covered using diary methods are social networks, health, illness and associated behaviour, diet and nutrition, social work and other areas of social policy, clinical psychology and family therapy, crime behaviour, alcohol consumption and drug usage, and sexual behaviour. (Corti, 1993)

Diaries have been used previously in travel behaviour research to record how much people travel and whether this is in line with how much they perceive that they travel (Axhausen, Zimmermann, Schönfelder, Rindsfuser, & Haupt, 2002; Schlich & Axhausen, 2003), as well as

how people experience travel (Middleton, 2009). Diaries are appropriate for understanding the influence of different messages in the research for this thesis for a number of reasons. Encounters with messages occur frequently but are not always significant enough to store in one's memory or to even notice unless one is mindful. These incidences can be recalled, recorded and detailed more precisely with the aid of a diary as the recording takes place soon after the event and there is no pressure of time or the presence of the researcher during the recordings (Alaszewski, 2006).

Diaries in social research can take a number of forms. A semi-structured diary is used for this thesis, because it facilitates the descriptions which are useful for understanding people's reactions to information which may contribute to behavioural determinants. At the same time it still allows people a high degree of freedom and it encourages people to write in a natural way (Alaszewski, 2006). To improve the understanding of the influence of messages about travel behaviour, this study investigates the content of the message, and the thoughts and emotions provoked.

To get a holistic understanding of users who encounter information one needs to understand their actions, feelings and thoughts at the time of information encountering (Erdelez, 1999).

This style of diary and the time period of one week were chosen as they balanced the need for relevant recordings with the need to make the task simple and practical for the participants. During the course of a week people are exposed to a large range of messages, but it is unlikely that a week will be long enough for participants to lose interest or become fatigued by the task. Participants are asked to record where they notice sources of "transport-related" messages. Along with this, they are asked to comment on the content of the information and the thoughts and emotions provoked by the exposure to these sources. Demographic data is collected because this is significant in the trends of people's exposure to messages and how they react to it. There is also the opportunity for the participants to partake in a short interview where they are invited to express any ideas that they cannot communicate effectively through the written diary. This includes discussion of information sources that participants noted that they were not exposed to and recalling specific information encounters in more detail. This interviewing draws on previous use of narrative interviewing which have been used to understand information behaviour (Bates, 2004).

The data that is collected, using these diaries, is understood to be self-reporting. It therefore cannot be taken as a completely accurate reflection of events. Diaries can alter someone's behaviour from their normal way of doing things as their related behaviours and values become more salient to them. After this initial change, however, behaviours often revert back to normal in a matter of days. Another bias that can emerge is the fact that the recall of the behaviours that took place during a day may not provide an accurate representation of the day's events. Despite these limitations, the diary informs the research through general insights into what people are being exposed to with a particular focus on what is salient to them.

Recruitment of participants was started through the social network of the author. Attempts were made to encourage snowball sampling. However, of the six participants who completed the travel information diary, five knew the author. For the purpose of this thesis, the travel information diaries were complimentary to the brainstorming of transport-related messages. Due to the novelty of such a diary in transport research, it was also interesting to explore the potential of this methodology for further research. The sample size of six Sydney residents is appropriately substantial for the purposes of this thesis, with the qualitative recordings giving ample data for analysis. They produced 106 relevant accounts of encountering information related to urban transport. Their ages ranged from 23 to 37 with an average age of 27. They reported that they had a high level of environmental concern and social concern with average ratings of 8.3 and 7.8 out of 10 respectively. There was one person who drove, and one person who rode a bicycle, while the majority used public transport of some form and walked. Four participants had fulltime jobs, while two were fulltime students (of which one worked part-time). Two participants also took part in volunteer work. From this demographic data, the sample could be characterised as being young members of the public who are actively partaking in society and consider themselves as having a high concern for environmental and social issues. They may therefore be inclined to notice messages which have social and environmental implications and subsequently express their concern in their recordings. While this sample is not representative of the greater population of Sydney, they are still able to provide valuable insights. However, it is important that no generalisations from the data are made that could be affected by the nature of this group.

The majority of entries in the diaries related to direct experiences or observations of using transport. There were 73 entries of this kind. Information sources that were present while being involved in the transport activities may be more noticeable to the participants who

would have had heightened awareness that they may be exposed to transport-related messages during such times. In contrast there was very little mention of mass media messages as an information source. This may be partly because the participants have little exposure to the media. However, it may also be because they don't associate messages in the media with transport activity. For example, a car driving through mountainous terrain in an advertisement may seem far removed from urban travel. Future research could take a measure of media exposure to better understand whether the lack of recordings were due to the lack of media exposure or the lack of salience to such messages.

Similarly, there is little evidence of participants noticing messages that could promote car use. There are a high proportion of recordings relating to messages about non-car transport. This may be because car use is so culturally engrained (Lutz & Lutz Fernandez, 2010) that it acts as the frame rather than the subject of observations, as mentioned in Chapter 4. Participants were more inclined to express thoughts and feelings that demonstrated they were trying to avoid car use and provide recommendations as to how the transport system could be improved. This perhaps goes beyond their natural thoughts and participating in the study may have led to both more extensive thoughts as well as those in line with what the participants anticipate might please the researcher. With these considerations in mind, the prominent themes that were found are discussed later within this chapter.

5.3 Primary sources of messages

Primary sources of messages consist of one's own experiences and observations of the world. They are very powerful, because of the lack of reliance on other people's observations, interpretations, objectivity and honesty (Hill, 1999). The primary sources which have relevance to travel behaviour are well established through the responses in the information diary. They are also easily identified because they are generally limited to when people are using transport or are in the presence of transport. The primary types of messages relevant for travel behaviour are identified in Figure 5.2.

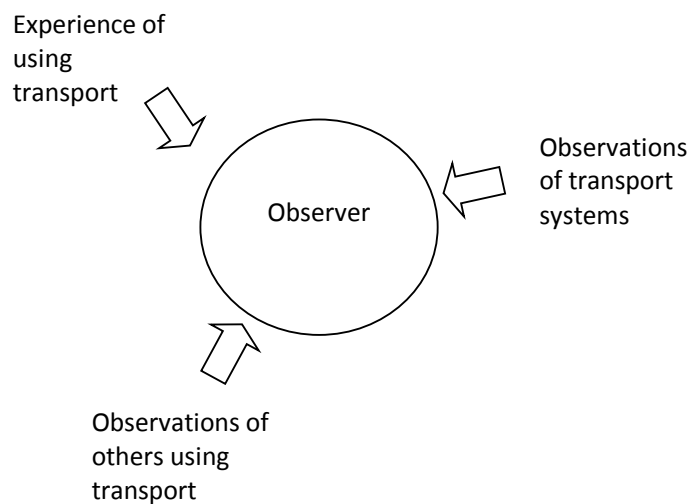


Figure 5.2 Transport-related messages from primary sources

There is overlap between experiences and observation because observations can occur while experiencing transport. The way that experiences create opportunities for observation is noted in the section on the experience of using transport. The observations are examined in more detail under the relevant sections on observation of the transport system and other people using transport. There is also overlap between observation of the transport system and other people using the transport system because people are part of the transport system. In this case, the section on the transport system does not discuss the observation of people who are part of the transport system.

Primary sources rarely involve language to convey their message because they are portrayed through images the public are exposed to. They only use framing with respect to the contexts described in Chapter 2. There is no direct or conscious design of the message or consideration of how it is received. However, indirectly, governments and other stakeholders can create certain environments for people to experience and observe whilst travelling. This is part of broader government strategy to improve the efficiency, sustainability and liveability of urban transport. The prominent recording of experiences and observations in the travel information diary demonstrates that participants were aware of these ways that they learn about transport, and they expect to find transport-related messages in this way. However, there are also messages from primary sources which involve a low level of cognitive processing and would be less noticeable. This would reduce the interference of habit on the acquisition of information, but it would also mean that people would not record them in the diary. These are included in the discussion below.

5.3.1 Experience of using transport

Experiences while using transport feed messages back through to the transport user and act as a transport-related message. Messages obtained through a first-hand experience are trustworthy and give direct and relevant feedback from different actions taken, which can create a solid association between cause and effect. This can involve complex associations or it can be as simple as noting that after pedalling a bicycle faster, it moves faster so one concludes that the rate of pedalling affects their speed. The influences of messages people are exposed to while experiencing transport are shown in Figure 5.3.

It is important to look beyond the traditional determinants of behaviour expressed in models of behaviour and question where these variables come from and what are they dependent on, including behaviour itself. (T. Richardson, 2001)

Experiences are framed by the contexts described in Chapter 2. For example, due to the different symbolic values of cars and buses in the psychosocial context, one's experience in taking a bus may give them a lower self-esteem than if they drove a car. Transport experiences also frame the contexts of other messages. One participant (female, 37) overheard noises from inside a train while having a telephone call to a consultant for work. This stimulated her to respect the consultant for his effort to use public transport for work and it also prompted her to consider her own potential to use public transport for work trips.

One can seek information through experience by trying a different mode of transport. However, the messages from experience are often an incidental part of taking the mode of transport. People rarely state that their curiosity to experience a different mode of transport was their reason for using a mode of transport (TDC, 2009). The knowledge gained through experience is shared amongst the other people one can see are also using the mode of transport, but not with people who have not previously used the mode of transport. Therefore, modes of transport with more prevalent use create wider communities of people with shared knowledge about the experience of using them.

Learning by doing

By participating in an activity the most fundamental information one receives is that they are able to behave in a particular way under certain circumstances. Their successful completion of the behaviour feeds into their perceived self-efficacy. This is because the knowledge of their ability to carry out behaviour impacts on their perception that they can carry out this same behaviour in future situations, as described in Chapter 3. The pathways of influence that

involve self-efficacy are shown with red boxes in Figure 5.3 and subsequent figures throughout this chapter. This is especially the case when future situations align with those in which the behaviour was previously undertaken. The legibility of their environment while using a mode of transport can make it easier to understand.

The individual's perceptual world is an important factor in the ease and even the possibility, of carrying out one's plans. An environment might be legible, with readily perceptible organisation and distinctive elements. Such an environment might be a favourable one for carrying out all sorts of different plans. On the other hand, an environment might not only be illegible, but distracting as well, thus tending to undermine almost any plan one had in mind. (Kaplan, 1983)

With experience one also becomes more proficient at using a mode of transport. This increases one's actual self-efficacy and improves the experience of using the mode of transport. For example, someone who has ridden a bike often will have come to know the more enjoyable routes and safer procedures for negotiating a city. Therefore they will feel more capable of getting where they need to go and also feel that cycling is safer and more enjoyable than someone without this experience.

Clarification and acceptance of attributes of modes of transport

By taking a mode of transport, pre-conceptions about the behaviour are replaced by ideas formed through the experience. The use of a mode of transport creates a more accurate understanding of its attributes (Gardner & Abraham, 2007) and thereby affects attitude.

...attitudes may be a consequence of the self-monitoring of our own behaviour and the situations in which this behaviour occurs. (Uzzell & Rätzzel, 2009)

Users of a mode of transport may be more accurate in their consideration of the mode of transport with respect to its immediate costs and benefits for the user (Garling & Steg, 2007; Guiver, 2007). Examples of this would be assumptions made about the time it takes to travel using different modes of transport. People who do not use public transport over-estimate the travel time by these modes, whereas public transport users are more aware of the real travel time (Fujii, Garling, & Kitamura, 2001). Therefore experiences on transport can increase one's knowledge and alter one's attitude if the attitude is derived from a knowledge function. One participant (Female, 37) remarked on how much more efficient it was to walk and take the train than she had expected:

Desk to meeting by catching a train and walking took 15 mins today. The same trip in a car took 30 mins yesterday! Also a much more enjoyable trip. Level of service of public transport in Sydney CBD is excellent and much more convenient than driving. This is how I think it should be but hadn't tested it before!

By adopting behaviour an individual not only receives the messages gained during their experience, but may become more or less receptive to other messages. For example, a car driver may notice the positive aspects of car use presented in employment figures and in films as reinforcement for their attitudes and behaviour, but may distance themselves from information about car accidents and environmental degradation caused by car use. However, once someone starts using a non-car mode of transport, it is more appropriate to have negative attitudes towards cars and subsequently seek and notice positive information about other modes of transport. This is due to cognitive dissonance as discussed in Chapter 4. One participant (male, 23) who was riding a motorbike noted how people could save carbon dioxide emissions while still enjoying speed. His participation in using a motorbike may enhance his desire to express these values through attitudes with a value-expressive function. Creating experiences of different modes of transport has been shown to increase positive attitudes towards the transport (Beirao & Sarsfield Cabral, 2007) and to enhance the influence of personal norms on pro-environmental behaviour (Thøgersen, 2002). The pathways of influence which involve attitudes are shown in the purple boxes in Figure 5.3 and all subsequent figures.

Experience the other people taking transport with you

One is more likely to be exposed to other people who use a particular mode of transport whilst they themselves are also using that mode of transport. When an individual rides a bicycle they often take the route that other cyclists take; public transport users travel together with other public transport users; and car drivers are on the road with other car drivers. This leads to increased awareness of other people who use that mode of transport. The prevalence of the behaviour becomes more apparent and therefore evokes the descriptive social norms that people use or do not use the mode of transport. Figure 5.3 and all subsequent figures show the pathways of influences involving norms and values, coloured in green. One participant (male, 23) noted that on a ride to the Newtown Festival he noticed people riding from a wide variety of demographics. Cycling was not listed as one of his regular modes of transport. This shows how through direct experience cycling became understood as a more personal and widely used mode of transport.

Emotional responses to experience

While using a mode of transport people experience a range of emotions. This was mentioned in Chapter 2 in the description of the psychosocial context of urban transport. Emotions help people recall their experience and organise their goals, as described in Chapter 3. Walking and cycling have been shown to evoke enjoyment when their surroundings are attractive, both physically and through social encounters (Timms & Tight, 2010). An experience of walking home from the train station was a positive emotional experience for one of the participants (female, 37).

While walking home from the station I was hit by the smell of jasmine (my favourite smell of spring!). And bumped into a neighbour who I hadn't seen in a while.

Emotion created through experience may play a direct role in determining future behaviour. This is likely to make her attitude more positive towards walking and the positive emotions associated with her walk are also likely to increase her habit strength. With experience, the development of a script to the behaviour could increase the habit strength as shown with the orange boxes in Figure 5.3.

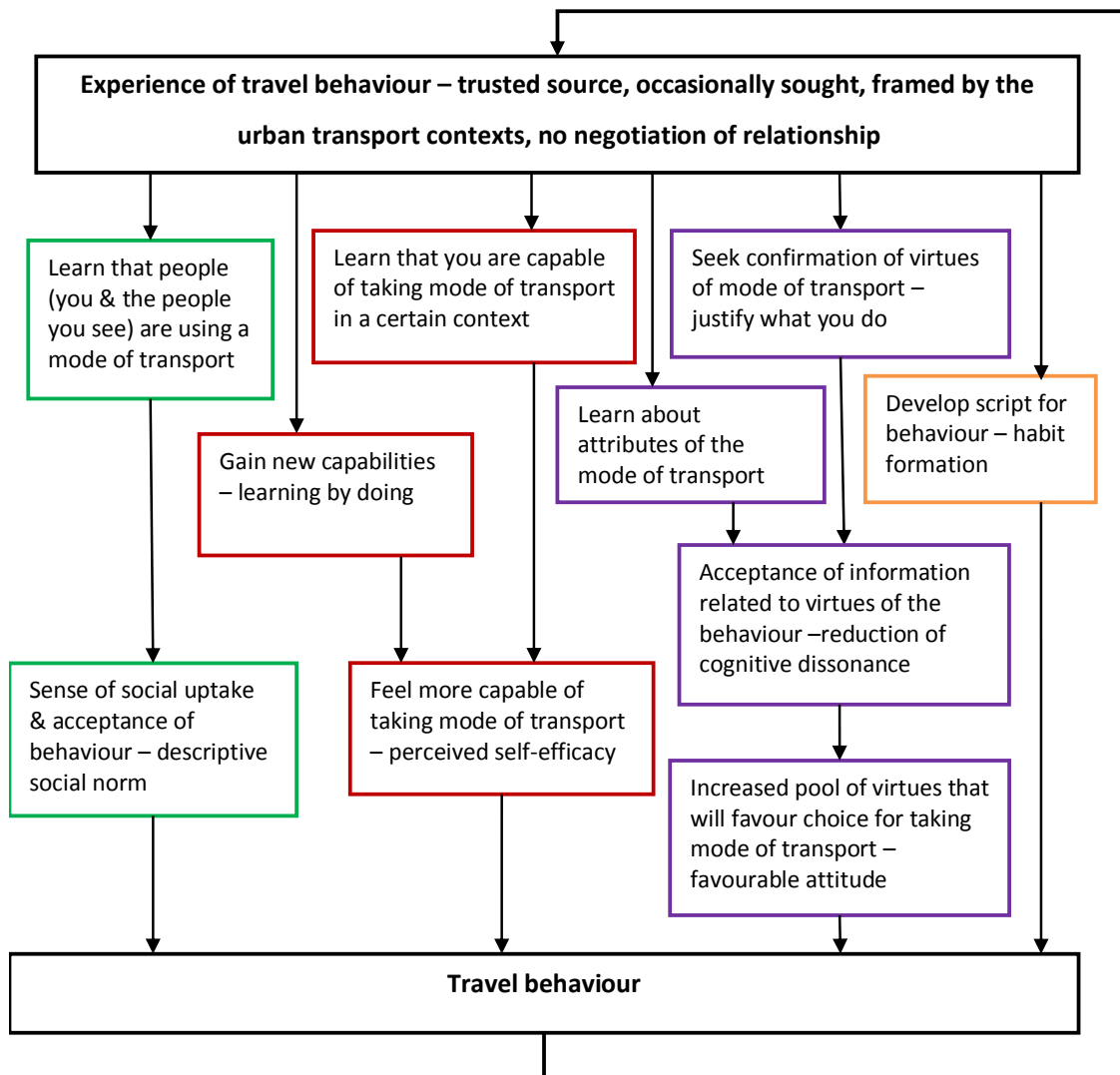


Figure 5.3 Pathways of influence from experiencing behaviour to subsequent travel behaviour

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

5.3.2 Observation of transport systems

People observe transport systems while they are using them and also in other parts of their lives. Transport systems, including the infrastructure that supports them, are an omnipresent and imposing part of everyday urban life as described in Chapter 2. Therefore, as soon as someone is outdoors in a city they are exposed to the infrastructure which allows for private and sometimes public transport to move through the city. In regards to the infrastructure for modes that are more conspicuous in the city, observations are more ubiquitous. This includes roads and parking. Through one's own observation, one can form a number of assumptions about the workings of different transport modes and what it would be like to use them.

Observations of transport systems convey messages that are not sought and are not always consciously processed. General observations of transport systems create a shared knowledge when the observations are universally recognisable. The pathways of influence from observation of the transport system to travel behaviour are shown in Figure 5.4 and they are described below.

Observation of functionality and efficiency of system

By observing the operation of a transport system an impression can be gained about the usability of different transport modes as well as their ability to satisfy an individual's transport requirements. The perception of transport attributes could be affected by the observation of the state of the vehicles, the structure of the network, the speeds, potential safety hazards, the impediments to movement of other people (e.g. pedestrians wanting to cross the road), and the potential psychological and physical effects the use of a transport could have. This in turn may govern one's attitude towards the mode of transport and may subsequently affect travel behaviour. An example of such an observation is the congested street, which gives an onlooker an indication of how unreliable the car or bus might be for travelling through certain parts of a city. Without actually experiencing being in the "traffic jam", one can imagine how it could affect a potential trip they might make by car or bus. This may be from recalling previous experiences or through imagining the consequences of blocked traffic on the speed of the cars and buses. Inadequate infrastructure that could make using a mode of transport difficult or hazardous also created frustration for one of the participants (female, 23). She observed a new bicycle lane next to parked cars, which can be dangerous when people open their doors.

Exposure to externalities

The stresses that current urban transport systems inflict on the populations of the city are enormous as discussed in Chapter 2. The stresses that are immediately apparent send messages to the public. When observing the externalities associated with the transport system, people may either come to accept them as natural burdens in their daily life or may feel badly done by in having to cope with these conditions. Some of the externalities that pose immediate hindrances upon people within the vicinity of transport systems include the noises associated with road and rail traffic, air pollution and limited access to public spaces. One participant (female, 28), observed a busy road with no intersection which imposes a barrier effect for pedestrians.

Regulation and institutions often work to create an acceptance of some of these externalities within our society, as discussed in Chapter 2 (Seiler, 2008). This acceptance is framed by the pre-supposition that these externalities are manageable and ethical. A prime example of such an institution is public awareness and education campaigns for road safety. As observers of the road system, people come to accept that the functionality of the road relies on it being a potential threat for any person or obstacle which is not suitably protected or is not acting according to the set of established protocols (Lutz & Lutz Fernandez, 2010). Therefore, throughout one's childhood they learn how to cope with this threat, by abiding by the social norms that reduce the threat of road traffic. In effect, people learn to refrain from using the road space without a vehicle, except for the limited times that access onto the road is granted legitimacy. This is when crossing the road without stopping, and only when there would be no impedance to cars or at a pedestrian crossing. Other observable externalities are not as clearly legitimised through regulations and campaigns but have become accepted through an acceptance of the reduction in value of property and through the reduction in value of experience due to the hindrance the externality causes. A clear example of this is traffic noise. Rather than put demands on the reduction of noise from cars, it has become assumed that property near roads has a lower value. Therefore, the experience of the observer of certain transport infrastructure is similarly devalued by the noise.

Emotional response

The observation of transport infrastructure and the vehicles which use it can create emotional responses. These can be induced through the physical aesthetics of the environment that the transport system contributes to (Kido, 2005), or it can be through what the transport system represents. The aesthetics, activity, community and security created by a transport system can influence the affinity one has with a mode of transport. For example, an ugly train line may create negative emotions towards train travel. Some would argue that while road infrastructure has come to represent more than a means of travel, it has also come to exclude more and more non-travel activities, such as the exchanges between people who would meet on the street (Engwicht, 1992). This has therefore created limitations within the city. However, at the same time, road infrastructure has paradoxically come to symbolise accessibility and freedom. Such symbolism can be just as powerful in creating an emotional response as the actual way the infrastructure impacts the city. For example, a new road may demonstrate the opportunity for people to travel faster and therefore create positive emotions even if it simply shifts congestion spots with the result that there are no real

improvements in overall travel time as discussed in Chapter 2. It is of interest to understand how these emotional responses are formed and subsequently influence travel behaviour. The symbolism which has formed through a range of cultural and commercial institutions could therefore play an important role in how observation of transport systems influences one's transport behaviour.

Infrastructure as evidence of transport use

The observation of transport infrastructure and vehicles gives individuals an indication of the prevalence of the use of modes of transport within the city. Descriptive social norms related to the use of the modes of transport can therefore be evoked through the observation of the density of the supporting infrastructure and vehicles. While one cannot always see the people using the system, such as when they are hidden in vehicles, the extent of the infrastructure and vehicles which cater for the transport users is visible, with the exception of transport networks which are out of sight, such as underground rail networks. The observation of the extent of the infrastructure can also take place in times when people are not using the system, which means associated messages may be communicated continually. The infrastructure for car use is the most prominent, with extensive car parks, garages, roads and numerous service stations demonstrating the prevalence of car use as discussed in Chapter 3.

Transport infrastructure is integral to people's orientation within cities. As road transport occupies the most space in cities and has the most elaborate network, roads have become the predominant orientation aid in cities (G. Allen & Golledge, 2007). In this way, road infrastructure frames the way people orientate themselves. Therefore, people are constantly thinking about road infrastructure for purposes beyond their utility for mobility, which can evoke social norms around car use and make catering for car use appear to be an expected part of a city. Hence catering for cars is seen to be a natural part of a city. This reinforces the idea of cars being a symbol of freedom to be able to get anywhere. When people physically orientate themselves through the infrastructure that serves the car, it is little wonder that the car is believed to be the ultimate facilitator of spatial freedom. This aspect of orientation and the expression of one's orientation help to cement the perception of the car as a requirement for unlimited access of opportunities within a city. This potentially increases one's perceived self-efficacy in using the car for one's transport needs.

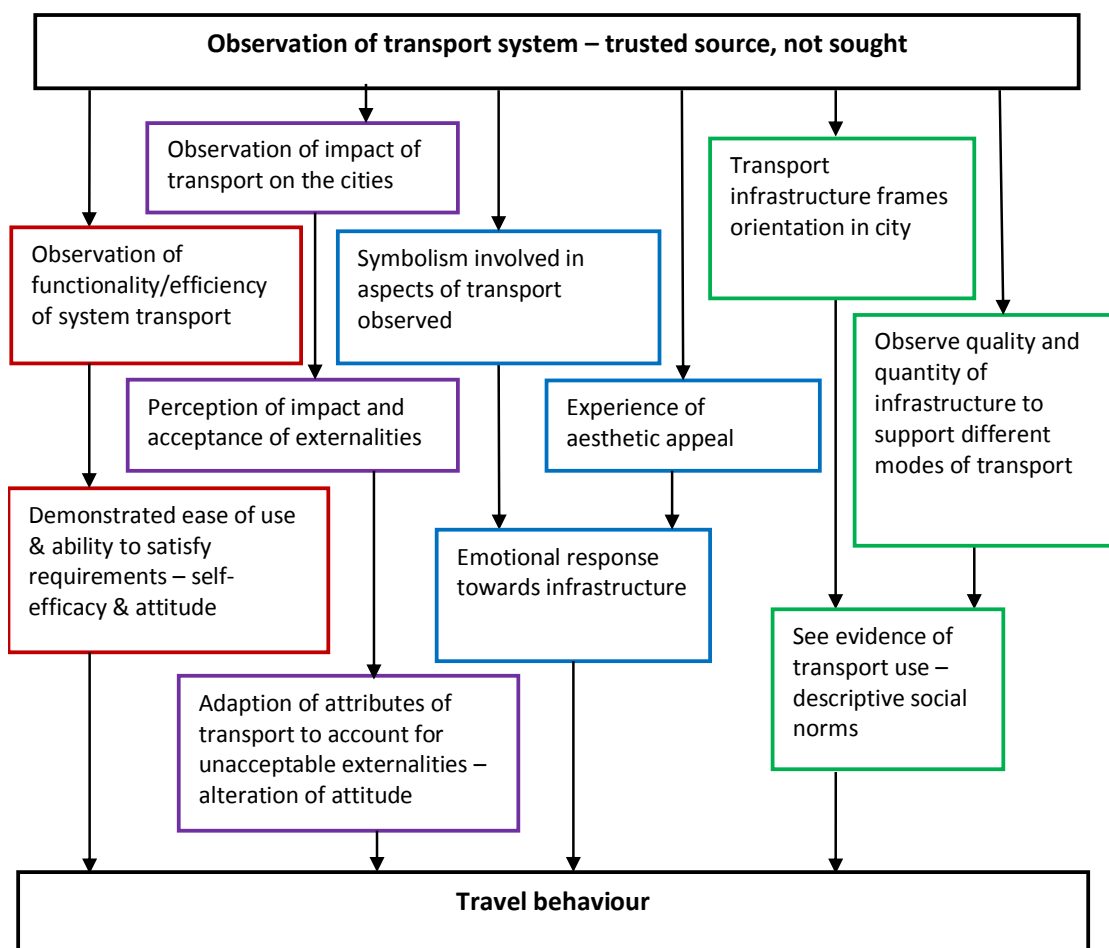


Figure 5.4 Potential pathways of influence from observing the transport system, to subsequent travel behaviour

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

The sheer requirement of infrastructure, vehicles and other support for cars, which was described in Chapter 2, increases people’s exposure to the systems that support car travel, particularly in cities such as Sydney, with their dense road infrastructure and high level of personal motor vehicle traffic. On the other hand, active transport requires minimal infrastructure and public transport infrastructure is often hidden underground in cities. Therefore the impacts of transport infrastructure observation are most relevant to car travel behaviour.

5.3.3 Observation of other people using transport

Along with considering the operation of transport systems and the images associated with them, another important source of information is the observations of the people that use them. Images of the people that use certain modes of transport are influential in how other

people relate to this travel behaviour and their expectations of the travel experience. We can glean a number of messages from our observations which relate to both the characteristics of other people using the transport, as well as the way they use the transport mode and their reactions to it. The pathways of influence from observation of other people using transport to travel behaviour are shown in Figure 5.5 and are described below.

Seeing it as socially acceptable

Observing the characteristics of the users of transport is important in the establishment of perceptions of social norms as well as establishing perceived self-efficacy. Firstly, by the sheer number of people one can see using a transport mode, one can gain an insight into the uptake of this activity and how normal it is. As demonstrated in Chapter 3, this can in turn lead to an increase in perceived self-efficacy, as an observation of a large population all being capable of behaving in a particular way will lead the observer to believe it is more probable that they can also behave in this way.

Depending on how people perceive the other people who use a mode of transport, it may evoke social norms. If someone observes that the users of transport encompass a spectrum of people across society, it is more likely that they will consider the activities they are partaking in as socially accepted. This excludes transport users that appear to belong to a group which could be perceived as being alternative or niche. An example of this is perception of cycling in different cities, where these perceptions are based on the observation of cyclists. In Amsterdam or Copenhagen, people from a diverse spectrum of society partake in cycling and conduct themselves in a 'normal' manner. Cyclists are seen to behave and to dress the same as they would while taking part in other daily activities (Carstensen & Ebert, 2012). Contrastingly, in Sydney cycling is linked to subcultures that a large proportion of the population do not feel are easily accessible to them. The image of the "sporty" cyclist is one such dominant image and involves the cyclist dressed in lycra, riding a modern expensive road bike, in a crouched position while riding fast and exerting themselves (Strong, 2010). This does little to contribute to cycling being included in social norms that are applicable to the majority of the population observing these transport users.

There are other ways observations are made which could affect our perception of the transport options. If the observer likes the type of person they see, or wishes to emulate characteristics that the transport user possesses, this could contribute to a positive association with the transport option. This could act as a motivation to pursue this travel behaviour to improve the observer's self-perception. By observing qualities they like, the observer may also

have increased empathy towards the transport users and their reasoning for behaving as they do and it may legitimise the travel behaviour for the observer.

If they can do it, I can do it

Observers, who share similar characteristics with the transport users, could gain a sense of proficiency in undertaking travel behaviour similar to that being observed. Being able to relate to the transport user through shared characteristics increases the likelihood that one can envisage themselves sharing similar capabilities and constraints as the transport user. Through social learning this could translate to an increase in perceived self-efficacy of the observer for the travel behaviour being observed as described in Chapter 4. The potential for people to see others using a particular mode of transport is more likely than seeing people perform many other activities, because of the public nature of travel, which is described in Chapter 3.

Vicariously experiencing the transport

Observing the way people experience the transport system can affect a number of the determinants of behaviour discussed in Chapter 3. This could be through evaluating how much control or difficulty, enjoyment or lack thereof, that someone is having, by noticing their expressions and actions. The observer may therefore associate some of these emotions with the behaviour being undertaken. The procedures that the transport user partakes in can also make an observer feel more distant or close to the travel option being observed. If one can relate to the procedure in some way or can see that it could be possible to undertake, this can increase one's perceived self-efficacy for taking the transport option being observed.

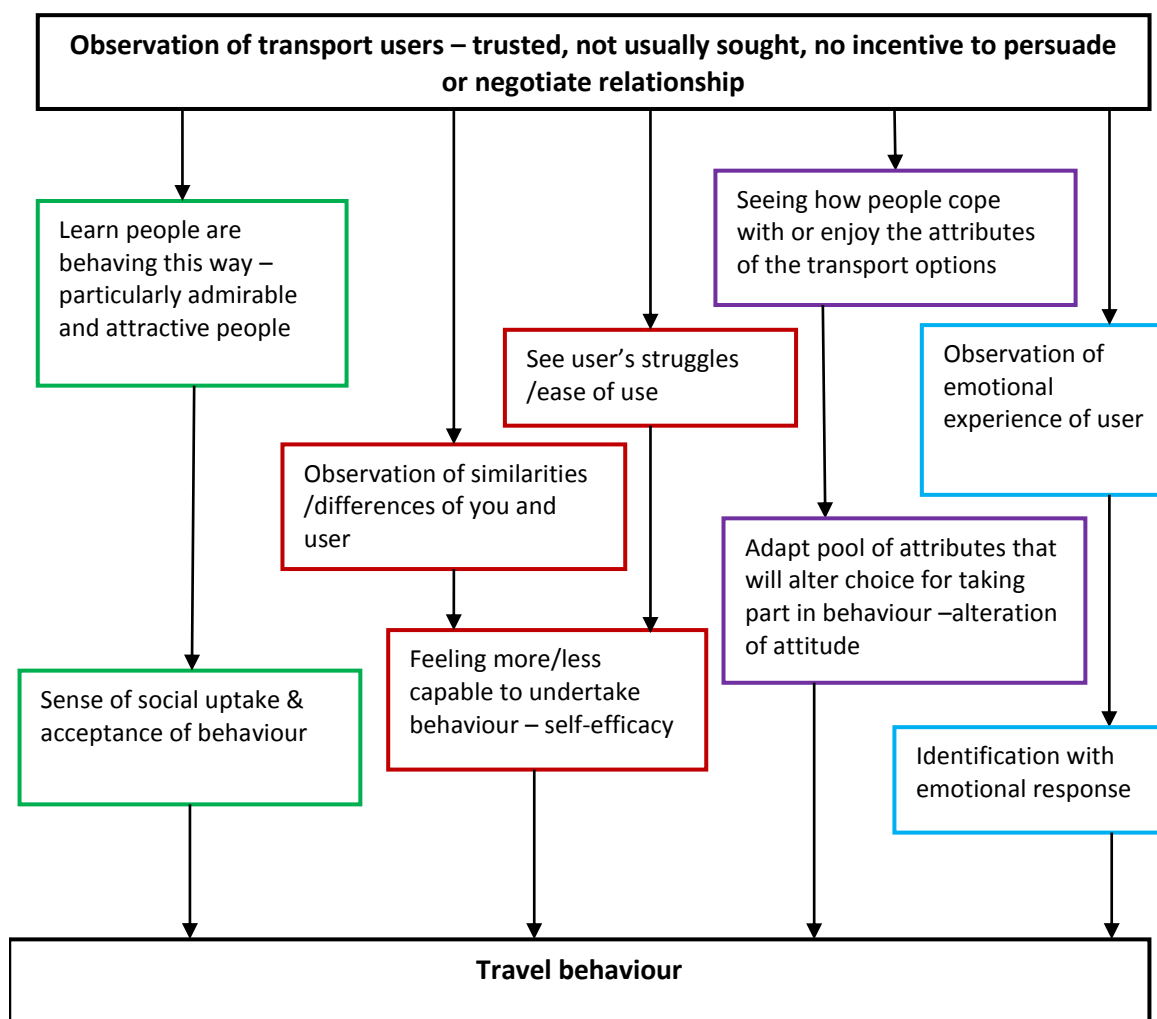


Figure 5.5 Potential pathways of influence from observing transport users, to subsequent travel behaviour

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

5.4 Secondary sources of messages

Secondary sources are those in which messages are relayed through another medium rather than being directly noticed by the individual. People are exposed to a wide array of secondary sources of transport-related messages. These messages are more accessible and can require less effort to seek. People can come across secondary sources through intimate personal networks, wider social networks or through mass media (Pettrigrew et al., 2001). These messages come in a number of forms including the following:

Government documents, middlebrow print media, drivers manuals and guidebooks, automotive trade magazines, philosophy, advertising, cultural criticism, scholarship in

the humanities and social sciences, industrial and commercial films, highway engineering studies, literary works, and popular music. (Seiler, 2008)

The secondary sources of messages are grouped by the author into the categories illustrated in Figure 5.6. The institutions that develop the messages, the purpose of the messages, and the way they are delivered differentiate these categories. There is some overlap where institutions collaborate to create messages, such as a transport authority and a sustainability organisation jointly developing a message to promote the sustainability of using a mode of transport. Messages can also pass between different sources and therefore someone can receive it in multiple ways. For example, one may hear a story through the mass media and then someone in their social network may repeat the story.

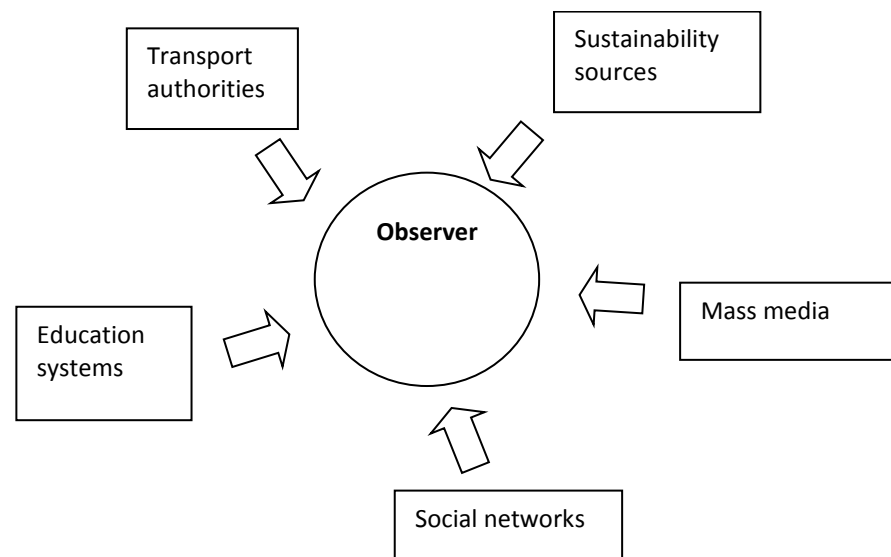


Figure 5.6 Secondary information sources that can influence travel

While all these sources provide very different forms of messages with a variety of content and influential features, they are all prevalent and they potentially influence people’s urban travel behaviour. Here, some aspects of each of these sources of information are examined. Rather than in the following section, mass media is examined in detail in the next chapter.

5.4.1 Sustainability messages

With the increase in awareness of sustainability issues, sustainable transport has become a part of messages conveyed by businesses, governments and other groups that are advocating for sustainability. These messages have a clear agenda to persuade the audience to adopt more sustainable travel behaviour. This could be in the form of purchasing decisions, the trips people choose to take or the modes of transport people take. The reason for persuading the

audience could be purely for the purpose of ensuring a sustainable future. However, it could also be to promote a product or service they provide. People with a desire to live more sustainably may seek out such messages. Where messages have been delivered in collaboration with mass media or education institutions, people may come across this information through their media consumption or their education without necessarily seeking it.

The groups advocating for sustainable transport need to negotiate a relationship with the audience of their messages. This may be to ensure that their messages are taken seriously and they remain respected by the audience. Appealing to the rational may be perceived as a way to respect the audience, even if it is less effective than other messages. A 'sustainability focused' business may also need to negotiate a relationship in order to ensure that people will want to buy their products. Therefore, messages may be designed to ensure they do not offend their audience. When the majority of the audience is currently driving, this indeed means that messages cannot offend drivers. A range of sustainable transport messages include:

- Messages that do not promote modal shift
- Information about the impacts of transport
- Information to facilitate modal shift
- General sustainability messages incorporating sustainable transport

Messages that do not promote a modal shift

Not all sustainable transport efforts are related to encouraging a modal shift. Technological solutions or changes in people's behaviour that do not involve changing mode of transport are two ways that certain sustainability issues can be dealt with. As discussed in Chapters 1 and 2, while these efforts create certain sustainability outcomes, there are limitations to them that modal shift can overcome. However, if sustainable transport is framed as an issue of sustainable technologies for cars and solutions are seen to be possible without modal shift, this frames efforts to change mode of transport as a sideline issue to the 'real efforts'. Examples of such messages include conferences such as the NRMA alternative fuels and technology conference (NRMA, 2010) and the keynote speech of the Clean Air Forum (Jacobson & Delucchi, 2010), both held in Sydney. The fact that these sources place their efforts in solutions that do not involve a modal shift can create assumptions that modal shift on a large scale is neither possible, practical nor necessary. This can enhance certain beliefs and lessen others.

...one-third of adolescents think that by just 2015, the gasoline-powered engine will be obsolete.... People also commonly believe that car crash fatalities will be eliminated by the creation of an automobile safe enough to walk away from after a 70-mile-an-hour collision (Lutz & Lutz Fernandez, 2010)

If there is an assumption that it is not necessary, people will be complacent about changing their mode of transport and may resent efforts that promote modal shift. This may in turn lead to a negative attitude to non-car modes of transport and the groups that support them. If there is an assumption that it is not possible, the perceived outcome efficacy of individual's attempt to change their mode of transport is reduced because modal shift requires a co-ordinated effort for results to be obtained (as described in Chapter 3). If there is an assumption that it is not practical, people will have a low sense of self-efficacy in changing to another mode of transport. A combination of low self-efficacy and low outcome efficacy drastically reduces the likelihood of carrying out an action as described in Chapter 3. This is illustrated in Figure 5.7 along with the other pathways of influence.

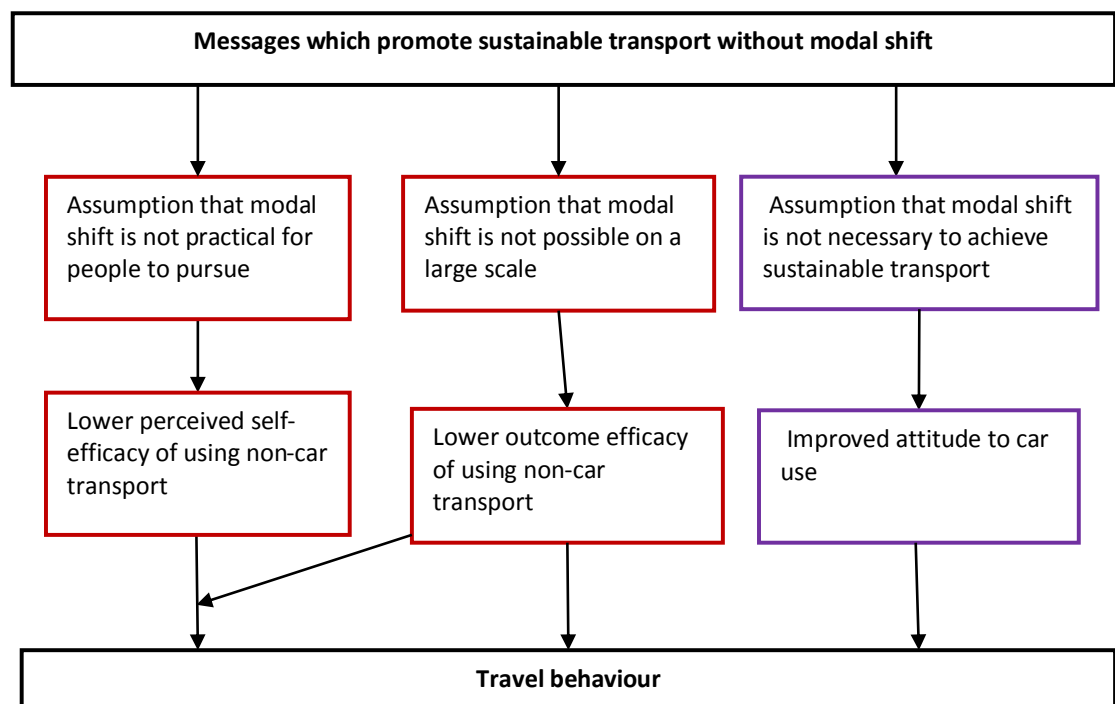


Figure 5.7 Potential pathways of influence from sustainability messages which do not promote modal shift

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

Information about the impacts of transport

Within certain sustainability messages the impacts of cars are brought to light in order to demonstrate why one should consider changing to a different mode of transport. This comes from the logic of the deficit model (see Chapter 4) that if scientific findings are understood in the wider community, people can react appropriately to the findings. It has proved to be ineffective, as it provokes cognitive dissonance between the beliefs and behaviours of the population, and the new information (Anable et al., 2006; Owens & Driffill, 2008) which people subsequently ignore. There have been numerous cases where information provision on sustainability issues has failed or has adversely affected the way the public at large has perceived and acted on the subject of the information. The UK's "Are you doing your bit" campaign failed after three years (Hounsham, 2006). Organisers of sustainability campaigns therefore face the difficulty that people do not respond according to the rationality that is revered by scientists.

Unfortunately most if not all the lifestyle decisions that the green movement seeks to influence are not determined mainly by rational consideration of the facts, but by emotions, habits, personal preferences, fashions, social norms, personal morals and values, peer pressure and other intangibles (Hounsham, 2006).

Compounding this dilemma is that people like to consider that they are rational as discussed in Chapter 4, and so a complete neglect of rational arguments can also lead to criticism and scepticism from the audience of messages. Therefore, the appropriate framing of sustainability messages can be a delicate undertaking.

The focus of many campaigns has been on the problems of urban transport while appropriate solutions have been left to the responsibility of the audience to find. This has generally led to feelings of helplessness as people grow in concern about the problem, but feel the solution is beyond their "sphere of influence" (Hounsham, 2006). Sustainability messages often appeal to individual responsibility for problems and solutions. Messages often introduce the notion of sustainable transport as a way for people to contribute to reducing one's "ecological footprint" or at least contribute to improved sustainability of the immediate urban environment. These attempts to quantify the progress one makes from one's current behaviour could have both positive and negative effects on behaviour. It could be positive as it creates an impression that a person can change their impacts, but it can also induce feeling of complacency if the quantified personal contribution appears minimal compared to the larger scale of the problem and therefore lowers one's perceived outcome efficacy.

In sustainability information, descriptive social norms are evoked when describing the devastation of the problems and the widespread practices that are contributing to these problems. By attributing the lack of sustainability to widespread behaviour such as driving, people are potentially influenced by the descriptive social norm of the prevalent behaviour, even though it is accompanied by a negative injunctive social norm as described in Chapter 3. Descriptive social norms, however, can be evoked to show the prevalence of the positive behaviour happening in the community, which can have a positive influence for people to take up sustainable behaviour (Griskevicius et al., 2008). This can be seen in Figure 5.8 along with the other pathways of influence.

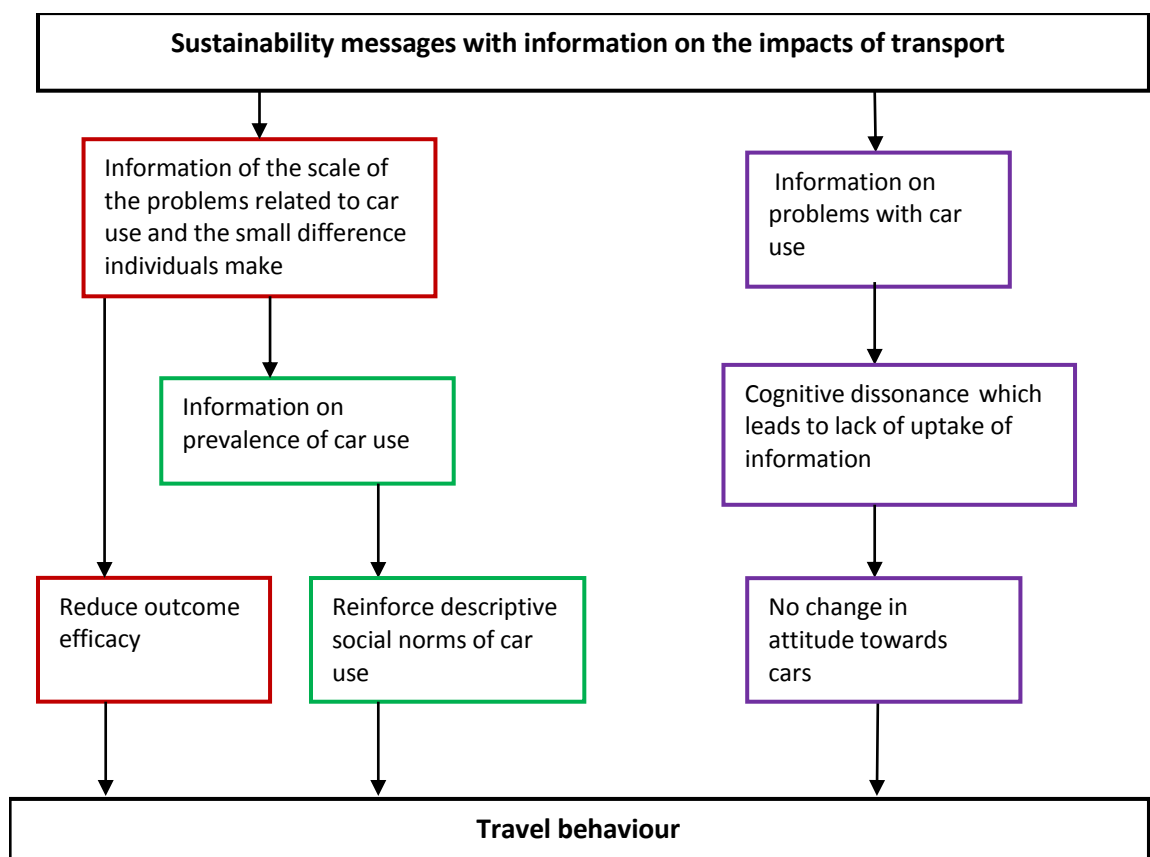


Figure 5.8 Potential pathways of influence from sustainability messages with information on the impacts of transport

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

Information to facilitate modal shift

If messages are framed correctly they can “create agency, the ability for people to understand a problem in their own way, decide for themselves to do something about it, make a real difference that’s noticeable to them, and receive recognition for having done the right thing”

(Hounsham, 2006). There is, therefore, the possibility of increasing perceived self-efficacy, if the message can be framed in such a way that places the emphasis on the role of the individual as an active agent. In order to achieve this it is important not to think of the population as objects which the campaign is trying to change, but subjects of change, and the messages facilitate them to make changes themselves. There needs to be a sense of self-directedness in order for people to feel they are in control, they are actively working towards something and they understand their motives (Hounsham, 2006).

However, messages that facilitate people to use non-car modes of transport can also reinforce certain social norms that are negative for a mode of transport. As detailed in Chapter 3 one can evoke a contrary image due to the way a concept has been framed. Therefore, when promoting cycling, the mention of safety (which is seen to be a responsible part of cycling promotion) reinforces the frame of cycling being dangerous.

cycling is constructed as dangerous through – ironically enough – attempt to render it safe: road safety education; campaigns to promote helmet use; and the growing provision of off-road cycle routes ... some of what currently passes for cycling promotion is actually more likely to be detrimental to cycling's prospects (Horton et al., 2007b)

Similarly, an advertisement for Sydney's Cityrail was noticed by one of the participants. According to the participant (female, 25) it said "Making your trip forgettable". This advertisement claims that there will be *no* memorable experiences as a *positive* aspect of the trip, which infers that memorable experiences on trains are not good. This advertisement can lead one to imagine the negative aspects of catching a train rather than potentially positive ones. However, the participant claimed that she felt unaltered in her thoughts about trains before and after. As she is already a train user, she may have a good understanding of train travel that such messages would not shift.

General sustainability messages incorporating sustainable transport

Sustainable transport is often mentioned as part of broader sustainability issues such as climate change. This can encourage people who have particular environmental, social or economic concerns to consider modal shift. When the focus of the message is one particular sustainability issue in which transport only plays a minor part, the message can allude to the idea that transport is not a priority for sustainability efforts. For example, when direct emissions from cars is approximately 7.6% of Australia's greenhouse gas emissions (BITRE,

2008), efforts to reduce emissions from transport may seem futile or technological solutions may appear sufficient. This may in turn lead to attitudes being formed around the sustainability of modes of transport by only considering the aspects related to the sustainability concern of interest (such as climate change). This is shown in the Figure 5.9 along with other pathways of influence from sustainability messages which have not been shown in the previous Figures.

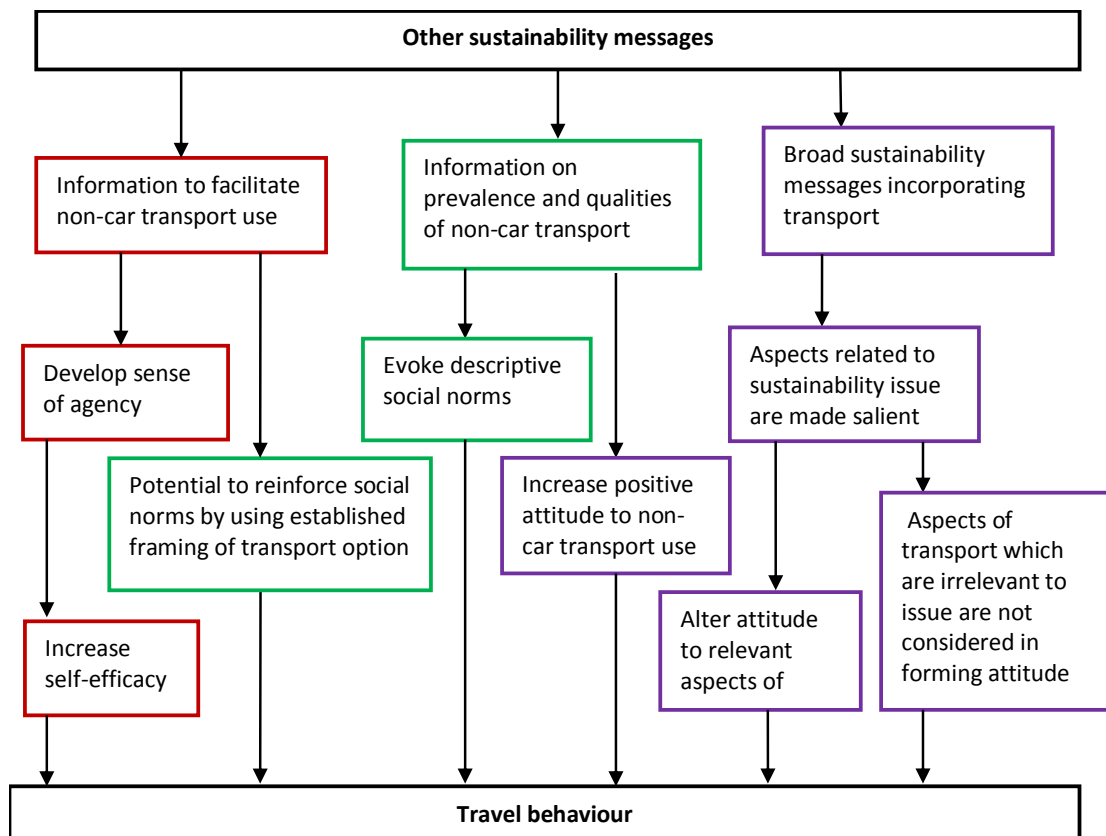


Figure 5.9 Potential pathways of influence from other sustainability messages

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

5.4.2 Information to support transport users

In order for people to use different transport systems in an appropriate, effective and safe manner, information about how to conduct oneself and navigate through the system is important. Messages are therefore developed to consciously inform and prepare people to use a mode of transport. Active searches for information may take place to learn the protocols required to take different modes of transport successfully and to discern information such as timetables and routing that are necessary to efficiently take the transport mode. This information will allow for increased motility, which is a measure of one's capacity for potential and effective mobility (Flamm & Kaufmann, 2006). People can be influenced by such transport

information in a number of ways. With people's increased understanding of the system, they can feel more in control and more involved with the behaviour, as they can picture themselves being able to take the mode of transport. This increases one's perceived self-efficacy. This can also lead to a potentially improved attitude for the transport mode because of the improvements to the experience of taking the transport option. The pathways of influence from information to support transport users to travel behaviour are shown in Figure 5.10 and are described below.

Understanding and equipping oneself in the complex transport system

Messages play different functions depending on the particular aspects of the mode. Different modes of transport involve different complexities and involve specific competencies in order to be used efficiently, as explained in Chapter 3. Privately operated transport modes, such as a bicycle or a car, require a high degree of competency in both the ability to control the vehicle and a general understanding of navigation in an appropriate fashion. On the other hand, public transport users are faced with different requirements for understanding protocols, ticketing, schedules and navigation. Information systems for car users, such as driving manuals, have been highly developed and are supported by interest groups such as automobile, oil and insurance companies. They take the opportunity to "emphasise the ways in which driving amplifies the individual's natural agency.... stressed the weighty responsibility of automobility, their overwhelming faith in those empowered individuals, better angels directing them to drive and to live the autonomy" that automobility is seen to engender (Seiler, 2008). This provides messages that frame the car driver as a responsible citizen with control and self-efficacy. However, other transport options have information systems that may be less optimal due to a lack of maturity in their development and lack of groups with vested interests. Researchers have identified areas of improvement for information in order for transport users to optimise their timing and navigation (Ettema & Timmermans, 2006; Kenyon & Lyons, 2003). Such systems can consequently improve the attributes of the trip by making it more convenient and faster as well as increase perceived self-efficacy because of the increased feedback and control. Examples of this include real-time information which allows people to leave for their transport journey at an appropriate time, with an appropriate route and thereby increase the efficiency of their trip (Hickman & Wilson, 1995).

Information to make transport run smoothly

Messages are used to control potential problems that can arise from transport use. Tailoring one's travel behaviour in order to be appropriate for the conditions is guided by information provided by transport authorities. An example of this is the number of road signs that line streets. In order for car drivers to be able to function in the transport network, they are constantly required to use information to know how to drive in a safe and appropriate manner. Information provided to transport users, such as signage, can increase the confidence of transport users in their ability to successfully undertake the use of a mode of transport without problems arising. Messages can also reinforce the need to show respect to others while using a mode of transport. One participant (female, 37) noted announcements on the train asking children to give up their seats for other passengers. She believed that the need for children to show courtesy on public transport is important in teaching them to show respect for others more generally.

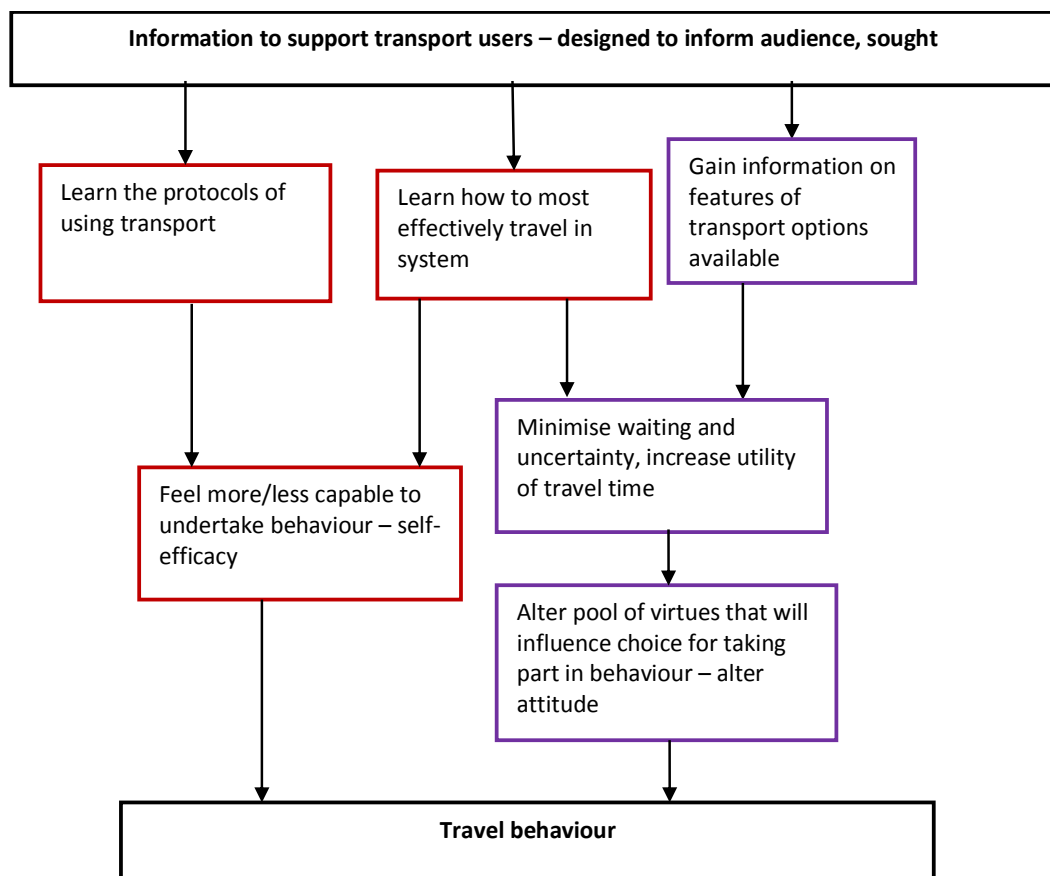


Figure 5.10 Potential pathways of influence from messages from transport authorities

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

5.4.3 Education

Existing education systems could be particularly important in influencing travel behaviour. They directly provide information to students, portray social norms and values, and help develop the ways that people analyse situations (Biesta, 2009). The pathways of influence from messages from educational institutions to travel behaviour are shown in Figure 5.11 and are described below.

The abilities for critical thinking of children and young adults are still being formed. It can also be argued that they are more receptive due to the fact that they are more likely to be affected by the effects of unsustainable behaviour and they have not started driving themselves (Taber & Taylor, 2009). This segment of the population is most exposed to education through schools, universities and other tertiary institutes. In recent years, education about sustainability has become more prominent (Skamp, 2009). Through a gained awareness of sustainability issues, children could be more likely to take these issues into consideration when assessing the attributes of different modes of transport.

Within the general learning environment different travel behaviour and transport phenomena can be used as examples for problems or case studies across many different subjects. This information can reveal attributes about the different transport options. By learning about the attributes of the transport mode, there is potential that these attributes will be more accurately represented and more salient in the mind of the learner. A study was undertaken on students who were required to calculate the financial costs of transport options as a maths exercise and it was found that significant changes in attitude can be made with respect to car ownership through such education (Cairns, 2003). This presents evidence that intervention to enhance this form of information through the education system could have positive impacts on modal split. Awareness of the issue and, therefore, a description of current trends seem like an important part of comprehensive education. However, by introducing problems and case studies which reveal more about the state of transport in the world and what are current trends in transport use, there is the potential that such information reinforces descriptive social norms which reaffirm the position of car travel as the dominant form of urban transport (Cialdini, 2003).

Experiencing transport can also be a possible way that the education systems influence travel behaviour. This can be as part of other activities, such as excursions and other activities not in the vicinity of the school, for use of various modes of transport. This can be an opportunity for students to learn the skills and protocols involved in different travel behaviour. Learning how

to use different forms of transport has become part of the education system in various countries. European countries, such as the Netherlands, have had a long history of integrating education about cycling into their schooling (Pucher & Dijkstra, 2003). The school environment allows for children to build capacity for partaking in different forms of travel behaviour while being in a controlled environment, without certain risks and pressures that are normally associated with different travel options.

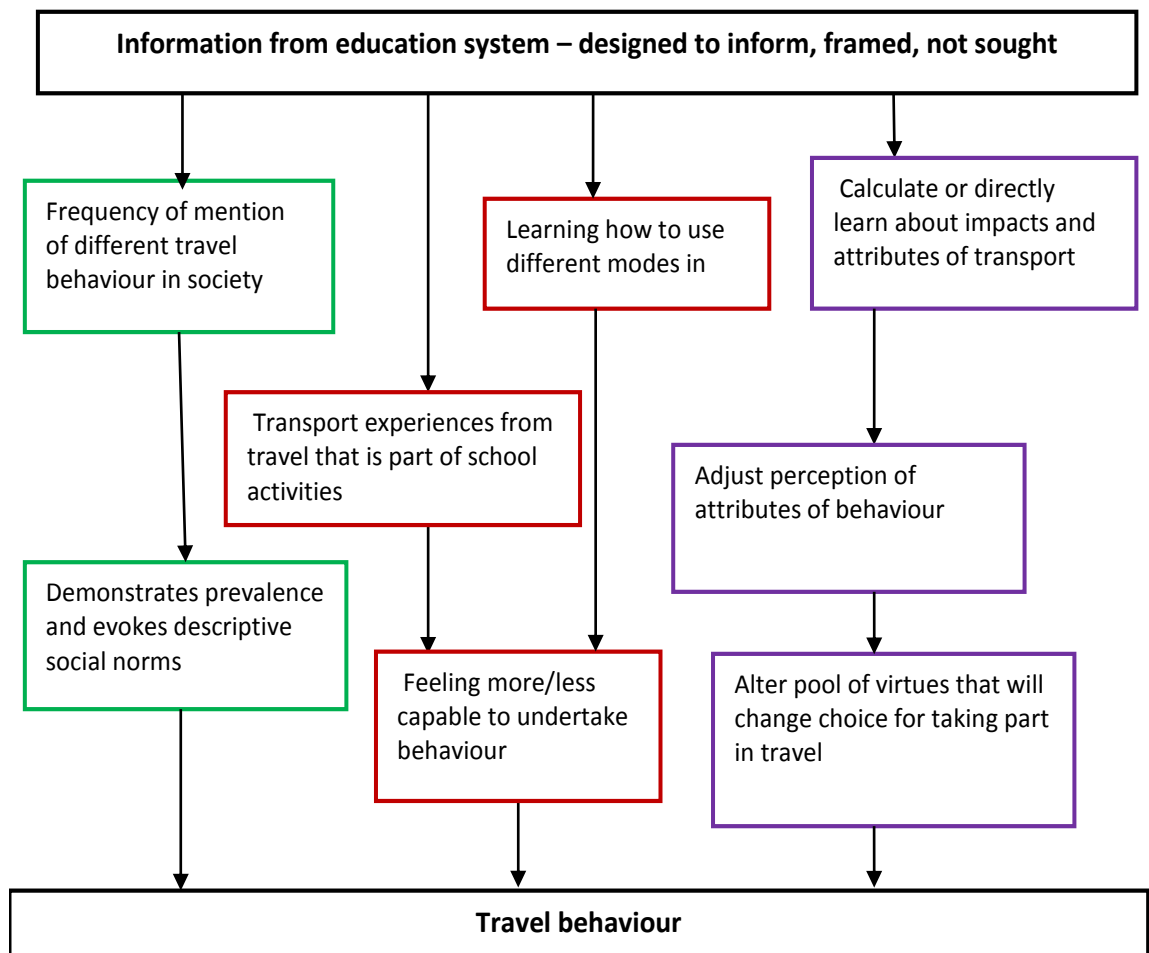


Figure 5.11 Potential pathways of influence information from education system

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

5.4.4 Social networks

Social networks consist of individuals who have interpersonal relationships and the ways these individuals are linked. These networks include personal networks, such as friends and family, as well as more extensive networks such as those established through workplaces, clubs, other organisations and people with whom one comes into personal contact with through daily life. In such networks, messages flow in multiple directions. Increasingly they are occurring

through different media. While conversation through personal contact has been the dominant form of social exchange, communication has diversified into electronic mediums such as online social networks. The pathways of influence from social networks to travel behaviour are shown in Figure 5.12 and they are described below.

Social networks potentially play an important role in influencing behaviour. They enable the sharing of aspirations and knowledge (Sharmeen, Arentze, & Timmermans, 2010). People are likely to trust others within their social network and therefore more readily trusting of the information they provide (Misztal, 1996). Trust is particularly important for information which may be threatening such as the idea to change their travel behaviour (Shiller, 1995).

Participating in conversation can be an extensive part of everyone's communication experience, but especially for some demographics. For example, teenage girls converse for an average of 16 hours a week (Raffaelli & Duckett, 1989). It was found that transport was a particularly prominent topic of conversation for men and for people talking with acquaintances (Kellermann & Palomares, 2004). Cars and parking cars were also topics of interest for young adult males (Haas & Sherman, 1982; R. Martin, 1997). However, these studies do not enter into details about the way people talk about transport. Social networks provide a medium for a number of messages around transport. Within conversation people discuss logistics, plans, and complaints, relay experiences and give advice on topics related to transport. These conversations can inform and persuade people in a variety of ways.

The consequence of these conversation behaviours is to keep people well informed about simple facts about the local environment, where to get things and where there are hazards, how simple tasks are performed, about family and friendship ties, about local gossip, about who is deviant and not to be trusted. Abstract topics are not usually pursued in depth (Shiller, 1995).

There is a lack of literature on the nature of conversation related to transport. However, there is evidence that people converse about a number of transport-related events, ideas, theories and other messages.

Advice

Through social networks people may find advice in a number of forms. People can seek advice from an acquaintance who has more experience, and knowledge in using a mode of transport or advice can also be disseminated to people without them seeking it. Friends and family provide an important source of advice, because it is through these intimate connections that

high levels of trust and interaction allow for acceptance of the information provided. Social learning can play a role in sharing advice within one's social networks as people can copy the behaviours and valuations of others that they know and like (Ettema, Arentze, & Timmermans, 2011). The advice gained through these interactions within social networks can build up self-efficacy and alter attitudes with knowledge function.

Plans and logistics

People talk about their intentions to use different modes of transport for a number of reasons. It could be because they would like to let their aspirations be known, to confirm their plans, to organise logistics, or to seek advice about their potential plans. This may help build self-efficacy for the person communicating the message as it builds a commitment to carry out the plans. Hearing of plans to use a mode of transport may evoke a social norm and increase one's perceived self-efficacy because they hear of people performing the behaviour and they see that other people believe they can successfully start using the mode of transport.

Mention of the mode of transport may be incidental to a conversation about logistics. There may be presuppositions introduced about the use of a car. For example the phrase "I can pick you up" is commonly used, which implies that the speaker has a car, they are willing to take someone else with them in their car, and this is a favour. Depending on the situation this offer, to take someone in their car, is seen as a statement that they will pick them up in *their* car. The presupposition of car ownership and car use built into conversation about organising logistics reinforces social norms around car use.

Complaining

People have high expectations from transport due to the inherent lack of control they have while using transport (they cannot be at their destination until they negotiate the transport system to get there) as discussed in Chapter 2. One may complain in order to give a reason as to why they are late. On arriving late at work, a colleague of a participant (female, 23) told her that he always has a full tank of petrol in case he gets delayed by traffic. The expectation of not being in control while traveling is incorporated into the logistics of his travel. Other complaints may be made to justify a bad mood or in search of sympathy. Negative attitudes and emotions associated with the mode of transport may result from hearing a complaint.

Relaying an experience

People enjoy talking about their travel behaviour because they like sharing emotional experiences (Manstead, 2005) and the array of "anecdotes, stories, fears and theories"

(Horton et al., 2007b) that are part of using transport. This type of conversation leads to information exchange and it reinforces memories of the experience (Shiller, 1995). Emotions portrayed through conversations about transport can be readily transferred to others because emotions are easily spread through social networks (see Chapter 3).

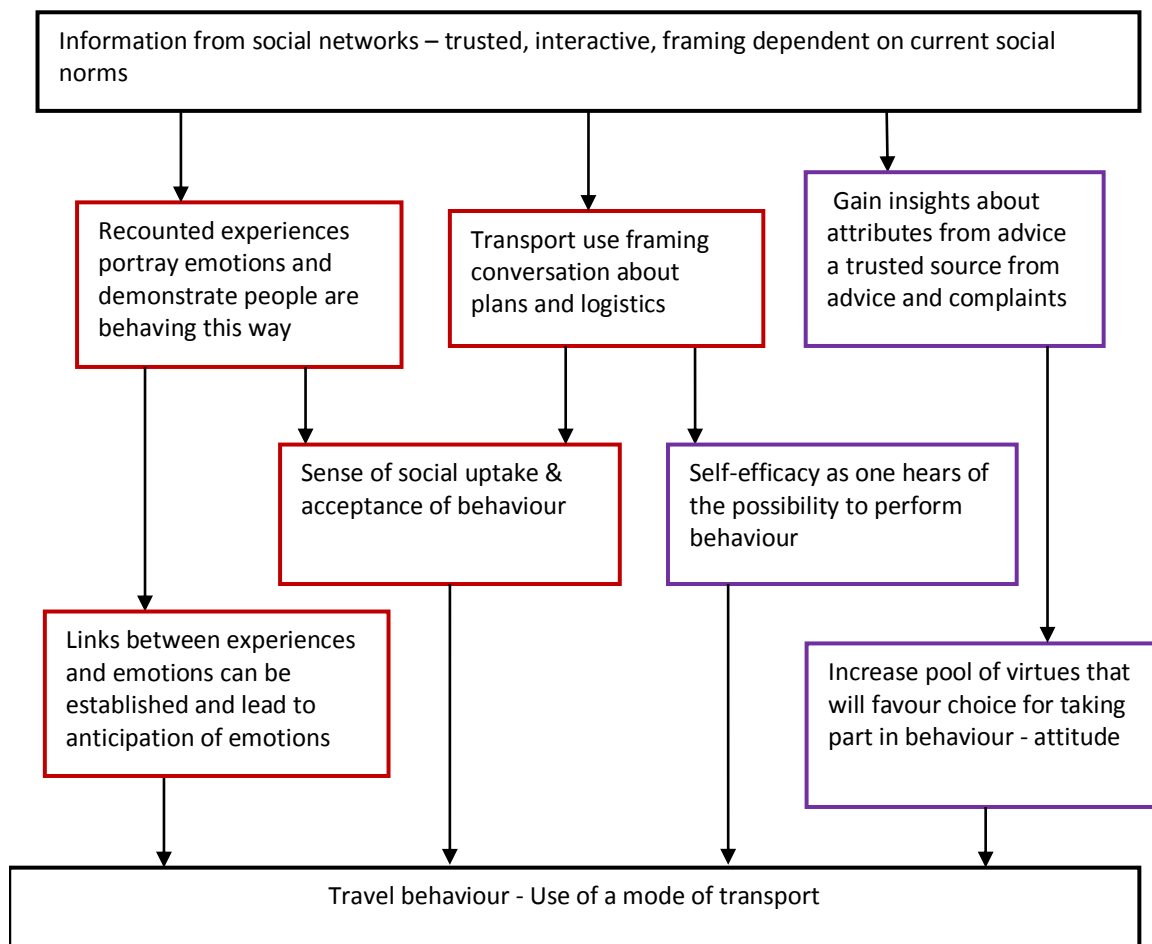


Figure 5.12 Potential pathways of influence from social networks

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

5.5 Summary

This chapter has demonstrated potential links from transport-related messages to travel behaviour. These messages have come from a variety of sources, both primary and secondary. This chapter has been exploratory in nature and while it has revealed a number of social influences on travel behaviour, it is not exhaustive. The sources chosen for examination were found by a combination of a literature search, brainstorming and the observations of a sample of Sydney residents. Workshops with wider groups could extend the list of sources of transport-related messages. However, the author believes most of the prominent sources

were identified in this chapter. Other literary and cultural texts (apart from mass media which is discussed in the next chapter) could be included, but the general public has a lower exposure to such texts. The theoretical links are also the result of the observations of a sample of Sydney residents together with the identification and application of relevant theories from Chapters 3 and 4. Therefore an increase in the number of people involved in the research would increase the potential for relevant links to be identified. While a more exhaustive list would benefit the comprehensiveness of the study, the exploration of new causal links is a substantial attainment of this chapter.

There are certain factors which feature prominently within numerous messages examined in this chapter. The way that such factors are incorporated into messages should be addressed. This involves exploring the institutions and competencies involved in the development and portrayal of messages. The factors identified in this chapter include the perception of:

- The perceptions of power and fairness
- The framing of problems, solutions and responsibilities
- The self-image of transport users
- The way prevalence and acceptability of transport use is conveyed
- The way proximity to and familiarity with transport use is developed
- The competency to deal with complexity and variability of transport

This chapter has examined the various sources of transport-related messages in a general sense. While this is useful in understanding general trends, it does not provide empirical evidence of the links to behaviour. The links identified act as a guide to empirical research because it directs what features of the texts should be studied in detail and what effects can be expected. The next chapter explores mass media by taking media samples and using the theoretical links identified through the framework established. This detailed examination will shed light on the themes identified in this chapter in the context of mass media and may lead to the identification of other factors relevant to this social influences on travel behaviour.

6 Mass media as a social influence

6.1 Introduction

The previous chapter outlined theoretical pathways of influence from messages to travel behaviour. The insights established through this work can guide research on the way samples of messages are analysed. This chapter extends this work by more closely examining the influence of mass media on travel behaviour. There is a strong presence of cars or other modes of urban transport in various forms of mass media. Mass media plays a role in the direct promotion of cars and the proliferation of the culture and ideologies associated with their use as well as the use of other modes of transport (Paterson, 2007). Mass media therefore represents an interesting source of messages to be explored for its impacts on travel behaviour.

This investigation of mass media is conducted using a number of media analysis techniques guided by theoretical pathways of influence. This creates a comprehensive and meaningful analysis. This chapter first explores the qualities of mass media which may affect the behavioural determinants of the audience. Next a closer analysis of a number of relevant sources within mass media is made. This involves applying relevant media analysis techniques to samples of media that are accessible to the population of Sydney, where the work is focused.

6.1.1 Characteristics of mass media

Mass media is distributed widely across the community and contains messages that are designed to provide entertainment, education and information (Watson, 1998). These messages are provided by various advocates wishing to impart knowledge, advertise a product, gain attention or establish interest (McQuail, 1979). There are a number of different sources of mass media with varying agendas, limitations and attributes. Television and radio operate within particular timeframes (although internet is allowing more flexible access), while other media, such as newspapers, magazines and internet, are distributed by the producer and accessed by the audience in their own time. In Sydney there have been five free-to-air television stations (although this has increased substantially in the last couple of years), four newspapers (with a state-wide or national distribution) and over twenty radio stations (Salter, 2007). Within each of these types of media there is a range of programs, segments and other productions which may influence behaviour in different ways. News and advertising are a regular part of most daily media. Some people have a very high exposure to media, particular

children and people from lower socio-economic backgrounds (Roberts & Foehr, 2008). Forms of mass media such as radio often become an omnipresent part of people's life with nine out of ten adults listening to the radio every week (Craig, 2004).

6.1.2 Why study mass media

The exploration of mass media is important because of the resources associated with its production and the high exposure of the public to its messages (McQuail, 2010). Mass media also lends itself to study due to the accessibility of samples for analysis and the extensive research previously conducted in media analysis. The latter has demonstrated the importance of mass media in society (Spitulnik, 1993). There is extensive literature on the importance of mass media in promoting socially undesirable behaviours, such as tobacco use (Davis, Gilpin, Loken, Viswanath, & Wakefield, 2008). Some transport research has mentioned the influence of mass media on urban transport, particularly car culture (Paterson, 2007). However, there have been limited attempts to analyse systematically mass media with respect to travel behaviour and such work has mainly focused on driver behaviour (Redshaw, 2004). Although the influence of the media seems intuitively evident and samples are accessible for analysis, this influence is "devilishly hard to prove" (Schudson, 2003). Mass media is part of a greater system of influences along with other institutions that are less visible interacting with the media and potentially playing an important role (Schudson, 2003). Therefore media analysis in this thesis is of an exploratory nature in its treatment of interactions with other social influences.

There are three types of media messages that are examined in this chapter:

- News – in the form of newspaper articles
- Advertising – from both television and newspapers
- Film – a selection of mainstream films

News is examined because it is a well-regarded reflection of what is notable in society and it has produced some interesting frames relating to transport (Paterson, 2007; Rissel, Bonfiglioli, Emilsen, & Smith, 2010). The principal and explicit influence of the news on attitudes and behaviour is through its role as a pervasive, accessible, authoritative form of information on current issues which creates centralised symbols (Kensicki, 2004). Cars and other modes of transport in the news can contribute to one's understanding of the attributes of the mode of transport, particular when one is not familiar with them through first-hand experience.

Advertising is studied because of its function to influence people and because of the large difference in the quantity of advertising for cars in contrast to that for other modes of transport. Advertising is designed to raise awareness of a product or to change the impression of the product (S. Chapman & Egger, 1983) and thereby increase the market of the product, through persuading, challenging and seizing the audience's attention (A. Bell, 1991). Advertising comes in many forms, including competition prizes and sponsorship, but in this chapter the study focuses on direct advertising in commercial breaks and advertising spaces. While advertisers claim they help "discerning consumers make informed choices about how best to spend their money" (Hamilton 2003, 89), it is argued that advertising also influences the audience's broader consumption patterns, ideologies and behaviour (Lippke, 1989; M. J. Phillips, 1994). Advertising is prolific in modern cities, with the average consumer exposed to about 2 million brand messages each year across all media channels (Davis et al., 2008).

Advertising for cars is both an important investment for automotive companies and a large revenue stream for media institutions. Car companies spent an average of US\$630 on advertising for each car they sold in 2005, amounting to US\$18 billion in the United States (Lutz & Lutz Fernandez, 2010) and US\$22.7 billion globally (Ouschan, Fielder, & Donovan, 2008). In Australia, automobiles are the second most promoted product, with 11% of the share of advertising expenditure (Ouschan et al., 2008). The automotive industry invests a high proportion of its profits in marketing because of the highly competitive market for cars and the importance of advertising in developing consumers' understanding of cars (Lehmann, 1977). The advertising industry has evolved through the development of theories for effective marketing of automobiles (Glover, 2000; O'Sullivan, 1998). Techniques which focus on experiential and symbolic value rather than the utility of the car have become well-established in car advertising (Redshaw, 2008). Meanwhile there is little evidence of advertising for public transport or active transport.

Films create different worlds, different possibilities and different characters that the audience can become involved with (Bhatnagar & Wan, 2008). It is interesting to analyse how the transport-related attitudes and actions of these characters can influence the audience. As the aim of many films is to reflect aspects of society and appeal to the audience, they are both influenced by as well as potentially influences on social life. Films incite images of villains and heroes, as well as creating morals and standards. The background of the film and the assumed lifestyles and assets of the characters play an important role in setting expectations of what people in such situations normally have and how they live.

6.1.3 Factors that determine mass media content

There are naturally occurring factors that limit how media is presented. This is despite the assumption that mass media content should not be limited by commercial or social interests as highlighted by the phrase “freedom of the press”. Figure 6.1 categorises the internal and external forces that impact on media production. The messages portrayed by mass media are developed by the institutions which control the media and are guided by codes of ethics, regulations, professional standards, established practices and commercial interests. There is a reliance on different sources of information and inspiration to create the messages.

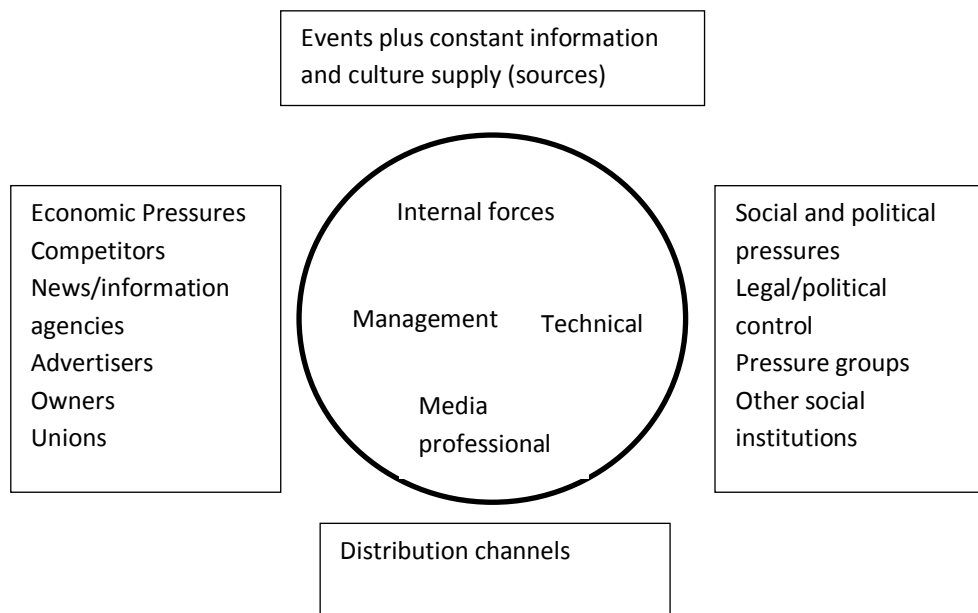


Figure 6.1 The social forces in media organisations (McQuail, 2010)

Funding of mass media production through government institutions or advertising revenue can influence the messages portrayed (McQuail, 2010). In order to attract advertisers, it is necessary to appeal to a particular audience (Watson, 1998) so that the attention of this audience can be sold to advertisers (Hubbard, DeFleur, & DeFleur, 1975). Advertisers may also attempt to apply some pressure on the mass media to avoid messages in the programs or articles that may adversely affect them (McQuail, 2010; Soley & Craig, 1992). Advertising only takes place if there is a commercial interest and if there is enough revenue and reason to justify advertising. This limits the messages shown in advertising space to those congruent with wealthy and competitive organisations. The messages in advertising are controlled by the commercial interests that pay for their development and for the media space. Established techniques are used and research is undertaken to ensure that the advertisement has high potential for increasing the revenue of the commercial interest. There is also a requirement to

act in the interest of the public, to abide by regulations and keep professional standards (McQuail, 2010). Therefore, media cannot entirely devote themselves to appealing to the audience and advertisers.

There are also limitations in the resources required to research and produce messages in the media. It can be difficult for media to challenge accepted sources which promote dominant attitudes within their time constraints, the limits of expertise and their budget (Berkowitz & TerKeurst, 1999). The contents are affected by wider cultural influences that are not all understood by the author of media messages (Ahuvia, 1998). Time and space constraints accompanied by the limited attention span of the audience also restrict the length of messages that can be conveyed through a medium. Messages, therefore, must be succinct and use techniques that convey their content quickly, cost-effectively and professionally. Within these boundaries, messages can tend towards the promotion or relegation of particular attitudes and behaviours, but these boundaries change with time.

A change in the social bases and economic goals of message mass-production leads, sooner or later, to a transformation of the common symbolic environment that gives public meaning and sense of direction to human activity (Gerbner, 1969).

For example, the media's portrayal of smoking has changed drastically through altered ethical and commercial considerations, as well as through changes in sources for news stories and inspiration for entertainment (Davis et al., 2008; John P Pierce & Gilpin, 2001). It is therefore important to acknowledge that, while this study examines current media, the portrayal of transport related messages in the media may change.

6.2 Influence of media messages

There has been a general understanding that media impacts the way people think and feel (Street, 2011). Through the picture of the world conveyed, mass media reproduces "norms about the values which society attach to cars in general" (Paterson, 2007). However, the extent and the way that mass media influences the public through transport-related messages are still not fully understood. Here potential mechanisms, developed from previous work in media studies together with the pathways of influence developed in Chapters 3 and 4 and applied in Chapter 5, are explored.

6.2.1 Negotiating relationships

The relationship between the communicator and the audience is particularly important in mass media. This importance is salient to the media producer and can therefore affect the

way that media is produced (O'Shoughnessy & Stadler, 2005). Media institutions rely on their audience in order to stay functional and profitable (A. Bell, 1991). Therefore, they must keep the attention and the loyalty of the audience through the provision of entertainment and information. Hence the audience must feel engaged through relevant and interesting messages. There is not a single type of audience or producer of media, and the negotiation of relationships in media messages is highly dependent on the character of both parties. Audiences can be more or less active or passive, where an active audience is individualistic, "impervious to influence," rational, and selective, while a passive audience is conformist, gullible, anomic, vulnerable, victims (Biocca, 1988). Producers of the media who target active audiences may be willing to challenge them and give them facts to analyse. However, a passive audience may wish to be fed material which is more emotional, familiar and less confronting. Much media in Australia, particularly from commercial producers, appears to cater to the passive audience (Salter, 2007). It uses symbols and terms that the audience are familiar with. This creates proximity to the audience and avoids direct attacks on the audience's attitudes or behaviour.

Attention, trust and respect

Mass media also needs to gain the trust and respect of the audience in order to create effective messages and ensure audience loyalty. While research shows that there is often a lack of trust in media (Alesina & La Ferrara, 2000), the news has an authoritative voice in the community (Schudson, 2003). This perception of authority creates a sense of obligation to take the information conveyed seriously, yet it does not directly coerce people into any behaviour, since it is never "in a position to reward people for taking up those ideas or to punish them for failing to take them up" (Schudson, 2003). Hence, through its image of authority and its persuasive powers, rather than its real authority, the news gains the trust, respect and attention of the audience. Producers of advertisements can also attempt to gain the trust of the audience in some cases. However, other advertisements are more concerned with exciting the audience through an invitation to self-improvement. Indeed this may involve suggesting that their existing life is inadequate (Glover 2000) or that they need to deal with some self-discrepancy (Jackson, 2005). Another interesting facet of advertising is whether broader effects of advertising, such as the adoption of undesirable behaviours, are intended by the producer of the advertisement (Ahuvia, 1998).

6.2.2 Framing

While media producers deliberately convey certain messages, the different interpretations of the messages are dependent on a number of factors beyond their control. The audience has a selective attention, perception and retention (Biocca, 1988) that determines how it is affected by the messages. The producers of media may not understand the full impact of their messages, because subtle implications and framing are not always intentionally conveyed. Language conventions, social context, historical context and psychological phenomenon play a role in how the audience reacts to the messages (Ahuvia, 1998). As these properties of the message are neither explicitly stated nor consciously processed, they can have a powerful sway on social norms, as discussed in Chapter 4.

Myths and symbols

Myths and symbols are frequently used in advertising, film, news and other media. The ability to quickly convey a raft of information and emotions associated with the myths and symbols, makes them useful tools when time, space and attention are limited (Chapman and Egger 1983). This is particularly the case for advertising, which reflects a range of cultural structures, beliefs, attitudes and the way issues are framed through the symbols and myths it uses to create distinctions between products (Ahuvia, 1998; S. Chapman & Egger, 1983). Commercial goods, such as cars, are less like “objects” in the contemporary era: increasingly they are an assemblage of objective and implied characteristics (Lehmann, 1977). Marketers strive to generate messages that constitute those symbolic or cultural aspects of commodities (Glover, 2000). Films use symbolism to evoke various emotions and an understanding of a character’s situation. These include symbols of freedom, independence and masculinity that are associated with cars in film (Seiler, 2008). Cars can be the subject of a range of emotions including sentimental attachment, desire, pride or love. It is therefore appropriate to investigate myths and symbols in relation to advertising and film.

Demonstrating prevalence and desirability

Prevalence can be demonstrated by describing either the popularity of a mode of transport, the frequency of use, or the consequences of heavy use, such as congested roads. News articles which describe the current state of transport use in Sydney are likely to mention the high use of cars and the associated congestion. However, there is also the potential to mention the use of other modes of transport which demonstrate that they are well used and/or the use of them is growing. The frequency with which people are exposed to media messages related to a particular mode of transport also suggests its prevalence. The use of

cars in a range of films, particularly popular films that reflect particular aspects of mainstream culture, demonstrates the popularity and desirability of cars. Car advertisements populate media with images that reflect car consumption and car use. An image of the car is almost always part of car advertising, and so the audience is exposed to car-related media regularly, even when they have no intention to be. The normative message that comes from the demonstration of prevalence is enhanced when the audience knows that a large number of people are also exposed to the messages in mass media. In this chapter, the news, advertisements and film are all examined for the way they demonstrate prevalence of certain travel behaviour, particularly car use.

Allocating responsibility

News stories and other mass media cover social problems in such a way as to evoke feelings of guilt, victimisation, control or helplessness (Kensicki, 2004). One study found that news articles frame different actors in the community as taking on different roles in social problems. Through this framing, the public is rarely allocated blame or responsibility for social problems. In addition, problems can be sensationalised and solutions rarely mentioned, which makes the audience feel passive to the problem and helpless in dealing with it (Hounsham, 2006). The use of framing the audience as a passive victim of urban transport is therefore an important element of the news to be analysed.

Developing proximity

The audience can feel more or less involved with the people in a story through language that is used as well as the premise and perspective taken. Media may describe actors in the news in a way that distances the audience from their perspective: for example, a cyclist described as a “lycra-wearing lout” or a reckless driver as a “hoon”. Other situations create proximity between the audience and the people in news stories through describing features of the actor that the audience may be able to relate to or may wish to emulate through social learning. Proximity to the story can also be developed through the use of first person plural or second person, for example, when discussing the concerns of the car user in a story on the price of parking. Through the use of the phrases “we drive” and “our cars” the presupposition is introduced that the audience all drive cars that they own.

6.2.3 Raising issues and setting the agenda

Messages in the media can alter attitudes by directly expressing particular attitudes or through raising the awareness of particular issues and relevant knowledge. It is interesting to examine which issues related to transport are raised in the media and how the contexts of urban

transport, described in Chapter 2, are incorporated into news stories. The legitimacy for certain attitudes and understandings created by media messages may be more important than the information directly provided (Schudson, 2003). As mentioned in Chapter 4, the ability to distribute the same information to a vast array of people also enables mass media to create a sense of community and shared understanding of the world. Mass media effectively has:

..the ability to form historically new bases for collective thought and action quickly, continuously and pervasively across the previous boundaries of time, space and status (McQuail, 2010).

These communities have been referred to as “imagined communities” (Spitulnik, 1993) or “interpretative community” (Berkowitz & TerKeurst, 1999). The communities consist of people who are engaged in common activities and common purposes that employ a common frame of reference for interpreting their social settings. While people do not directly interact with the majority of other members of society, mass media acts as “a cultural site where meanings are constructed, shared and reconstructed by members of social groups in the course of everyday life” (Berkowitz & TerKeurst, 1999). In this way mass media has been called the “agenda-setters” of modern society (Gerbner, 1969). The issues which dominate the media come to dominate and influence what the public “think about” or regard as the most important issues of the day (Hansen, 1998).

Mass media are among the most powerful socializing agents of our time. The media influence how we think and what we think about. They daily shape our collective perceptions of “normative” and “normal,” of “important” and “insignificant,” of “good” and “bad,” of “success” and “failure,” of “cool” and “uncool,” and much more. (Davis et al., 2008)

The incidences, issues and actors presented in the media can lead to long-lasting effects on the beliefs and attitudes that develop over time, as outlined in Cultivation Theory (Hubbard et al., 1975).

Cultivation is an attempt to say something about the more broad-based ideological consequences of a commercially-supported cultural industry celebrating consumption, materialism, individualism, power, and the status quo along lines of gender, race, class, and age. (Shanahan 1997)

Information gained through regularly encountered sources has a cumulative effect which incrementally builds up certain views. This occurs because attention and understanding cultivate the terms upon which it is achieved and these terms become a basis for public interaction (Gerbner, 1969). Such sources include news coverage, advertising and film. While specific details of news stories are soon forgotten, general themes, attitudes portrayed and behaviours exhibited are more likely to linger. For example, small increases in the number of stories on a given subject on television was shown to influence attitudes over time (Schudson, 2003). The emphasis on progress, technology, production and materialism that has been found to dominate media coverage (Shanahan, Morgan, & Stenbjørre, 1997) may therefore alter people's perceptions on issues such as urban transport.

6.3 Media Analysis

A number of methods have been established for media analysis (Stokes, 2003). Due to the nature of texts² in the media and their varied contexts and interpretations, objective analysis such as that taken in scientific research cannot be used (Hansen, 1998). Instead, different techniques such as content analysis, which employs broad samples and stringent rules, are used, while other methods examine in detail particular texts with particular features such as discourse analysis. While content analysis demonstrates trends in media content, discourse analysis explores the structures that create the meanings of the text. Both these methods are important in understanding the influence of mass media messages on travel behaviour and are therefore both incorporated in this chapter.

Content analysis is a systematic research method (Delfico, 1996) which delineates certain dimensions or aspects of text for analysis (Hansen, 1998). These aspects are developed by exploring the pathways of influence with respect to the media being analysed. It is necessary to develop a coding system for the text based on these aspects and to count the occurrences of these aspects in order to establish social significance and meaning (Hansen, 1998). For content analysis, it is important to use a representative sample to ensure that general trends can potentially be developed from the associations found in the sample.

On the other hand discourse analysis examines many of the aspects of messages discussed in Chapter 4, including the framing of texts and the perspectives presented. Connections between the use of language and the social and political context in which it occurs are

² Texts are visual, auditory, or written data (Wodak, 2008)

investigated by examining issues, power relations, social relations and ideologies. The ways that the discourse reflects and reproduces these aspects of social and political contexts are part of discourse analysis (Paltridge, 2006).

This thesis uses both random sampling and targeting texts of particular interest. While advertising and news articles are more accessible for random sampling and content analysis, films were sought out for particular portrayals of transport use and the associated culture and consumption. Due to the need for detailed investigations of the texts, some news articles and advertisements were also chosen because they demonstrate particularly interesting aspects. Ideally, to complement the analysis of these texts, the reactions of the audience are also studied. In the travel information diary, introduced in Chapter 5, there were very few recordings made by people being exposed to mass media. Such recordings could have provided interesting insights into people's perception of their immediate reactions. However, the long-term effects of media exposure are also important to record and analyse because of the effects referred to in Agenda Setting Theory and Cultivation Theory. Thus a comprehensive understanding of the audience's response involves monitoring behavioural determinants and actual behaviour over a long period of time, which may be incorporated into future research.

6.4 News analysis

News has been analysed in relation to a number of social and environmental issues. The news coverage of climate change (Manne, 2011; Nissani, 1999; Wilkins, 1993), the use of non-car modes of transport (Rissel et al., 2010), issues with car use, such as safety (Beullens, Roe, & Van den Bulck, 2008; Connor & Wesolowski, 2004; Rosales & Stallones, 2008) and alternative power for motor vehicles (Pollack & Zint, 2006) have been previously investigated. These topics are related to travel behaviour and therefore offer interesting insights for the current investigation. The exploration of how people generally react to social problems (Kensicki, 2004) is also relevant, with a number of social problems being incorporated into urban transport as described in Chapter 2. The analysis of news for this thesis draws on this body of work, together with the pathways of influences from news sources to travel behaviour, which are developed from the work on the influence of messages, illustrated in Figure 6.2. The messages that may instigate these pathways of influence are examined for a sample of news stories related to transport.

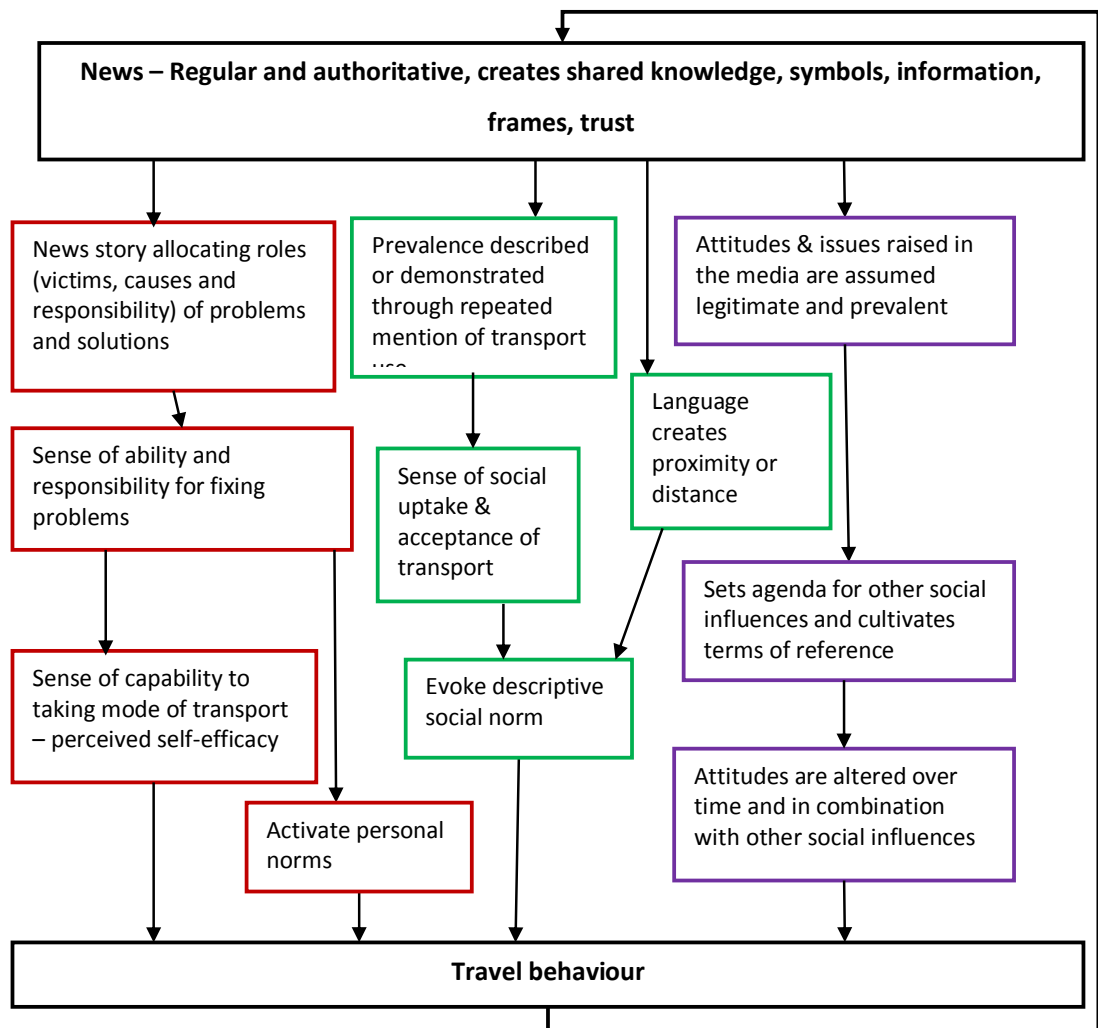


Figure 6.2 Pathways of influence from news articles to travel behaviour

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

6.4.1 Method

Newspaper articles were selected as the main sample for a systematic analysis of the messages relevant to the above figure. The study consisted of a random sampling to explore trends in media coverage of public transport and cycling, as well as a more detailed analysis of the coverage of several issues related to car use, including road safety, fuel use, the car industry and car culture. Articles related to particular aspects of car use were chosen from the random samples, because the array of articles that mentioned cars in some capacity was too great to take a meaningful random sample. Indeed, this highlights the pervasive nature of cars within media messages. This selective sampling allowed research to be more focused and relevant to messages that can influence travel behaviour.

A random sample of articles with words related to public transport during the period between February 2009 and February 2011 made up a sample of 67 articles. All newspaper articles with the key words “public transport”, “bus”, “train”, and “railway” were sampled every nine days. This sample proved too small and so samples from the dates four days after the original sample were also used to increase the sample size. The process was repeated for articles with the key words “bicycle” and “cycling”, omitting any articles found in the public transport sample. There were only six articles found with this method for cycling-related articles. All the articles were read by one coder, the author of this thesis, who searched for the following aspects within the article:

- Identification of transport-related social problems and the allocation of the blame for the problem, victims of the problem and responsibility of solutions
- Described or implied prevalence of travel behaviour or repetition which infers prevalence
- Development of proximity of distance between audience and the people portrayed in story
- General attitudes and issues raised as well as the contexts (from Chapter 2) addressed that could be material for agenda setting and cultivation theory

This work combines content analysis with discourse analysis, because the aspects that were coded and counted were related to the discourse of the text. The coding used quotes from the text to demonstrate these aspects and, while the trends in the general aspects were of interest, more detailed investigation of particular discourses used within texts were also analysed. Due to the selective nature of the sample related to car use, there was no content analysis conducted on this sample, with discourse analysis examining the same aspects that were analysed for the public transport and cycling related articles. The car-related articles came from an array of newspapers that were found throughout the duration of the thesis, because this yielded the most interesting articles that were contemporary to the public transport and cycling-related articles.

6.4.2 Identifying social problems and allocating roles

Transport-related social problems were identified in the majority of articles (60 out of a total 67). These were mainly related to the lack of public transport services (38 articles) and to congestion (11 articles). There was an overwhelming allocation of blame for problems and responsibility for solutions on the government, with 41 articles blaming the government to some extent. Some problems were seen to result from situational factors beyond the control

of the government, such as geography of the city, but the government was still expected to be responsible for the solution in 47 articles. Where victims were mentioned, the public, in the form of a taxpayer, commuter or resident, was seen to be suffering due to the problems in 37 articles.

There was a particular emphasis on the failings of government to strategically implement infrastructure to allow people to choose to use public transport and remove them from the difficulties associated with peak hour car travel. This is in line with research showing that journalists are critical of the government, both for their political consistency as well as for personal affairs.

It is argued that political reporting is overly negative, focusing on “catching out” politicians rather than facilitating genuine public debate. Politics is reduced to a game between politicians and the news media – a game that limits readers to the position of spectators (Craig, 2004).

The readers of such material may also feel passive to the situation as the media does not inform for debate but impedes certain perspectives. This can discourage policy for social change and can also lead to apathy in the public towards the potential contributions they can make through their own travel behaviour (Kensicki, 2004).

6.4.3 Portrayal of prevalence

Prevalence of travel behaviour is demonstrated frequently in news articles in a number of ways. Transport use is often described by using numbers to support an argument or to make a point of interest. There were eleven articles where the prevalence of cars was described by using statistics or through statements such as “the tens of thousands of commuters who drive” (“Transports of despair,” 2009), to evoke a descriptive social norm around car use. However, the most notable way that car use was evoked was when it was implied in 22 articles through references to congestion or other phenomenon related to car use such as the statements “Cars rule, OK” (“Whole world of options with new harbour crossing,” 2010) to describe the current transport situation.

The prevalence of other modes of transport is referred to mainly through discussions about future transport use. This includes mentions of growth such as the statement “car trips are expected to rise just 5 per cent, public transport journeys by nearly 100 per cent” (“Catch up with the rest of the world,” 2010). However, the lack of public transport use or indeed interest in using public transport is evoked by phrases such as “People moved there knowing that

[there is no train line] and, to some extent, they like it that way” (West, 2010). This links the lack of use of public transport with a negative public sentiment toward the idea of public transport in general.

The prevalence of car use was the main issue raised in two car-related articles explored in detail. One, in the *Newcastle Herald* on 29 December 2011 was titled “CAR BOOM – City’s vehicle growth thrice state average” (Kelly, 2011). The other, in the *Herald Sun* on 4 June 2010 (“Australians love driving gas guzzlers, ABS research find,” 2010). Both articles use language to emphasize and bring to life the increase in car use with the words “boom” and “jumped” in discussing statistical data about transport use. Interestingly, both articles equate the increase in car use and ownership to a “love” of cars. This creates the assumption that people use cars because they love them, which is contrary to other reports on congestion (Lunn, Nicholson, & Vasek, 2010) and people’s desire for better public transport services (Hewett & Hepworth, 2010).

The statistic that cars are currently used more than other modes of transport for Sydney’s transport demands makes it unsurprising that newspapers report on their prevalence while treating other modes of transport as not prevalent. While mentioning prevalence is not usually intended to evoke the social descriptive norm by the author of articles, the frequent mention of congestion is demonstrating a negative aspect of driving but is still evoking the norm, which makes potential consequences particularly contrary to the author’s intent. In contrast, it helps modal shift efforts to read mentions of rise in public transport use. However, mentions of the dominance of cars over other modes of transport, for example, “in the foreseeable future motor vehicles will continue to dominate transport” (Grennan, 2009), can hinder the public’s perception of car’s becoming less prevalent.

6.4.4 Developing proximity

Proximity is not often developed in the news articles examined. However, where it is, it tends to be towards car use and against public transport users, with an assumption that readers drive and own cars. The reference point for describing attributes of other transport options is the car. This creates the impression that the qualities of the car are what the audience knows about and is interested in, such as the traffic conditions and fuel prices.

Some articles engage directly with the audience by using a conversational tone. When such articles contain the assumption that the audience owns and drives a car, this can create proximity for the audience to the use of cars. This can be seen through questions to the

audience, such as: "Planning to drive somewhere in Sydney today?" The idea that driving is universal is demonstrated by the interchangeable use of "residents" with "motorists", the assumption that "travel" equals "drive" and also by the use of the first person plural, seen in the *Sun Herald* article: "we are using our cars more, and using more cars" ("Australians love driving gas guzzlers, ABS research find," 2010).

Because the car is always mentioned as the alternative to other modes of transport, this assumes that the car and one other option are the only two viable modes of transport. This delegitimises other modes of transport, such as cycling, as an alternative to catching the train for example. This is particularly perverse when there is no mention of cycling or walking for short trips within the city as an alternative to public transport. This is demonstrated with the phrase "Encouraging local public transport use is as important as encouraging long-distance use, especially in dense areas where there is not room for everyone to drive" ("Catch up with the rest of the world," 2010), with no mention of cycling and walking as other forms of local transport. Some expressions used in newspaper articles could make certain public transport users feel isolated. People who use public transport in Sydney's northwest, where articles imply that there is no public transport service (Besser, 2009), may feel like they are not considered to be practical self-respecting people. It may make them feel they need to justify their choice through rational argument. It also gives credibility to people who do not attempt to see what public transport they could use within this area.

6.4.5 Issues and contexts raised

A number of issues are raised by the articles. With respect to public transport, they are mainly related to the economic and political contexts. The emphasis on problems of public transport provision, which is seen in this sample of newspaper articles, does not create a positive impression of the attributes of Sydney's public transport system. It is clear from the travel information diary, that not *all* impressions of public transport in the community are negative, particularly for those who use it. However, someone whose main source of awareness of the public transport system is acquired through the media would receive overwhelmingly negative messages about it. The ramifications for attitudes towards public transport are strengthened due to the function of the news to legitimise certain understandings of the world and to set the agenda for thinking and conversation.

There was little mention of safety or other public health issues in articles related to public transport, although it was a prominent feature of articles related to cycling. This constant mention of safety as an issue related to cycling may reinforce the belief that cycling is

dangerous, as mentioned in Chapter 4. With respect to cars, there were a number of articles which mentioned incidences where people had died on the road, either through reference to the road toll or a description of particular crashes. It is possible that the routine way that crashes are reported and road tolls counted leads to a normalisation of such deaths as part of life. This is reinforced by the use of the word 'accidents' instead of 'crashes' within most media reports (Connor & Wesolowski, 2004). However, an opinion article written by a doctor (Owler, 2012) takes a different perspective and argues that more regulations and enforcement are required to reduce the injuries and deaths on the road. He assumes that dealing with safety should happen while the prevalence of car use continues in society, which he refers to as part of "a privileged society where we enjoy the freedoms of which others can only dream" (Owler, 2012). The doctor is condoning the use of cars, indeed celebrating it, even though cars are the reason for road safety issues and the need for high levels of regulation.

The economic contribution of the domestic car industry to Australia is an issue that has been raised in newspaper articles during 2011 and 2012. This is in light of problems facing the car industry: the loss of jobs and the requests for government assistance. The car industry is portrayed as axiomatically good for Australia, with the Prime Minister describing the subsidies as a "modest investment" (AAP, 2012). A number of articles mention the direct and indirect employment figures as a demonstration of the 'good' the industry does. However, the media's past use of employment figures created a barrier to anti-tobacco legislation, as the figures were "proudly quoted as implied proof of the hoteliers' good corporate citizenship" (Snowdon, 2009). Hence, the use of established economic indicators needs to be questioned within the context of the car industry as well.

6.5 Advertising

Research into advertising has been conducted for a number of reasons. The purpose of the research affects the way advertisements are analysed as well as the conclusions and recommendations made. In the cases of cigarette advertising and car advertising, work has mainly focused on ways to reduce tobacco consumption (S. Chapman & Egger, 1983; Tye, Warner, & Glantz, 1987) and improve road safety (Ferguson, Hardy, & Williams, 2003; Sheehan, Steinhardt, & Schonfeld, 2006; N. Wilson, Maher, Thomson, & Keall, 2007), respectively. A number of studies have also investigated the effectiveness of advertising cars in order to improve advertising strategies, by examining how car buyers use advertisements (Gronhaug, 1975) and by establishing the link between advertisements and the variables of knowledge, confidence, attitude and intention to buy a car (Lehmann, 1977). Recently a few

studies have been conducted into the potential of advertisements to influence travel behaviour (Bayley, Emerson, & Wright, 2009; Bristow, 2002). Trends in advertising and styling have also been examined (Kwoka, 1993), and how different types of cars are marketed (Glover, 2000; Kadirov & Varey, 2011).

These previous studies were conducted by focusing either on the contents of the advertisement (Bayley et al., 2009) and the myths and symbols they portray (S. Chapman & Egger, 1983), or on empirical evidence of correlations between exposure to advertisements with related attitudes and behaviours of the audience (Tye et al., 1987). A number of potential influences on travel behaviour were established in the work that focused on analysing the advertisements. These included the lack of emphasis on safety compared to speed and power (Ferguson et al., 2003) and the emphasis on emotive rewards rather than practical features of cars (Bayley et al., 2009). A link was also found between television exposure and one's predisposition to be favourable to car purchases (Lehmann, 1977).

This thesis focuses on the elements of car advertisements that may influence behaviour, rather than establishing empirical evidence of audience reactions to the advertisements. This is due to the difficulty in monitoring the level of exposure to car advertisements and the inability to consider cumulative long term effects of advertising on travel behaviour. The aspects of advertisements that are analysed are taken from the pathways of influences shown in Figure 6.3 with specific themes and techniques of interest drawn from previous analysis of car advertising (Bayley et al., 2009; Bristow, 2002; Ferguson et al., 2003).

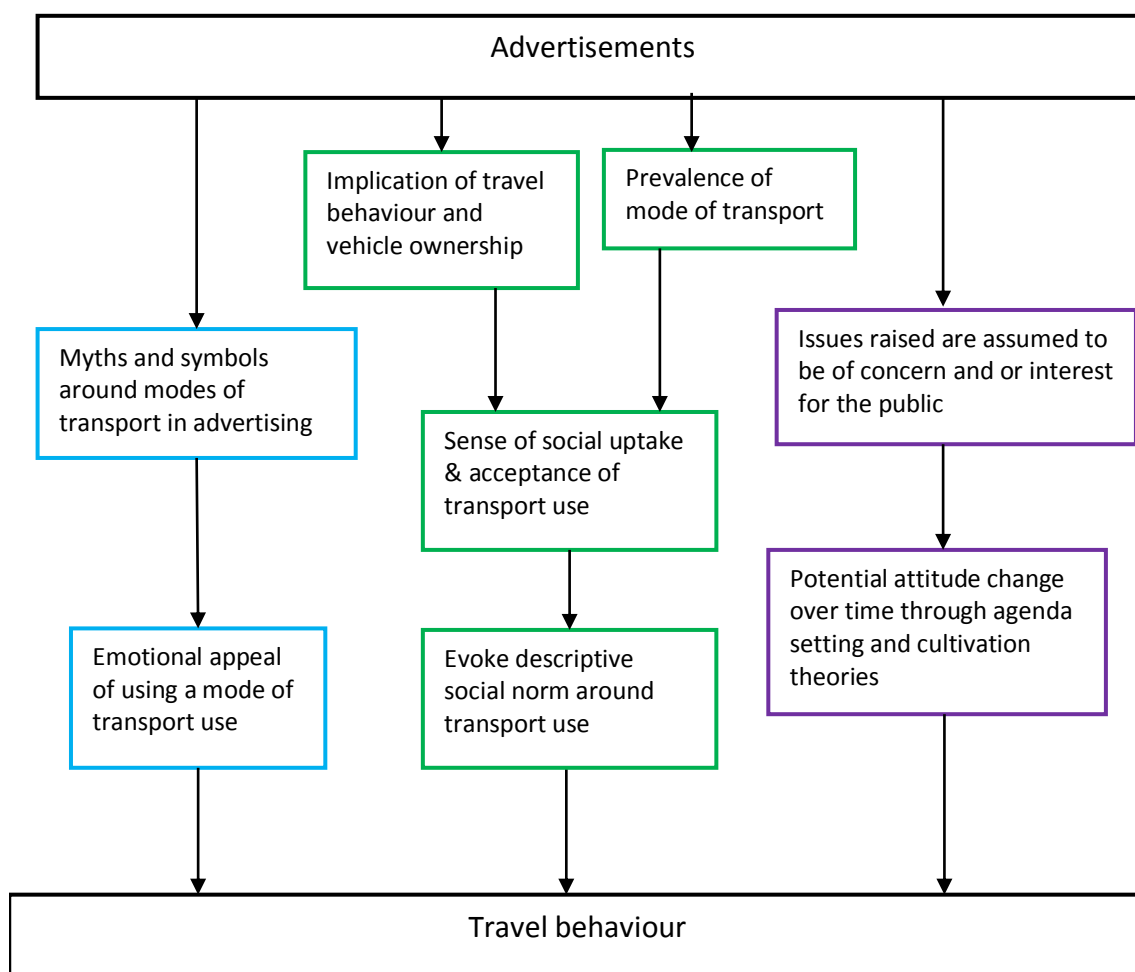


Figure 6.3 Pathways of influence from advertisements to travel behaviour

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

6.5.1 Method

Two samples of advertisements were analysed for this study. Firstly, during fixed lengths of television viewing, advertisements were examined in order to demonstrate the prevalence of car advertisements and hence public exposure to advertising, as well as to conduct a content analysis of the symbols and implications contained within the television advertisements. Secondly, a smaller selection of newspaper advertisements was examined by means of discourse analysis. This allowed a more in-depth study of the messages implied in the advertisements.

The three major commercial stations in Sydney, Channels 9, 10 and 7, were recorded by the author for the three-hour weekday primetime from 6pm to 9pm. This captures the TV coverage that a large audience is exposed to on a regular basis. The collection took place over the period between February and April 2010. During this period there were few special events

that would lead to a higher or lower rate of car advertising and therefore it is likely that the themes of the advertisements are not be affected by any such events.

There were 162 car-related advertisements recorded during this time with an average of just over 10 per session. The maximum number of advertisements in one session was 24 on Channel Seven on 24 February 2010. By inspecting the average length of time per advertisement during several sessions (times were not recorded for all sessions), it was found that the average car advertisement was 23 seconds. This means that, during the three hours of peak viewing between 6 and 9pm, the audience is exposed to just over four minutes of car advertisements on average. There were a total of 42 distinct advertisements that were applicable for analysis during the recorded periods. Advertisements which were either repeated or were not specifically selling cars, such as car insurance advertisements, were not considered, because they had a very different agenda to car advertisements. While they do present messages that are car-related, including them would have made analysis cumbersome. The recordings were searched to identify the advertisements and code them for the relevant themes and implications they contained. Relevant evidence that demonstrated the aspects being examined was recorded during coding and this evidence was later checked for validity and consistency.

A sample of nine newspaper advertisements was selected from the Sydney Morning Herald over the year 2009. A broad range of advertisements was selected for a variety of makes and models of cars, with different themes and target audiences. Images that displayed the cars within various settings, as well as text which appeal to different demographics make up the sample. These advertisements were analysed qualitatively with particular emphasis on the imagery, the implications and the issues raised. The results of analysing the television and newspaper advertisements are given in the following subsections.

6.5.2 Myths and symbols

Car advertising uses a number of different symbols which are mainly related to the psycho-social context of urban transport use. These are the aspects that immediately affect the audience and can therefore “manipulate brand desire through emotional resonance” (Sheller, 2004). Figure 6.4 illustrates the occurrences of the psycho-social aspects of cars in advertisements. As mentioned in Chapter 2, the three main ways one can gain psycho-social value from driving are through the experience, the utility and the symbolic value. The first four aspects (freedom, sex appeal, prestige and smart) in the figure are related to the symbolic value of cars and at least one of these aspects was demonstrated in 86% of the

advertisements. The next three aspects (comfort, fun, power and handling,) relate to the experiential value of driving and at least one of these aspects was featured in 83% of the advertisements. Finally, the utility of the car to get people where they need to be, through flexibility and speed, was only featured in 29% of advertisements.

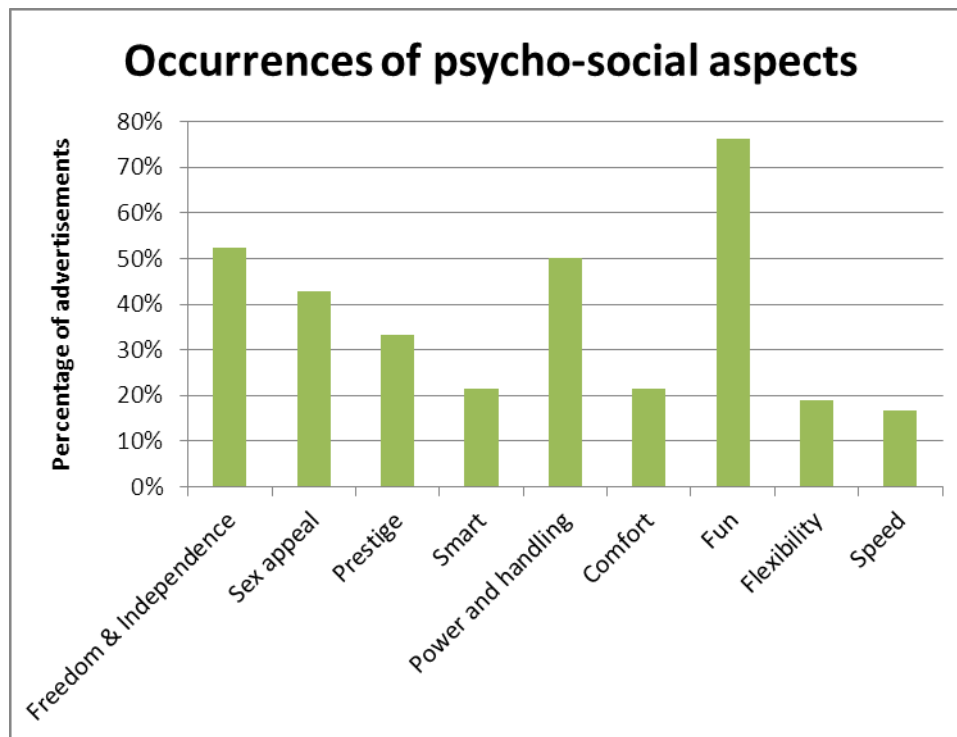


Figure 6.4 Psycho-social context in car advertisements on television

The aspects of fun as well as freedom and independence were the most prominent features of the advertisements as can be seen in Figure 6.4. Fun was demonstrated through facial expressions, the associated activities and socialisation, as well as explicit statements made by the narrator or through text. Freedom and independence were shown through the places people travelled in the advertisements, particularly people escaping the city, the liberated attitudes of the vehicle occupants, and the imagery of floating and fantasy. The prominence of these aspects of car use demonstrates universal appeal and reinforces highly positive and well-established associations with cars. This is in line with the idea that much advertising research has gone into understanding the “rudimentary images associated with a given product” in order to create more glorified images and “cement the association of these images with the product” (Katz, 1960). However, advertisers may also use such images purely because they are “naturally appealing, taken-for-granted things of life, the way things are” (S. Chapman & Egger, 1983) and are therefore highly accessible symbols for the audience. One must wonder how the symbol of freedom can persist when daily observations and experiences of congested cities

impeding drivers contradicts this. The role of advertising amongst other cultural messages may therefore play a key role in the reinforcement of such images which contradict experience.

The analysis of the newspaper advertisements supported the findings that the psycho-social context of cars is a prominent feature of advertisements. Three myths, which are related to the symbolic and experiential values conveyed in the newspaper advertisements, are now described.

Myth: the car makes mundane routine tasks exciting

This myth is particularly prominent in one advertisement which claims the car is “For everyday adventurers” (SMH, 2009a). The myth is developed by recreating a surreal adventure scene in the driveway of a suburban house with the car as the central subject as seen in Figure 6.5. The car is used as the platform for the dramatic action of a chivalrous man protecting his “damsel in distress”. The man uses a broom to fend off a mysterious threat, demonstrating how everyday props and costumes can be used in an imaginative way to create fantasy. The car is used in a very unconventional way, yet it is implied that this adventurous spirit carries through to the use of the car for routine transport. The audience is given the impression that the types of people who drive this car can become imaginative and adventurous.



Figure 6.5 Advertisement for Hyundai Tucson (SMH, 2009a)

Instead of using an adventurous scene, an advertisement for Volvo (SMH, December 2009) uses characters to convey the idea of a car being mysterious and exciting. This is done by using well-known characters from a popular vampire film and mentioning that they drove the car in the film. The potential excitement is also implied through the way the experience of driving is portrayed. In one advertisement it is implied that driving should be exciting enough to make you scream and it is natural to want this excitement as it states “You were born screaming” (SMH, September 2009). However, the following question “What happened?” implies that everyday living becomes unexciting. Driving, therefore, is suggested as a way to make life more exciting. This advertisement doesn’t explicitly state that driving is exciting and therefore the association between driving and excitement is assumed to be a well-established myth in society. As mentioned in Chapter 4, such an implied assumption can be powerful in reinforcing the myth.

Myth: cars bring innovation and progress

A number of advertisements convey the message that progress and innovation are associated with cars. The notion of the car as progress was explicitly shown in 17% of the television advertisements. In addition, improvements in the material and energy context (which are often modest) also create the impression of progress and innovation. Figure 6.6 demonstrates the occurrences of features related to the material and energy context. It can be seen that the features used to demonstrate progress includes fuel efficiency, design, technology and, to a lesser extent, emissions.

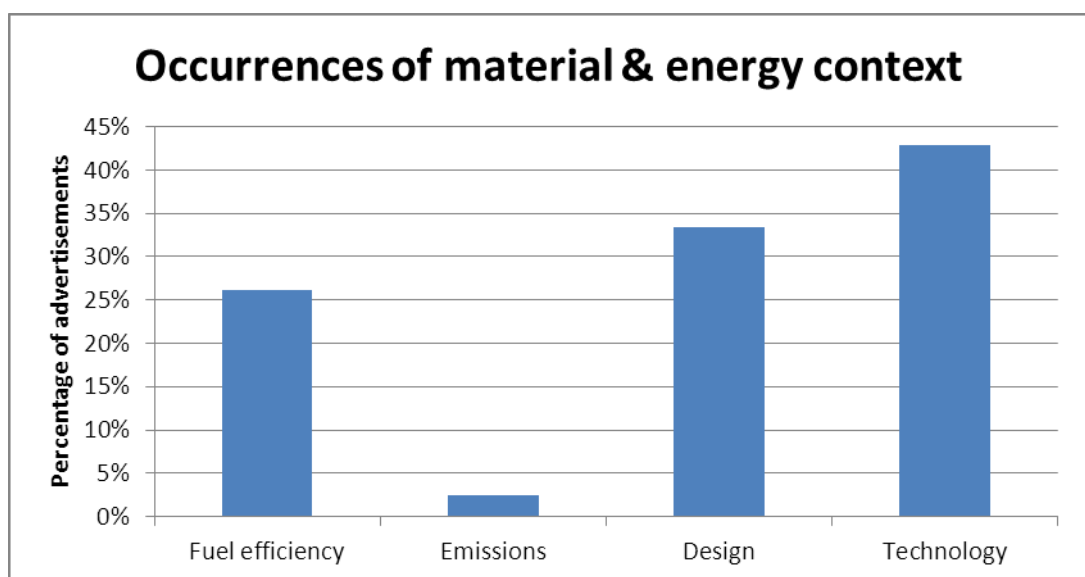


Figure 6.6 Material and energy context in car advertisements on television

A number of newspaper advertisements used the theme of progress prominently with a futuristic background and text which implied that progress is a constant and positive part of the world and owning a car is part of this progress. This is achieved in the advertisement pictured in Figure 6.7 with the phrase "The world has shifted forever" (SMH, 2009c), which implies there have been drastic changes in society. The accompanying command or advice "Stay ahead" creates the impression that these changes are positive and that it is possible to be at the forefront of this progress by owning a car.



Figure 6.7 Advertisement for Nissan Murano (SMH, 2009c)

Another advertisement creates the impression that cars embody the knowledge and dreams of humankind. This is done by the implicatures³ in the sentence “everything we’ve ever learned and everything we’ve ever dreamed of come together” (SMH, February 2010). The association of this sentence with the image of the car implies that cars are one of the most innovative and desirable artefacts of social development. This is reinforced by the tagline “the incredible made possible” (SMH, February 2010) which implies it is an object of fantasy, something that has come from a powerful imagination and a great achievement has been realised through its production.

Myth: cars are used to escape the city

Cars were often shown as a means to escape the city and its associated routines and restrictions, or as one advertisement states “Go beyond the city” (Seven, February 2010a). A sense of escape was a feature of 21 television advertisements. This was mainly portrayed through the scenery and activities around the car. The car was situated on the open road in rural or natural places, and mainly with no other cars around. Scenes of cars being packed for holidays or people swimming, skiing and other outdoor activities are prominent ways of showing the potential to escape the city. In one advertisement, the feel of getting away from a crime scene or a threat is suggested through the phrase “The Jeep Patriot is the perfect escape vehicle” (Seven, February 2010d), which also suggests the excitement of getting away from the

³ meanings which unfold when it is clear that the semantic content of an utterance alone is not a reliable guarantor of the meaning of that utterance in context

city. There is an assumption that vehicles will be used to escape the city and they can be described as “escape” vehicles. While cars are mainly used for traveling in cities (ABS, 2003), the flexibility and speed of individual motorised transport is more advantageous and desired when leaving the city. Therefore advertisements that reinforce the myth that the car will be used to leave the city could increase the perceived necessity of car ownership.

6.5.3 Prevalence and implications of travel behaviour

There were numerous advertisements depicting car use as normal. This was achieved either by showing its prevalence or implying that cars are being used and that the audience is involved in using them. Among the television advertisements, 16 featured a presupposition that everyone either owns or aspires to own a car. This is evident through statements which assume the audience owns a car or that cars are a desirable and natural part of life. Depicting cars in an everyday setting also evokes the idea that cars are a normal part of life. For example, in one advertisement, the traffic report informs people that due to bad weather it was going to be difficult for them to get to work, with the assumption they would be driving to work. A number of advertisements demonstrated the normality of the car through references to “everyday” and “ordinary”, such as in “For the everyday adventurer” (SMH, 2009a) or “A drive less ordinary” (SMH, 2009b). This implies that driving is a frequent and routine activity, assumed to be a part of life. The idea that people drive every day is emphasised in the phrase “make every drive, every day...” (Seven, February 2010c). All these advertisements evoke descriptive social norms by demonstrating the commonness and hence prevalence of car use. There are also significantly more advertisements for cars than for other modes of transport, which reinforces this descriptive social norm. While there were over three car advertisements per hour of commercial television, there were no advertisements for public transport or active transport observed during the sampling period.

Advertisements engage with the audience by speaking directly to them using the second person and by implying that the car being advertised has been designed for them and their personal needs. This can be explicitly seen in the statement “Come see what we built for *you*” (Nine, February 2010) which is featured in one advertisement. Other advertisements assume the audience knows what it is like to drive and has a clear impression of driving as they state that “*you* experience a drive unlike any other” (Seven, March 2010), which assumes people know what “other” drives are like.

Norms and self-efficacy can also be altered by car advertisements that show desirable and responsible people owning and using the car, through social learning as described in Chapter 4.

One advertisement makes reference to the appealing characters in a film that drive the car being advertised with an implication they “love” the car with the line “love at first bite” (SMH, December 2009). Other advertisements show responsible and happy families getting outdoors and giving their children opportunities by using their car. The phrase “There's nothing better for your wellbeing than getting outdoors” (Seven, February 2010d) suggests that a car is needed to get outdoors and improve your wellbeing.

6.5.4 Issues raised

The issues raised in car advertisements are very different from those in news articles. There is less mention of the political and urban planning contexts and a greater focus on the psycho-social context as can be seen in Figure 6.4. The myths and symbols discussed above naturally raise the awareness of particular issues of car use and car ownership. Here, some other prominent issues raised in advertisements are discussed.

The financial viability of cars as a transport option

It is implied that cars are good value for money in more than half of the television advertisements. This is shown in Figure 6.8. The most prominent way to convey this issue was through the mention of “just” or “only” before the car’s price. In other advertisements the value of the car is described as “attention grabbing” and “striking” (Seven, February 2010b) to emphasise that the value of the car was exceptional and worth noticing. This is contrary to evidence which has shown the difficulty people have in affording cars (Lutz & Lutz Fernandez, 2010), as mentioned in Chapter 2. A number of advertisements also imply that there is a special deal which may cause the audience to believe they must rush their buying decision. The prominent mention of the value of cars may lead to an acceptance of the costs of cars as part of life through cultivation and agenda setting of these messages.

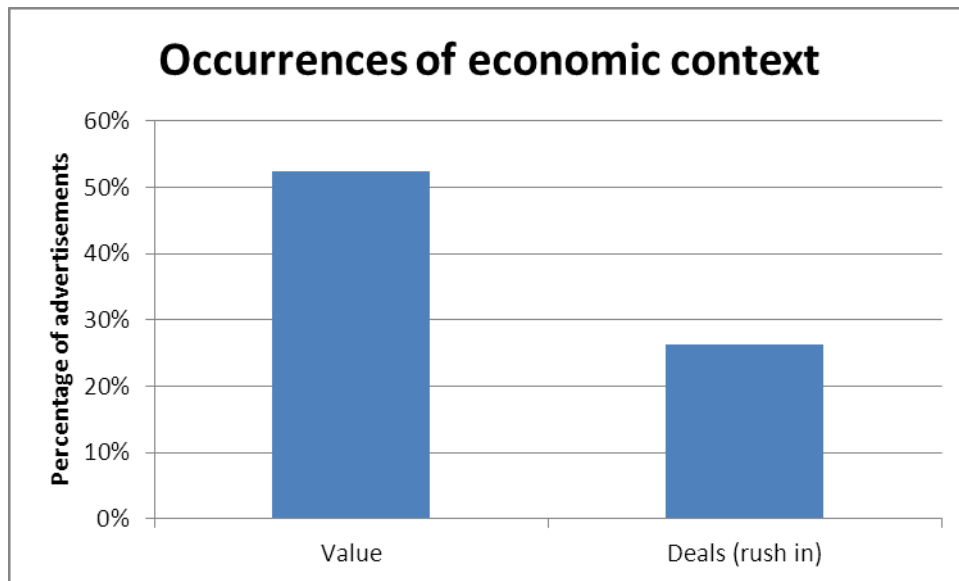


Figure 6.8 Economic context in car advertisements

The appropriateness of driving cars in the city

In contrast to the news articles which described the problems with congestion and the desire for people to use public transport, many car advertisements imply that cars are appropriate for travelling through cities. Cars were depicted as being driven through the city in 14 of the 42 advertisements. This portrays the normative message that driving in cities is something people do. The fact that there is no other traffic on the road in many of the advertisements creates the false impression that one can drive through the city without hindrance. Cars are also seen to be leaving suburban garages which builds up the ideal of the suburban lifestyle where a car is a necessity.

The safety and responsibility of car use

The issue of safety is raised in a third of the television advertisements by mentioning the safety features of the car or the safety rating. Almost all the safety features mentioned are either designed to reduce the likelihood of crashes such as Electronic Stability Control, or provide protection for the occupants. The inherent dangers of cars and the risks they cause other road users are not mentioned in the advertisements. Cars with safety features and high safety ratings are therefore seen to be a responsible choice for the public.

6.6 Film analysis

While a range of modes of transport have played a role in films, cars have been a predominant feature and have been used in films for a number of effects (French, 1998). Therefore the portrayal of cars is a focal point in researching the effects of film on travel behaviour. The

presence of cars in cinema is not confined to films where cars take a central role; they also play a role as artefacts of mainstream culture in a broad range of films. The current myths and symbols associated with cars are used to develop characters, create emotional responses and develop the narrative (Bain, 2003).

The cultural impacts of film have been recognised and researched with respect to numerous issues including geopolitical understandings (Carter & McCormack, 2006), experiences of urban space (Bain, 2003), stereotypes about women (Behm-Morawitz & Mastro, 2008) and drug use (S. R. Stern, 2005). Results from these studies have shown that relevant films have an impact on the audience. Films alter the perceptions of issues and create ideas about what is normal and desirable behaviour (Fearing, 1947). There is a large body of literature which examines the effects of film on beliefs about cigarettes as well as the actual consumption of cigarettes (Gibson & Maurer, 2000; Sargent et al., 2002). Research found that viewing incidences of smoking increased one's receptivity to smoking (Sargent et al., 2002), made characters more appealing to smokers (Gibson & Maurer, 2000), and affected the beliefs of the audiences about smoking (McCool, Cameron, & Petrie, 2001).

These studies used content analysis in combination with qualitative approaches to analyse portrayals of the issues. While some studies involved the participation of audience members, others focused on examining the films for potential effects, without empirical evidence for these effects. This second approach with the use of qualitative analysis is appropriate for this thesis, because cars are an omnipresent part of both films and reality. Subsequently, it would be difficult to count occurrences of car use in films or to draw conclusions about the effects on the travel behaviour of the audience, because there are many other factors involved in determining car use. It is more informative to study the aspects of films, identified in Figure 6.9 below, in a qualitative way.

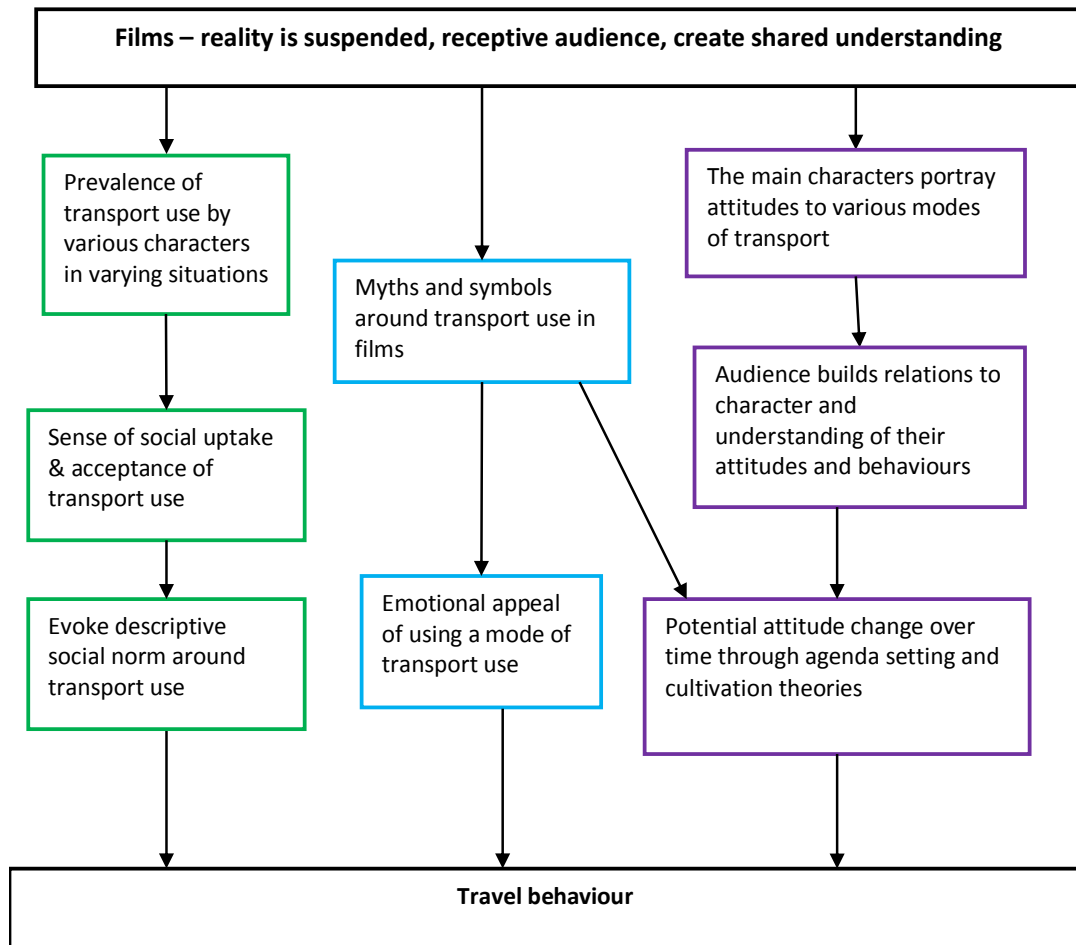


Figure 6.9 Pathways of influence from films to travel behaviour

| Attitude ■ Norms and values ■ Efficacy ■ Habit ■ Emotions ■ |

6.6.1 Method

The sample of films for this study comes from a cross-section of genres and it is not limited to traditional “car films”. Mainstream films, which are accessible to a range of different members of the public, are explored. The main condition for inclusion in this study was a scene where an aspect of car culture is raised, either explicitly or implicitly. It was found that there is an extensive number of films based around cars and the subcultures in which cars are central. There are also a number of films with subtle references to the way cars fit into mainstream culture, which could potentially be a powerful tool to validate these aspects of culture and to emphasize the prominence and importance of cars in society. This broad selection of films spans a range of genres, including teen, romantic comedy, thriller, slasher, family comedy, spy, crime and feminist drama, which, in combination, appeal to a large cross section of the community. The films were viewed, scenes with connotations about car culture were observed, and relevant dialogue and images were recorded. The aspects of car use shown in

Figure 6.9 which were present in the films were noted and further potential effects of the films were also explored.

6.6.2 Prevalence of modes of transport in films

Transport is a necessary part of most films which reflect daily life. While certain films involve characters who use other modes of transport, a large proportion of films employ the use of a car for at least some of the transport needs of the main characters. Because the films were selected for the presence of cars, it is not possible to generalise the findings from this examination to all films. However, the high level of car use within the films examined demonstrates that cars are prevalent in a range of films. Many films are partly set in suburbia where the only mode of transport used is the car (especially in American suburbia) and there is high car ownership. The prevalence of car use in films is evident in the teen films *10 Things I Hate About You* (Junger, 1999), *A Cinderella Story* (Rosman, 2004) and *Clueless* (Heckerling, 1995); the family film *Evan Almighty* (Shadyac, 2007); the 'chick flick' *Material Girls* (Coolidge, 2006); and the action film *The Italian Job* (Gray, 2003).

The Italian Job demonstrates the prevalence of car use through the congested city streets which forms the backdrop of the heist scene in the film. A high level of congestion, which is due to high car use, is an assumed characteristic of the city on which the main characters rely to form their escape plan. Congestion as a backdrop and an assumed aspect of city life normalises the predominance of populations of cities using cars even when transport becomes slower due to the other traffic on the road. Additionally, the audience is naturally exposed to a large number of cars which fill the background of the scenes.

Another scene reinforcing prevalent car use in films is in suburban streets, where there is free flowing universal car use. While there are not as many cars to be seen as in the middle of a city, there are no other transport options to dilute the presence of cars. In the films *Evan Almighty* and *A Cinderella Story*, the characters of the film do not use or mention any other form of transport. In *10 Things I Hate About You*, the use of other modes of transport is taken by peripheral characters to demonstrate their eccentricity (Michael Eckman on his scooter) or they are used begrudgingly (as when the character Bianca needs to take the bus from school).

In *A Cinderella Story*, *10 Things I Hate About You* and *Clueless* this high car use extends to high car ownership amongst the teenage characters. All the main characters and most of the other characters are shown to own or have unlimited access to cars. Access to a car "at the earliest legal age is considered highly desirable by teenagers, if for no other reason than that they

cannot fulfil their lifestyle expectations without getting away from home” (Bain, 2003). Those who lack a car are seen to be resentful, such as Carter, who “totalled” the last three cars that his parents bought for him. There is a similar sense of resentment when the two protagonists in *Material Girls*, who are rich sisters, are put in a situation where they do not have a car and are forced to use a bus to get around. They are disgusted by the prospect as they say “Friends don’t let friends take public transportation - especially the bus”. Their lack of understanding of the bus system and the atmosphere within it is shown in their expressions in Figure 6.10 as they say “I’ve heard about the bus – people pee on the seat” demonstrates their lack of familiarity with non-car forms of transport. The portrayal of the people on the bus and the resentment and disgust demonstrated in these scenes highlight the apparent importance of car ownership and the assumed right to car access.



Figure 6.10 *The two protagonists are disgusted by the bus in Material Girls (Coolidge, 2006)*

Even in uncongested suburbia, parking problems demonstrate the extent of car use by the wider population, because such problems can only arise when the level of car use exceeds the optimal capacity of parking infrastructure. In *A Cinderella Story* the protagonist of the film is deprived of a car space as the two “popular” characters take her potential spaces. Demonstrating these mundane aspects of driving as an accepted part of daily life also informs the audience’s understanding about the prevalence and acceptance of these “facts of life”.

6.6.3 Myths and symbols

The following symbols associated with car use in film are examined for this chapter:

- Freedom and independence
- Status and power
- Danger, force and excitement

- Socialisation around cars

The reinforcement of these symbols through film has the potential to increase the appeal of the car to particular audiences.

Freedom and independence

The automobile has been used to illustrate freedom in American culture for many years in films including *Red Nightmare* (Warners Bros/Department of Defence 1962) which was made as a propaganda film (Seiler, 2008). Freedom and independence are associated with car ownership and use, particularly amongst populations that may feel trapped or bored. Many teen films show an aspect of the independence that a car affords as they show the places that the characters go by car, such as shops, dates and parties (as in *10 Things I Hate About You*, *A Cinderella Story* and *Clueless*). This is contrasted with characters who must rely on others to take them places because they do not own a car, such as Carter in *A Cinderella Story*, or because they cannot drive, like Cher in *Clueless*. Therefore, through its presence or absence, the car and car use engenders an important part of the freedom and independence of the characters in these movies. In other films, cars are used to escape oppressive parts of life. In *Thelma and Louise* (Scott, 1991), the two protagonists use a car to escape their routine and the limitations placed on women in American society in a defiant act of freedom.

Status and power

Films have captured the spirit of the car as an object of status. A great deal of attention to detail is given by the characters in films to the cars they drive. They explicitly recount the make and model of the car, most often with a sense of pride, appreciation and desire. In *Ferris Bueller's Day Off* (Hughes, 1986) Cameron describes the "1961 Ferrari 250 GT California" and explains the uniqueness and quality associated with such a car: "less than 100 were made – my father spent three years restoring this car". The "Ford Gran Torino" in *Starsky and Hutch* (T. Phillips, 2004) gains the unpopular Starsky some merit from his partner and other figures. In such films, camera work tends to use upward angle shots of the cars that demonstrate the power of the vehicle, not only on the road, but also in society. The camera also gives attention to the details of the car which creates an obligation to believe that these details are important and impressive.

The film *The Big Steal* (Tass, 1990) presents the desire of the teenage boy Daniel to own a Jaguar car to impress a girl at school, Joanna. Despite Joanna's insistence that she is not impressed by fancy cars as she states "that isn't a drawcard", Daniel is so sure of the social

norms around needing cars to impress women that he takes on risky behaviour to buy a Jaguar. An acknowledgement of the social classes associated with different cars is noted by Desmond who is the father of Daniel:

Son, there's no doubt that the Jaguar is a beautiful motor. It's beautifully designed British craftsmanship at its very best. In fact you're mother's brother, Uncle Donald, worked at the plant in Coventry during the war. But these cars, they're not for us – we're working class and always will be. Stop all this nonsense about a Jaguar. (The Big Steal 1990)

This dialogue demonstrates that affordability is a major factor which governs what car one can drive. What is affordable to an individual is ultimately determined by their inheritance and employment opportunities, which Desmond believe to be set by the class of the generations that come before them. The film *Evan Almighty* demonstrates the association between status and driving big cars in a family setting. The father, Evan, exclaims “I am proud of my new car. Look, I’m a politician now. I’m in the public eye and as you know when you’re in the public eye – image is everything, isn’t it?” while he is driving a silver “Hummer”.

Danger, force and excitement

Excitement and danger are captured as a symbol of cars in a number of contemporary films. These aspects of car use were part of their original appeal at the turn of the 20th Century, described in Chapter 2,. The danger that cars can create is associated with excitement and sexual arousal in *Crash* (Cronenberg, 1996) through the realisations and transformations made by two crash victims, and in *Mission Impossible II* (Woo, 2000) by the risks taken and the near death experiences that the car enables. Cars are used as a weapon and a shield in a number of films. *Death Proof* (Tarantino, 2007) demonstrates this property of the car most explicitly as a psychopath kills his unbelted passengers in deliberate car crashes while he is shielded in his highly protected driver’s seat. In *Terminator* (J. Cameron, 1984) a car is used as a weapon to break into the police station. It is also used as a way to keep Sarah Connor away from the terminator as cars can travel fast and they have a layer of metal for protection against the powerful force of the futuristic deadly cyborg. In other films the dangers of the car are less central to the film but are still demonstrated. In *American Graffiti* (Lucas, 1973) cars are used to threaten Kurt as he hears “The Pharaohs” talking about an idea to “tie him to the car and drag him”.

Socialisation around cars

Cars are seen in films as places to be with friends, topics of conversations and ways of being involved in other social exchanges. *American Graffiti* encompasses a number of ways cars provide access to opportunities for social exchange. The cinema and the café are both drive-in and so people drive there to meet friends, while others socialise by talking in cars together or talking between cars as they cruise the streets. The car is a talking point for many of the characters, as they comment on the types of cars, on car racing and other aspects of car culture. Everyone is connected by the radio announcer to whom all the car radios are tuned.

Owning a car is considered a way to 'pick up chicks', not only because they will be impressed by them, but also because it allows the freedom for couples to go places and to be in privacy. In *The Big Steal* Daniel uses his car to entertain Joanna on their date and he enjoys discussing it with her even though she constantly points out that she is not interested in cars. When their date ends badly, she leaves the car saying "Little boys in big cars. You're all the bloody same." Despite Joanna's clear lack of interest in cars, the next day at school Daniel's friend, Van, says "Until you get your wheels back, she's not even going to think of going out with you." This demonstrates how social interactions influence how teens think their behaviour is received and what is required in order gain social sanction.

The way cars are driven is also used in social interactions. Daniel becomes competitive with a group of rough looking men in the car next to his and attempts to drag race with them, partly to impress Joanna but also out of his own pride. The dynamics of the school parking lot assert the bullying behaviour of the cheer leader and the 'jock' as they both drive aggressively and take the parking space of Sam. The object of the car is used to express love or mateship in several films. Cars are offered as presents from the parents to their teenage children in *The Big Steal* and *Clueless*. In *American Graffiti*, Steve offers his car to his friend while he is away at college. With the advent of smart phones and tablets, cars are becoming a less important vehicle for social interaction (Newman, 2012) and it will be interesting to see how this is reflected in films in the future.

Symbols used to develop characters

With such established symbols around car use and particular types of cars, cars can be powerful tools in establishing identity. Because these symbols are assumed rather than explicitly stated, the audience does not question them, thereby reinforcing the assumption that these symbols are widespread throughout society. Teen movies and romantic comedies tend to use simple techniques to define the characters in the films. The ownership of certain

cars is associated with the different status of characters within these films, because this is an easy way to reiterate the different roles. In *A Cinderella Story*, Sam (the Cinderella character) drives an old “bomb”, the ‘school jock’ drives a big black SUV and the cheer-leading girls drive a new white cute “girly” convertible. Similarly in *Clueless*, the ‘gay guy’ has a little bubbly car, the rich fashionable girl drives a Jeep and the cool kids drive BMWs. The importance of the car in developing character is noted for *American Graffiti*, “Each car is an extension of its driver that reveals key aspects of character – because in teen culture you are what you drive” (DeWitt, 2010). All these messages are particularly relevant for teenage members of the audience, since they can relate more strongly to the characters and so are more likely to be affected by the normative messages.

6.6.4 Characters’ portrayal of issues related to transport

In some films characters express strong feelings towards cars, especially their own car. There are a number of references to the love and caring for their cars. In both *Ferris Bueeler’s Day Off* and *A Cinderella Story* the friend of the protagonist worries about using a car that is owned and loved by their father. Cameron worries about his father and his love of the car they drive as he pronounces “My father loves this car more than life itself”. On receiving his friend’s car in *American Graffiti*, Terry announces “I’ll love and protect this car until death do us part.” The family car in *The Big Steal* is referred to endearingly as “our pride and joy” and the nostalgic value of the car is shown throughout the film. This is interesting in light of the fact that nostalgia is used in advertising to “concede the ground that the car can no longer be conceived of unproblematically but to encourage people to hark back to an age when it could be” (Paterson, 2007). The car is often given human or animal qualities. “A man’s best friend is his car” is a line used by the father of the protagonist’s best friend in *A Cinderella Story*. This demonstrates that the love for his car is similar to the way people may care for their family pet.



Figure 6.11 The protagonist is protective of his car in Starsky and Hutch

Characters are also protective of their cars. In *Starsky and Hutch*, the character Starsky rouses on Hutch for affectionately tapping his car as shown in Figure 6.11. He also exclaims “What kind of world do we live in when someone does something like this” in a scene where bullets, that were aimed at him, hit his car.

The extensive use of cars, in contexts where other environmental and social issues and behaviours are seen as important, leads to the portrayal of cars as benign. In *A Cinderella Story*, the whole population, except the “evil stepmother”, are worried about the drought and accept the water restrictions. However, car use proliferates throughout the film with no question of the need for restrictions on their use. By creating cartoon character cars with human features, emotions and issues, the film *Cars* creates empathy towards the cars and their right to exist and travel is seen to equate to that of a human. The problems of car use are reduced to those of people, with the need for endurance and friendship to succeed. The protagonist learns lessons throughout the film to become a better car. Congestion on the road is likened to a crowd of people.

6.7 Summary

Through examining three forms of mass media, news, advertising and film, an array of messages were found with various implications for travel behaviour. The theoretical links between messages and travel behaviour developed in the previous chapters were successfully used to guide the research in this chapter. The identified pathways of influences represented in various figures throughout this chapter guided the analysis of media. This allowed for relevant features of the media messages to be recognised and examined in detail. Upon examining these features, certain trends within media messages were found with respect to the way they portrayed modes of transport.

The portrayal of public transport in the media was found to be generally negative. This was in contrast to the positive impressions about the experience of using public transport that were recorded for the transport information diary in Chapter 5. This was particularly the case for news stories. Indeed transport problems were often a focus of news articles, particularly lack of public transport services and congestion. Therefore, people who rely on media for their understanding of public transport are likely to have a more negative view than those who experience it firsthand. Public transport did not commonly feature in mainstream advertising (and this might be why the Cityrail advertisement was noticed by the participant in the travel information diary). It was not the focus of the examination of films, because the limited incidents of public transport made sampling difficult. However, within a couple of films that

Page 218 of 306

were examined, public transport is shown in a negative light. The absence of public transport advertising may also express to the public that the only value of public transport is its utility rather than its symbolic or experiential value. Within the news, transport problems are frequently blamed on the government. There is also an expectation that the government should be responsible for solutions while the public are framed as the victims of the problems. The way problems are framed tends to reduce the debate and make the audience feel passive to the problem. This may reduce people's sense of self-efficacy and subsequently their motivation to shift their mode of transport.

The prevalence and proximity of car use was found to be demonstrated through messages in news, advertising and films. Prevalence of car use was frequently mentioned or implied and included the prevalence of future car use and the prevalence of emotions and attitudes related to car use and public transport use. Congestion demonstrates high car use, as do films where car ownership is universal and there is no use of other modes of transport. These messages can evoke descriptive social norms around car use which could cause the public to be more inclined to use cars and not question their use. The proximity and familiarity of car use is demonstrated by taking the car as the reference point for what is normal, routine or everyday activity. Advertisements and news articles directly engage with the public through the assumption that people drive, by using the first person plural or second person to include them in events and issues relevant to car drivers. Assumptions are made that no one uses public transport, particularly in certain regions. In a similar way to messages of prevalence, these normative messages are likely to promote car use. The framing of messages and agenda setting also focuses the public's attention on issues related to car use, with an assumption that everyone drives cars and is concerned about how issues affect car drivers. For example, the stresses of higher fuel prices for car drivers are mentioned frequently in the news, while the stresses that prevalent car use put on people who do not own a car are ignored by the media.

A number of myths and symbols are evoked in the analysed media. These focus mainly around the experiential and symbolic value of cars rather than their utility value, with cars being shown as symbols of freedom and independence, status and power, danger and excitement, as well as a vehicle for socialisation. This creates positive impressions of car use and reinforces the associated emotions. Myths in advertisements typically exaggerate the opportunity that cars offer rather than focusing on their utility. These myths show the car as part of a vision of progress and innovation, as a way to escape the city, and as a way to make mundane life exciting. Car advertisements also show the car to be financially viable, appropriate for the city,

and a safe and responsible transport option. This can affect the way the perspectives of the public are formed within the contexts described in Chapter 2.

These insights into mass media demonstrate a number of ways by which media messages can stimulate determinants of behaviour that are favourable to car use, and subsequently promote car use. While some of these messages naturally come from the constraints of media institutions, others are produced without intention or functionality for the media producer and therefore could potentially be addressed by policy. The next chapter discusses the implications for policy of this research into social influences.

7 Implications for policy

7.1 Introduction

This chapter explores how policy-makers and other actors can use the research from the previous chapters to improve urban transport policy. While there has been brief mention of policy throughout this thesis, the examination of social influences has been deliberately separated from policy recommendations. This was to ensure that the social influences were explored holistically, without being guided by policy aims and current policy norms (Webb, 1995). It is now important to place this research within the context of policy-making in order to see how it can effectively contribute. This involves understanding the policy processes and the actors involved, as well as drawing on research and applications of public health policy for empirical evidence of how policy can alter social influences. The implications for policy discussed in this chapter are specific to cities which have a similar social context to that of Sydney, particularly the social influences related to transport use. Cities with different modal splits, cultural institutions, urban planning constraints and policy pressures will require different policies.

Firstly, it is important to understand how this thesis can help various actors and institutions that are the driving forces behind improvements to urban transport. These actors and institutions include advocates within the community (including NGOs), professional organisations with an interest in reduced car use, research institutions and governments. The advocates within the community, professional organisation and research institution can put pressure on the government through the ways they define their goals, show support for changes and develop campaigns (Oliver, 1989). Through their collective efforts over time, these groups in the community form a 'social movement'. There may be different struggles, protests and alliances that are incorporated into a social movement with different levels of coherence, creativity and initiative in the objectives of movements (Crossley, 2002). Social movements alter the conditions within which related policies are implemented (Nathanson, 1999). Policies can result from the pressure from such social movements, other influential segments of society, prevailing ideologies and the identification of needs through other sources of information (Ritters, 2009)). While the framework developed in this thesis can enrich strategies within the social movement, this chapter focuses on the implications for public policy.

Public policy involves a statement of intent by the government specifying a course of action to be pursued. In order to develop and implement effective public policy, a number of policy processes need to be considered. Dovers (2005) has characterised the policy process as consisting of four phases: problem framing, policy framing; policy implementation and policy monitoring and evaluation. This thesis can contribute significantly to the policy selection element within the policy implementation phase. This is through the selection of strategies, where strategies are designed to rely on a particular way to work towards the policy objectives. A major part of this chapter focuses on how strategies to reduce car use can be developed and analysed based on the insights gained into social influences. In order to put this selection of strategies in the context of the policy process, other phases of the process to develop policies to reduce car use are first discussed.

7.2 The policy process

Insights into the incorporation of social science research into the policy process can come from empirical studies of previous policy experiences and theoretical considerations of the policy process. Empirical analysis of experiences within the public health policy can yield insights into urban transport policy processes because they share some of the same underlying problems (Dovers, 2005).

7.2.1 Public health policy

In order to understand policy for promoting modal shift towards public transport and active transport, much can be learned from well-established public health policy development, which includes strategies that address social influences. It is of particular interest to consider the strategies employed for the reduction of cigarette smoking in Australia (Simon Chapman & Wakefield, 2001), where prevention has become a priority for private, not-for-profit and governmental agencies (Coope, 2007). There is considerable research investigating the way social situations have affected people's behaviour with respect to their health and the health of the wider community (Brown & Zavestoski, 2004). This has included specific interrogation of various social influences including mass media (Davis et al., 2008), particularly advertising (S. Chapman & Egger, 1983). This work provides insights into how social influences can reinforce particular behaviours and impede behaviour change. It also demonstrates how policies have been implemented to shift culture away from behaviours, such as smoking, that harm health.

Comparisons between smoking and car use have been noted in literature, with particular reference to the public health impacts of the two behaviours (Douglas, Watkins, Gorman, & Higgins, 2011). There are however, key differences, including the need for infrastructure to

provide urban transport options and the need for transport use in order to partake in economic and social activities. There are also a number of similarities in the way social context has influenced the use of cigarettes and cars. Using the six features of automobility (Urry, 2004) mentioned in the introduction of this thesis one can compare aspects of smoking, either current or past, that are similar to car use, as shown in Table 7.1.

Table 7.1 Comparison of automobility and smoking based on Urry's (2004) features of automobility

Automobility	Smoking
Major product of industry (many industries involved in supply chain)	Major product of industry (concentration of industry in cigarette manufacture)
A major item of consumption which provides status to owners and users	A significant expense to certain parts of the population. Once provided more status to users than it does now
A highly complex system, involving an array of industries and stakeholders	Concentration of industry and stakeholders
Predominant form of mobility in many countries. Subordinates other forms of mobility and reorganises how daily activities are carried out	Smoking subordinates people within the vicinity of smokers by imposing hazardous environments on them (G. T. Fong et al., 2006)
Part of mainstream culture which determines what is a good life	Previously part of the discourse as to 'what constitutes a good life' (Amos & Haglund, 2000), but not so highly regarded now (Tyrrell, 1999)
One of the major causes of environmental resource-use and pollution.	An important component of solid waste. One of the major causes of injury and death

Through this comparison, it is evident that smoking and car use do share some similar characteristics. Perhaps more importantly, there are properties that they did share, such as the provision of status, that are no longer associated with smoking, due to cultural shifts. In this way the anti-tobacco movement provides an example of how a social movement can foster cultural shifts, particularly by putting pressure on policy-makers. This has led to policy designed to reduce the social influences which promote smoking. The success of the anti-smoking campaign has been linked to the clear articulation of the threat to the public, the ability to mobilise diverse organisations and the merging of political opportunities with the movement's objectives (Nathanson, 1999). The drop in tobacco consumption since the late 1970s, associated with this cultural shift, is shown in Figure 7.1. Not all countries have been successful in curbing tobacco use, with a lack of effective policy in Germany being ascribed to a lack of commitment, planning, resources, finances and political will (Duina & Kurzer, 2004;

Gruning et al., 2008). This demonstrates the requirement of good policy development when addressing the social influences on behaviour.

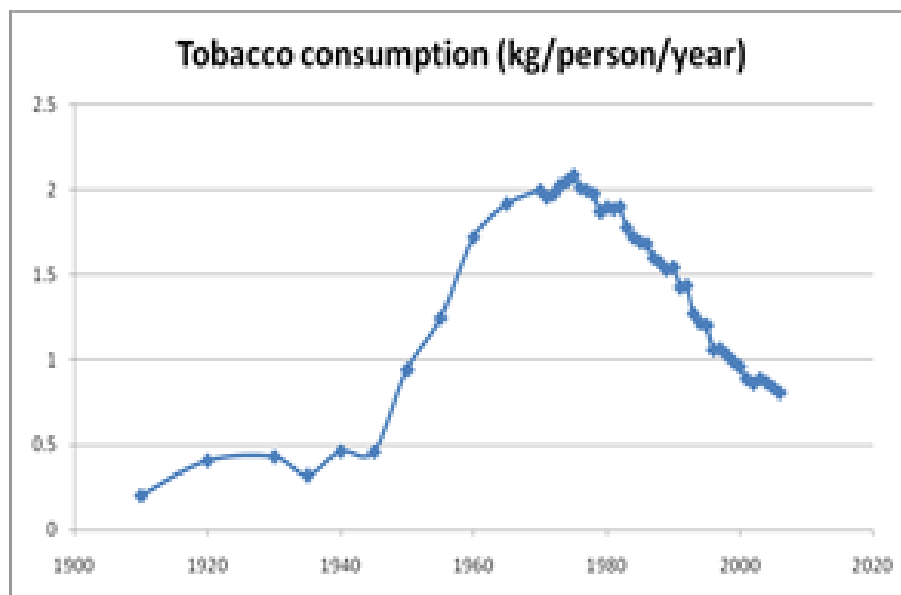


Figure 7.1 Australian tobacco consumption trends (Scollo & Winstanley, 2008)

The significant changes in smoking rates and culture resulting from Australian anti-tobacco policy can be given as a sign of the potential for transport policy to also create shifts in behaviour and culture. However, it is important to keep in mind the differences. Along with the need for accessing economic and social activities and the need for infrastructure provision, there are a wider group of institutions with vested interest in car use than in smoking, as shown in Table 7.1. These factors add complexity for transport policy-making which has not been an issue for anti-smoking policy. Therefore, these issues should be considered when drawing on work done for anti-tobacco policy in developing policy. It is important to also consider a systematic approach to problem framing in order to comprehensively appreciate the problems that should be dealt with in modal shift policy.

7.2.2 Problem framing

Problem framing involves a development of social goals and an understanding of the underlying problems that need to be dealt with in order to attain these goals. In this thesis, the social goal is characterised as a world with fewer social influences that encourage car use, more social influences that promote active transport and public transport use, and hence more people using public transport and active transport modes. This goal is similar to suggestions of an ‘envirogenic’ environment for favouring sustainable lifestyles (Shove, 2010). The Introduction and Chapter 2 established the need to enhance modal shift away from car use

within transport policy and to understand the role of social context in promoting modal shift. The framework for examining the influence of social context on travel behaviour has been developed in Chapters 2, 3 and 4 and applied in Chapters 5 and 6. The development and application of this framework has yielded a number of insights into the underlying issues which need to be dealt with in order to attain the social goal mentioned above. As established in Chapter 5, social influences are the product of a number of institutions and individuals which are involved in the development, interpretation and processing of messages. Therefore, strategies for change can target how messages are developed and portrayed and/or how they can change the way the audience interprets them and subsequently processes these interpretations psychologically. Some of the properties in the chain of message development and interpretation established in the previous chapters are shown in Figure 7.2.

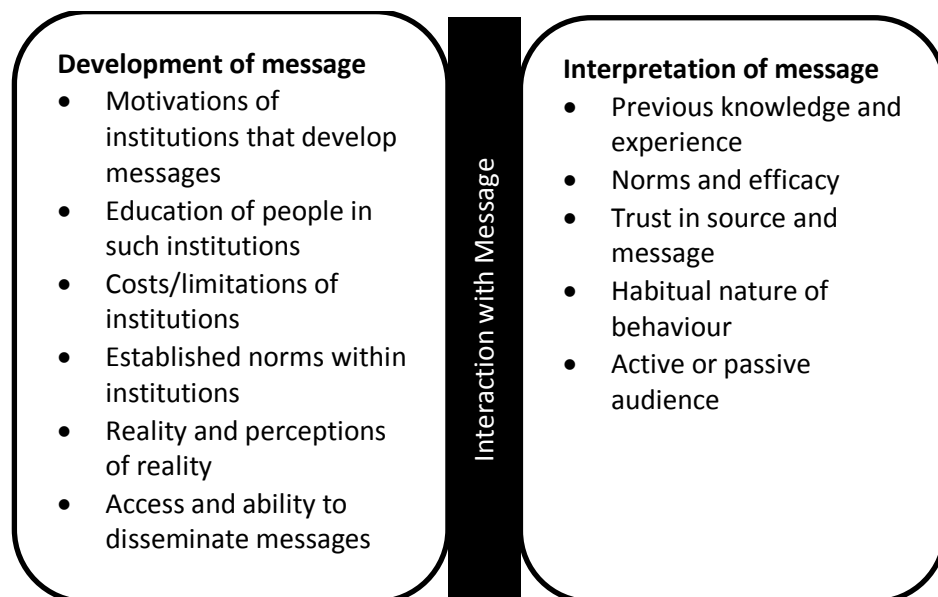


Figure 7.2 Factors to consider within the development and interpretation of messages

7.2.3 Policy framing

Policy framing, the second step in the policy process, involves developing policy principles and a policy statement which guides the development of strategies (Dovers, 2005). Research has identified a number of factors within policy-making that affect the effectiveness of the policy developed (Dovers, 2001; Guttman & Salmon, 2004; Sabatier, 1991; Schlager & Blomquist, 1996; Shove, 2010; Weiss, 1995). These include policy norms, characteristics of the physical and social world, the risks and ethical implication. There are also broad implications of transport policy for other areas of life, economics and the environment.

Transport policy discourse affects the social world, influencing the values we hold and the ways we think and act - generating new ideas about the way we think about space and mobility, and affecting our lifestyles, economy and environment. (T. Richardson, 2001)

It is therefore necessary to frame policies to ensure that their practicality and effectiveness and the broader implications of the policies are considered. Policy development involves certain institutions, protocols and discourses creating constraints and opportunities for the implementation of effective policy (Weiss, 1995). Insight developed through social science research, such as the work in this thesis, is only one factor in policy development (Albæk, 1995). Policy depends on how such research is incorporated into more general transport visions and debated in terms that are coherent with current understandings of transport problems (Vigar, 2002). This presents a real challenge for innovative policy, which requires new ways of defining and observing problems in urban transport. The institutions and individuals involved in political processes work under a number of constraints which may limit their ability to allocate the funding and pass the legislation that would be required for the recommended policies to be implemented. It is important to consider the position of stakeholders and the political position of policy-makers (Schlager & Blomquist, 1996; Weiss, 1995).

In reality, policy-making is usually messy and political, rife with the exercise of interests and power. The veneer of objective, rational policy-making that the dominant, linear model of policy-making supports is therefore cause for concern. (Scrase & Ockwell, 2010)

Political, social, economic or physical conditions can promote or hinder the implementation of a policy at various stages of policy development. Transport policies must employ strategies that are appropriate to the attitudes of the public and in line with other support mechanisms, such as infrastructure provision for the public's use of active transport and public transport. Messages conveyed through the strategies should be designed to ensure the public will be receptive and react appropriately. As seen in Chapter 4, this is dependent on the characteristics of individuals, such as their prior knowledge, and the characteristics of the community, such as levels of trust. Messages which attempt to portray that people do not have the right to drive everywhere may be poorly received when road infrastructure is omnipresent and cars have been strongly associated with freedom. It is therefore important to use appropriate justification for policies which aim to reduce car use (potentially by

Page 226 of 306

describing the harm it causes others), and where possible to influence the public without them perceiving the changes to be constraints on their freedom. Where the public's sentiment is not strongly in favour of social goals and policy actions, it may be necessary to use existing networks or respected professionals such as doctors and teachers to give the message legitimacy. Messages which empower people to take action without blaming them have proven to be effective in anti-tobacco strategies (Bunton, 1992).

Many strategies that deal with social influences require a level of co-operation from the community to be effective. This may be to support proposed legislation or to promote the uptake of various initiatives. Public support can grow as a result of changes in behaviour and culture through the work of social movements and preliminary policies. To ensure preliminary policies are politically acceptable, they may need to work on the principles of incrementalism, where policies are evaluated by assessing their marginal value rather than understanding set objectives (Lindblom, 1959). Greater support for more radical policies may only be possible when injunctive norms within the public are condemning of the undesirable behaviour (e.g. of excessive car use) (Roth, Dunsby, & Bero, 2003). However, in less favourable climates, new strategies can still be well received if they are seen to alleviate other problems, such as economic issues, and if they are shown to be politically and administratively viable (Campbell, 2002). In the case of the anti-tobacco movement, policies against smoking have evolved over decades and have become stronger as behaviour, public sentiment and institutions shifted (Champion & Chapman, 2005; S. Chapman, 1996). In Australia legislation against tobacco advertising was phased in over 20 years and has become more radical during this period (Scollo & Winstanley, 2008). By the end of the 20th century it became evident that 'public health organisation had the right and the responsibility to change behaviour by force of law rather than by mere education and advice' (Snowdon, 2009).

Anti-smoking media-based programs initiated prior to the 1980s may have been swimming against the secular stream of increasing pressures and examples to smoke. Latter-day anti-smoking media campaigns, however, may profit from the growing social disdain for smoking. (Siegel, 1998)

The novelty of the policies to address social influences and the complexity involved in social systems means that the outcomes can be uncertain (Dovers, 2005). There is the risk of failing to achieve the proposed outcomes and the risk of adverse effects where the policy has a negative impact on some aspect of society (Lyons & Urry, 2006). Any failure may also lead to a reduction in support from the community, particularly if the media emphasise the failure and

Page 227 of 306

the resources that have gone into the strategies. Policies can affect people's psychological wellbeing, financial position, lifestyle, sense of freedom and expression, as well as the way they are perceived throughout society (Kass, 2004). This can be through the way messages within strategies target population segments, the use of persuasive techniques, how they frame culpability and responsibility, and various adverse effects including stigmatisation and inequity (Guttman & Salmon, 2004).

Specific strategies also require resources, financing, and legal and ethical grounds for action. It is therefore important that these requirements are recognised during policy development and strategy selection. Small-scale piloting may reduce the initial outlay for the strategy. Comprehensive evaluations should also guide the evolution of strategies and this should be incorporated into the policy design. This takes on the principles of adaptive management. Adaptive management also highlights the importance of maintaining efforts over time (Dovers, 2001). In policies that deal with sustainability issues, this is particularly important due to their "temporal scale, pervasive uncertainty, cumulative impacts, systemic causes" (Dovers, 2001) which need to be addressed by persistent policies. Therefore, both the way strategies disseminate messages and the way messages affect people's behaviour need to be long-lasting. Institutional changes may be required to ensure that the culture of the institutions promotes messages which encourage the change (Dovers, 2001), in this case the greater use of public transport and active transport. This means stepping away from strategies which target individuals and focusing on the various networks and interactions that establish social norms (Siegel, 1998).

By restricting themselves to strategies from the individualist paradigm, policy makers can be said to be sociologically naive while neglecting the profound influences of the wider chains of interaction that serve as systems of provision shaping and sometimes pre-configuring the choices and behaviours of individual citizen-consumers to a considerable extent. (Spaargaren, 2011)

It is essential to fundamentally address how practices are conducted (Shove, 2010) rather than focus on either changes only for niche groups, or minor changes for the whole population. Such changes can be slow and uncertain but they are more likely to persist (McQuail, 1979). As cultural changes take place, it is important to ensure that policy principles are maintained. It is also important that policies promote robust and rigorous debate that allow alternative views to be given due consideration (Prasser, 2012). The ethics of recent anti-tobacco policy

has been questioned, with an increase in the use of coercive strategies, and strategies that may ostracize smokers.

“For the first time since the Nazi era it became acceptable to openly describe a group of humans as ‘filthy’ or ‘dirty’ without inviting censure” (Snowdon, 2009)

It has been established in Chapter 2 that reducing car use has benefits for disadvantaged groups, because of the social stratification that cars cause through distorting the distribution of risk, convenience, resources, space and opportunity. However, strategies to reduce car use may impact disproportionately on the poor, because of the current patterns of land use, lifestyle expectations, work schedules and the capital the public have invested in their current car use. For example, in the absence of improved public transport and safe routes for active transport, taxes on car use would have larger impacts on the poor (as mentioned in Chapter 2) (Musk & De Klerk, 2003). Such strategies may in effect treat “the labouring classes as children” (Snowdon, 2009), because they target low-income groups (who are more sensitive to price) and assume that it is appropriate to manipulate them through economic forces.

Clear policy statements and guidelines should be outlined, informed by the discussion in this section and the issues identified throughout this thesis. The policy guidelines should incorporate consideration of:

- The constraints on policy-makers, including resources, time and political pressures;
- The personal and community characteristics of the public that affect how communication is received and policies are supported and subsequently how these characteristics may evolve;
- The resources, expertise and co-operation required for implementing strategies;
- The persistence of changes developed through the policies and the potential for more radical strategies to stem from these;
- The potential adverse effects of policies through ostracizing or coercing certain groups in the community.

The policy statement is developed in response to the need to improve the problems discussed throughout this thesis. The overall policy is to reduce car use in urban transport by promoting a modal shift towards public transport and active transport use. Such policy includes infrastructure provision, the development of transport services and facilities, changes to urban

Page 229 of 306

planning and addressing other barriers to modal shift, including social influences that are currently not promoting this modal shift. This thesis has focused on these social influences, with the other parts of urban transport policy being more heavily researched in other literature (Winston, 1991; L. Wright & Fjellstrom, 2003). The types of policy that are relevant for this are often described as 'soft policies'. This term is used for policies which incorporate behavioural changes strategies that do not involve large infrastructure projects (Garling, Bamberg, Friman, Fujii, & Richer, 2009).

The objective of a policy which addresses social influences would be to create a social context which promotes the use of public transport and active transport over the use of cars. In order to achieve this, policy must consider actions which address the following issues:

- The perceptions of power and fairness
- The framing problems, solutions and responsibilities
- The self-image of transport users
- The way prevalence and acceptability of transport use is conveyed
- The way proximity to and familiarity with transport use is developed
- The competency to deal with complexity and variability of transport

These policies must be dealt with through the selection of appropriate strategies, which are now discussed.

7.3 The development and analysis of strategies

This section describes several strategies and evaluates how these strategies can achieve the goals of the policy. This is done by firstly examining strategies that have been employed for sustainable transport objectives or for similar objectives in public health and environmental protection which require a cultural shift. After establishing the list of relevant strategies, it is necessary to consider the potential for these strategies to address the issues described above that are part of the requirements of effective modal shift policy.

7.3.1 Description of strategies

A list of existing strategies to be examined here is developed by combining those identified based on behaviour change research (Abraham & Michie, 2008) with those widely employed for a range of social issues. This section examines social marketing, use of existing networks,

aids for individual behaviour change, controls on promotion, legal action, fiscal incentives and restricting access.

Social marketing

Social marketing encompasses socially responsible behaviour change strategies that use marketing techniques, such as customer orientation, market segmentation and analysis (Andreasen, 1994; Craig Lefebvre & Flora, 1988; Thogerson, 2007). Customer orientation refers to the examination of how customers see and experience their world; market segmentation and analysis use the fact that different groups, with different traits, respond differently to marketing and their responses can be analysed (Anable, 2003). Social marketing strategies may also garner support for ideas and policies and thus improve the acceptability of new policies. Social marketing work has been developed with an emphasis on feedback and continual learning (Craig Lefebvre & Flora, 1988). It has been refined with the development of stages for social marketing campaigners to use (McKenzie-Mohr, 2000) and variables for consideration including product planning, pricing, communications, distribution and marketing research (Andreasen, 1994). The intensity, timing, duration, mediums and techniques used in a social marketing campaign are important factors in determining its effectiveness (Coope, 2007). The different mediums for social marketing include free and paid mass media, individualised marketing, promotional events and other avenues to give advice to the target audience. Different mediums facilitate behaviour change in different ways, with varying levels of audience feedback, costs and control over the messages (Reid 1992).

Social marketing was first applied to family planning in the 1960s and then was subsequently adopted for public health and other issues (Thogerson, 2007). Since the 1970s it has played a particularly important role in Australia and other countries in tackling the prevalence of smoking, with large campaigns growing from grassroots movements (S. Chapman, 1996), piloting and the development of a consistent and professional approach policy which employs social marketing (Simon Chapman & Wakefield, 2001; Flay, 1987). Extensive evaluation of these campaigns has shown the public's positive response (J. P. Pierce, Macaskill, & Hill, 1990) and resulting behaviour change (L. K. Goldman & Glantz, 1998).

Social marketing campaigns have recently been used for sustainable transport objectives, including modal shift (Olga, 2009; Thogerson, 2007). They have typically been implemented at a regional level and involve workplace travel plans, personalised travel planning, public transport marketing and travel awareness campaigns (Moser 2008). These campaigns involve the provision of materials such as brochures; information on saving money; cycling and

walking pamphlets and maps; public transport timetables, maps and fare guides; bus stop timetables; free public transport tickets; and other gifts such as cycle computers (Concas & Winters, 2007; Hamer & Jones, 1999; RED³, 2005; Sorell, 2004; Thogerson, 2007). Research in social marketing for travel behaviour has stressed the importance of personal engagement, functional materials, support of local leaders and whole-of-community involvement (Concas & Winters, 2007; RED³, 2005). Furthermore, a greater use of various mass media, especially televised messages, has played a role in almost all anti-tobacco campaigns (Flay, 1987) which have generally been effective.

Social marketing campaigns require appropriate skills, funding and motivation to carry out a campaign. Participation by research institutions and marketing companies, as well as support from grassroots organisations, puts pressure on governments to introduce social marketing. It can also gain support from local leaders, such as councils, senior company management and school boards (RED³, 2005). The effectiveness of the campaign is dependent on whether there is enough financial and social support, and if the campaign is given the opportunity to be ambitious (Connolly, Harris, Goldman, & Glantz, 1998).

Use of existing networks and authorities

There are many instances within people's normal routine, where messages are given to them from different sources. Some of the more prominent institutions and members of the community that give such messages include teachers, academics, doctors and different religious, workplace and community groups. Messages are also presented through transport information services as discussed in Chapter 5. These messages include information to plan and navigate transport through transport systems as well as to help with time management and to gain certainty. These messages can promote the benefits of using a mode of transport and lead to an improved travel experience.

Strategies which use existing networks can raise the profile of social issues and impart advice for behaviour change. The effectiveness of these messages is enhanced by using the communication opportunities and respect given to these services, institutions and people. It is essential that the people delivering the message are in an appropriate position to give such messages, that their values are consistent with the campaign and that they are given appropriate training and support. The way the issue is framed determines how relevant different institutions and networks may be. For example, if the need for modal shift is framed as a public health issue, then it becomes appropriate for the medical profession and public health organisations to become involved.

The use of existing networks has been extensively employed in the anti-tobacco movement, particularly through quitting advice from doctors (Reid, Killoran, McNeill, & Chambers, 1992), which has proved effective (Lancaster & Stead, 2004; M. Russell, Wilson, Taylor, & Baker, 1979). However, the competence of general practitioners to deal with addiction issues has been questioned by smokers who have been given such advice (K. Bell, Bowers, McCullough, & Bell, 2011). Educational campaigns in schools have also been employed, although there is less evidence of their effectiveness (Bruce & van Teijlingen, 1999; Reid et al., 1992). Media institutions can also provide a source of messages to encourage behaviour change. News reports in particular have been shown to be helpful to the anti-tobacco movement (Champion & Chapman, 2005). The use of existing networks is still limited within urban transport, with exceptions being the extensive networking undertaken by cyclists and the emergence of the promotion of healthy and sustainable transport within schools and by the medical profession (Faulkner, Buliung, Flora, & Fusco, 2009).

Aids for individual behaviour change

Tangible objects and systems for advice and other support can be introduced to address barriers for individuals to make behaviour change. They aim to make it easier to avoid old behaviours, to make the transition to a new behaviour more desirable and to make the new behaviour a more viable option in the long term. Because there are many barriers to behaviour change, particularly habitual behaviour (as discussed in Chapter 3), aids for individual behaviour change can overcome or temporarily suppress some of these barriers and make the change more gradual. Quitting aids have been used to reduce the disutility of not smoking and self-control devices that lower the utility from smoking at an individual level (Gruber, 2001). These have included patches, gum and other nicotine releases (Jorenby et al., 1999) as well as quit lines (Wakefield & Borland, 2000), counselling, books and videos. This can include motivational interviewing to increase confidence (Merrill, 2011) and training to enhance capability to participate in new behaviours (Pucher, Dill, & Handy, 2010). The way these aids are provided and promoted may affect their utility through their affordability and accessibility for the people who need them (Biener et al., 2006). It was found that such tools were most effective when supported by a mass media campaign to promote it (Biener et al., 2006).

There have been tools introduced to reduce some of the impediments to using sustainable transport. Devices have been designed for people to manage their transport use and to gain feedback on the impacts of their transport choices (Froehlich et al., 2009). These include

journey planning aids provided through computer terminals and phones, as well as general way-finding devices and other information help en route (Hickman & Wilson, 1995; IRENE CASAS, 2007; Wahle, Bazzan, Klügl, & Schreckenberg, 2002). Showers and lockers can reduce barriers to using active transport by providing a way to freshen up after exercise and to lock up personal belongings in a similar way to people leaving things in the car (Spinney, 2009).

Controls on promotion

Controlling the ways that industries can promote their products is a potential way to control demand for that product. In the most famous case of promotion control, namely that of tobacco products, promotion refers to “any form of commercial communication, recommendation of action with the aim, effect or likely effect of promoting a tobacco product or tobacco use whether directly or indirectly” (Scollo & Winstanley, 2008). Thus ‘promotion’ describes a wider range of activities than ‘advertising’, which generally refers to promotion which is overtly paid for. Controlling promotion is justified on the grounds that promoting products associated with harmful behaviours may encourage the behaviour and the culture around it. Advertising can also bring the product to the forefront of people’s minds and can lead to discussion, thus penetrating social situations (Sheehan et al., 2006). Controlling promotion also limits the financial dependence that media institutions have on companies with a vested interest in the continuation of harmful behaviours (Amos, 1992).

Restrictions come in many forms and can target particular themes within promotion (e.g. reckless driving in car advertising) or types of promotion (e.g. television advertising). Partial restrictions can limit where a company can advertise. Although this may lead to resources being shifted to other avenues of promotion (Davis et al., 2008), this alternative promotion is likely to be less effective (Saffer & Chaloupka, 2000). Partial bans have been shown not to work as well as comprehensive bans, like those imposed on tobacco promotion (Braverman & Aarø, 2004). Comprehensive restrictions have been implemented on tobacco promotion, prescription-only pharmaceuticals, guns and explosives (Scollo & Winstanley, 2008). Tobacco advertising bans have proved to be effective in a number of countries (Laugesen, 1992).

With respect to urban transport, cars are the only mode of transport with significant promotion. Regulation has been introduced to limit the portrayal of irresponsible and dangerous driving (Ouschan et al., 2008). The voluntary code for car advertising in Australia tries to limit portrayal of “deliberate and significant environmental damage” (FCAI, 2004). Such partial restrictions on advertising require comprehensive legislation and enforcement, because the boundaries are not as easily defined as for complete bans (Sheehan et al., 2006).

The voluntary nature of the self-regulation within the car industry through this code for advertising does not meet this requirement for comprehensive legislation and enforcement. The potential to extend such advertising bans in an attempt to reduce car use would require either an enforceable and comprehensive partial restriction or a total ban on car advertising.

Legal action

While much legislation reaffirms existing cultural norms, there is a role for legal action to be used as part of social movements to affect changes (McCann, 2006). Legal action involves a challenge, in a legal setting, to an industry by those who have been adversely affected by the consumption of the industry's products. The challengers could include governments that represent the broader interests of their constituents. The demand for compensation has been a driver for legal action against companies that sell products which are associated with harmful behaviour. These harms may include environmental damage (Brennan, 1993) or health impacts, such as from smoking (Walsh & Gordon, 1986) and obesity from unhealthy eating (Mello, Rimm, & Studdert, 2003). Court cases have presented opportunities to expose and challenge the motivations and operations of industries. Litigation has been part of the anti-tobacco movement since 1954. However, it was not until the mid-1990s that the tobacco industries were successfully sued (Gruber, 2001). Some examples of successful actions against the tobacco industry include class action against the industry for inadequate warning of the addictive nature of cigarettes and lawsuits to cover medical costs of smoking-related illnesses and personal injury claims (Gruber, 2001). The tobacco industry has been required to pay large sums of compensation to victims of the harms caused by tobacco (Tyrrell, 1999). These include both smokers and those that have suffered due to second-hand smoke, such as employees in the hospitality industry (Byrd, Shapiro, & Schiedermayer, 1989).

To undertake successful legal action, it is necessary to have appropriate laws, good reason for litigation and financial support to pay for the associated costs. The industry or stakeholder in question must have acted in some way which puts them at odds with the law. An afflicted party, who is willing to challenge the industry, must also exist. This party must have the resources required to mount a challenge against an industry. In the past, the anti-smoking movement has had limited financial resources to engage in litigation and it has only been in recent years that lawyers with altruistic motives or with realistic expectations of contingency payments have been willing to challenge the tobacco industry.

There have been various legal cases against car manufacturers, but none as comprehensive as those against the tobacco industry. These have been based on negligence which has led to

unsafe vehicle design (H. A. Katz, 1956) as well as conspiracies to manipulate urban transport and hinder the use of electrified transport systems (Lipanovich, 2005). The sentences for these cases have been very lenient with no repercussions for the future of the company or for car culture (Black, 2007). However, court cases have been powerful agents in bringing to light the inside information held by the industries, which can simultaneously discredit them and empower the community through a greater awareness of the issues (Mello et al., 2003). This is compounded by the media attention that court cases receive, particularly when it is members of the community taking on large corporations (Simon Chapman & Wakefield, 2001).

The potential for taking legal action on environmental grounds against automotive and petroleum industries has been considered (Lipanovich, 2005) and attempted unsuccessfully in recent years ("People of the State of California, Plaintiff v. General Motors Corporation, et al., Defendants.," 2007). With respect to climate change there are difficulties in demonstrating how a plaintiff has suffered an actual injury and tracing the causation of the injury back to the defendant industry. It is also unclear how the injury can be redressed by a favourable decision (O'Faulk & Gray, 2008). The diffused nature of the causes of climate change and its global impacts makes such a case close to impossible. However the links between cars and other ill effects, such as local air pollution, do present a possible opportunity for legal action, particularly with mass tort⁴ against the tobacco industry as a precedence (Lipanovich, 2005).

Fiscal incentives

Undesirable behaviours can be reduced by taxing consumables related to the behaviours. Taxes change both the price of the product for the consumer and the revenue to the government. Thus taxes can raise revenue to pay for the externalities of the behaviour associated with the product. If a product has a low elasticity between its price and its consumption (as in the case of cigarettes or petrol) (Gruber, 2001), the increase in taxes will increase revenue to the government, because any decrease in consumption (which constitutes a decrease in the number of products the government is receiving tax for) is generally offset by the larger increase in revenue to the government per purchase (Hundloe & McColl, 1994).

There are taxes for both car use and smoking; for the latter it estimated that taxes make up 70% of the cost of cigarettes in Australia (Geis, 2005). Reductions in smoking rates have

⁴ Mass tort is a civil wrong committed by one person (or corporation) that results in injury to many victims and therefore involves numerous plaintiffs suing one defendant (or several defendants) who acted negligently (RLG, 2010).

occurred when taxes have increased (Fishman et al., 2005; Hu, Sung, & Keeler, 1995). In recent years, taxes on car use have also come in the form of cordon charges (which are charges for using a stretch of road) and in other cities, such as London, congestion charging schemes (which are charges for using a central part of the cities road network) (Shove & Walker, 2010). These taxes and charges are particularly appropriate for targeting severe impacts, such as congestion in inner-city areas or at peak times (Rietveld, 2004).

Restricting access

The ability to take part in an action in certain places or at certain times can be restricted through regulation or by making it more difficult or costly to undertake. The justification for such restrictions may be to limit the damages caused to other people, particularly workers who must feel the effects of the damaging behaviour. It may also be to discourage the behaviour more generally and provide an example of what the environment would be like without the behaviour taking place (Scollo & Winstanley, 2008). For example, a pedestrian-friendly zone, where car use is restricted, demonstrates the amenity of such areas.

A significant part of the anti-smoking effort in recent years has come through limiting where people are allowed to smoke, as well as increasing the taxes which make it expensive to smoke. Restricting smoking started in the 1970s on the basis of fire safety (Champion & Chapman, 2005). Early restrictions on smoking were in enclosed public spaces such as public transport vehicles (Thomson, Wilson, & Edwards, 2009). Subsequently broader restrictions were introduced to Australian pubs and bars and workplaces, with workplace bans shown to decrease smoking rates by 5% (Gruber, 2001), although few people cite such bans as a reason for quitting (Reid et al., 1992). Restrictions on smoking have become more radical with recent legislation preventing people from smoking near buildings, at public transport stops, near playgrounds and in cars with children (Scollo & Winstanley, 2008).

7.3.2 Addressing social influences

Now that a sizeable list of existing strategies has been described, it is necessary to examine how they can address the issues mentioned in the policy statement. The list also reveals gaps, namely where existing strategies are not sufficient for dealing with the social influences. These gaps may be particularly prominent where institutional changes are required to address social influences, because existing strategies tend to focus on fixing problems through “adjustments” to the status quo (Gleeson, 2012) and through targeting the individual as a consumer (Shove & Walker, 2010). Therefore, to complement existing strategies, policies may be needed to promote profound social or economic change by targeting large institutions which promote car

use. With the development of such policy, social influences encouraging modal shift away from car use should become more prominent through the pathway shown in Figure 7.3.

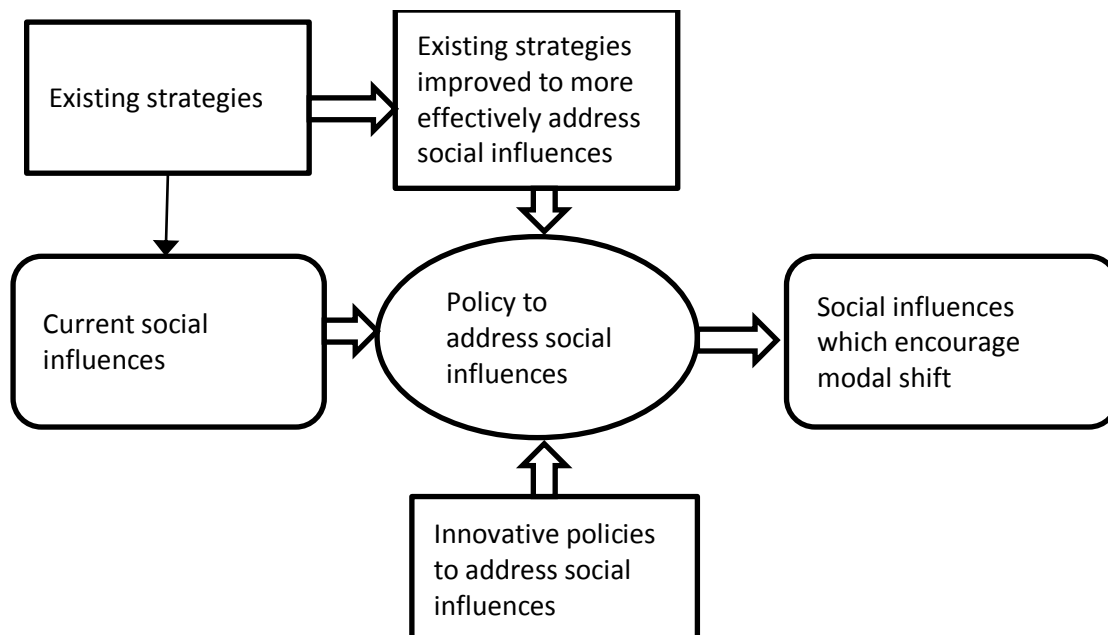


Figure 7.3 Incorporating innovative policies and improved existing strategies to encourage modal shift

The perceptions of power and fairness

Certain views of transport are portrayed more prominently because they come from powerful and influential groups. These views affect the way that people perceive what is fair and how dependent society is on cars and the associated industries. The dominance of car use within current urban transport has increased the power of certain groups with interest in the continuation of car use. These vested interest groups are not limited to industry and media which profit directly from the manufacture and marketing of cars. They include workplaces, insurance companies, car user organisations and other institutions that are currently set up to deal with high levels of car use, along with the people who are set up to continue using cars. This collection of groups has a desire to promote car use through the public's understanding of the rights of transport users and the perceptions of fairness within transport use. Their power in communicating this view can lead to dominant discourses that favour car use.

Foucault asks how, why, and by whom, 'truth' is attributed to particular arguments and not others. In particular, he analyses what types of thoughts, ideas, knowledges and practices become accepted, marginalised or silenced in given social conditions. This

association of values and power in the construction of knowledge can be understood as the rationality of discourse. (T. Richardson, 2001)

The power of industries associated with car use comes from the perceived dependence on them for economic stability and employment opportunities, along with their ability to lobby and market their cause. This perceived dependence is made apparent through the efforts of governments to bail out automotive manufacturers (Armstrong, Bailey, de Ruyter, Mahdon, & Thomas, 2008). These macro-economic barriers to changing behaviour have been dealt with comprehensively and systematically by the anti-tobacco movement. Future economic scenarios have been developed to demonstrate how the economy can benefit from a reduced consumption of tobacco products, including considerations of external costs, job losses and skill transfer (D. J. Collins & Lapsley, 2009; Scollo & Winstanley, 2008). Such analysis could be conducted for scenarios of reduced car use in Australia, in a similar way that in Portland, Oregon, in which the positive economic benefits of increased cycling were analysed, as described in Chapter 2 (Geller, 2010). Messages which reflect this potential could be disseminated through social marketing and existing networks.

The heavy use of marketing and lobbying by the automotive industry contributes to the media and political institutions being favourable to car use, with media institutions being dependent on the revenue from advertising (O'Sullivan, 1998). This was a source of resistance for anti-tobacco policies (Berridge, 2006; Davis et al., 2008; Scollo & Winstanley, 2008).

Sports promotion, advertising, and economic interests in government and business were powerful obstacles to tobacco control (Tyrrell, 1999) Page 168

The assumed dependence on car use is present in political discourse; both through the way governments address automotive industries and the general public. Prime Minister Julia Gillard's comment on the program Q&A (T. Jones, 2011) demonstrates the concern for people suffering due to the costs of running a car and the apparent moral obligation for institutions not to impose additional costs, while omitting to mention the costs of car use on people who do not drive, and how policy to reduce car use would improve their situation.

And what do we know about Australia. Well, it's a big place – we live in a big nation – people drive. People have got very little choice but to drive in many parts of the nation. So our choice for our nation was that we shouldn't have in the [carbon tax] scheme – household petrol – household fuel. You know, when you take your car to the petrol station and fill up. (T. Jones, 2011)

Therefore it may be fruitful to introduce policies which inform political and media institutions of how their portrayal of fairness around car use affects people's motivations to change their travel behaviour through the activation of personal norms as described in Chapter 3. It is also necessary to acknowledge the ethical imbalance that places emphasis on the unfairness caused by impeding car use, while ignoring the unfairness caused by car use, as noted with regards to England's transport policy:

In the late 1990s and into the twenty-first century the impact of fuel tax rises on the low-income rural car owner was very prominent, while the damage inflicted by cars on (typically low-income) communities living with traffic and the ways in which being 'transport-poor' has implications for accessing a wide range of services, were afforded much less policy and media attention. (Vigar, 2002)

This imbalance can be addressed by promoting how strategies are improving equity in the community through social marketing and existing networks. Where practical and reasonable it may also be effective for governments to use strategies to limit the voices of vested interests, particularly messages with perverse perceptions of fairness or which are designed to persuade without engaging conscious reasoning. This may involve addressing certain themes within advertising that create idealistic expectations from cars and the way they are driven, such as cars driving freely through empty city streets. Under some circumstances, legal action against vested interests may force them to change the tone of their messages. Strategies to restrict the promotion of car use will face resistance from media groups and the automotive industry. However, social marketing campaigns which employ paid advertising require their own marketing strategies and advertising space. These campaigns provide marketing and media organisations with revenue that may compensate for lost revenue from advertising restrictions. Anti-tobacco advertising has become a regular occurrence in media and provides substantial revenue.

Vested interest groups can impede strategies to reduce car use by demonstrating how they can cause inequity. As pointed out in the policy framing section, taxes can be particularly problematic for poorer people and may therefore lead to inequity. It is important to ensure that taxes are accompanied with compensating strategies and the positive outcomes of such policies are promoted. This could be through improvements to public transport and active transport, especially in outer suburbs (Schlag & Schade, 2000). Revenue from taxes on cigarettes or car use can also be used to fund social marketing campaigns, such as an anti-tobacco campaign in California financed through a 25c per pack surcharge (Popham et al.,

1993). It has been shown that hypothecating (linking) taxes to other campaigns can make them more acceptable (Fishman et al., 2005; Hu et al., 1995). Taxes may lead to a sense of entitlement for people to drive, because they may feel they have paid for the right to use their car. Perversely, this may create a more positive attitude to car use because the public are less likely to consider the harms of the car, which they feel are covered by the taxes they pay. Such effects could also be addressed by using social marketing to accompany taxes.

Framing problems, solutions and responsibility

Transport problems require solutions involving various actors, including governments, industry and transport users, along with other groups that shape transport use. The crucial question is how the different actors' roles should be framed, and in what ways should the public be given the opportunity to understand and comment on the problems and solutions. Increasing the awareness of the public to various issues—such as safety, health, urban planning, the environment, the economy and society—may change their perception of the problems and solutions. The role that the public is given within messages affects people's sense of empowerment and motivation.

People can be made to feel passive to the problem and solution if messages do not demonstrate that the public has a role to play and if all the responsibility is allocated to other actors. This may be through portraying the public as victims of the problem who are left at the mercy of other institutions, such as the government, to solve the problem. This has led to a sense of public complacency and helplessness in relation to other social issues (Kensicki, 2004), so it can be reasonably expected that the outcomes will be similar for transport issues. If problems are mentioned without discussion of potential solutions, people lose their motivation because they feel the situation is helpless (Hounsham, 2006). The public may also feel that strategies which are designed without community consultation and which contain prescriptive messages reduce people's sense of autonomy and treat them as children.

Therefore, some level of engagement with the community about problems and solutions is a necessary part of strategies. It remains to be asked what information about the various transport-related problems should be given to the public and how these messages should be framed. Increased awareness of problems does not always translate to changes in behaviour. People are less receptive to information which is conflicting current attitudes and behaviour and such information may lead to negative reactions (Hastings, Stead, & Webb, 2004), as discussed in Chapter 3 and 4. This reduces the effectiveness of the numerous social marketing campaigns which have emphasised the pollution caused by cars (Sorell 2004). It is suggested

that messages should only demonstrate the direct positive impacts of modal shift (Sorell 2004) and limit discussion on broader issues and responsibilities. It may also be constructive to focus mainly on the positive outcomes for the future instead of the current problems (Hounsham, 2006). Further research into the functions of different attitudes related to transport problems and transport use could yield a better understanding of how to frame transport problems in order to deal with the function of attitudes, particularly the knowledge-function.

It is therefore important to explore policies that can empower people both with a motivation for action and though the possibility of action. This should be done without people feeling stifled by guilt, fear or a sense of being coerced. People may respond more actively to messages which show that other institutions have been principally responsible for creating problems, but that individuals have the capacity to act, as has been the case for anti-tobacco social marketing (L. K. Goldman & Glantz, 1998) and through class actions against 'Big Tobacco'. People may also be empowered by sharing and receiving information through networks, such as workplaces, education institutions, medical professionals and transport user groups. Such networks can permit people to pool resources, knowledge and experiences and also by creating a collective and legitimate voice. The NRMA has been a powerful network for car users in New South Wales and bicycle user groups have provided some ways forward for improvements to cycling. While there are groups that lobby for public transport infrastructure (EcoTransit, 2012) and pedestrian rights (PCA, 2012), there is a lack of groups that effectively promote the sharing of ideas, support and networking for public transport users and pedestrians in Sydney. Promoting the establishment of effective transport user groups and the dissemination of transport related information and support through other networks may promote active transport and public transport use. This is through the development of shared knowledge and hence social norms around the use of these modes of transport, along with regular reminders to increase the salience of relevant issues and values, and regular support to increase self-efficacy.

The framing of problems and solutions plays a role in defining and activating injunctive norms. Norms can be activated by strategies that manage to demonstrate how harmful behaviour is without vilifying the people who are involved in the practice. The public have become receptive to messages around public health issues such as smoking, and have developed strong injunctive norms. Public health messages have been successful in activating injunctive norms by alluding to the effects of a behaviour on innocent third parties, such as second-hand smoking, in which a "sense of injustice for the little guy" is created (L. K. Goldman & Glantz,

1998). People may respond better to messages related to values and injunctive norms which come from a voice which is respected in the community and is relevant to the issue. This includes information released through legal proceedings which may demonstrate the wrongdoings of vested interest groups who have promoted harmful behaviour, in the way that tobacco companies were forced to release material (Oreskes & Conway, 2010). Under oath in the court, the tobacco industry has been required to tell the truth and disclose information that in other contexts would not be required.

There may also be a role for the education system, media institutions and other cultural actors to promote altruistic and open to change values that can lead to the activation of norms that are in line with modal shift away from car use. Such institutions could also promote people to become engaged in issues by addressing how people learn to consider issues and take on board new information. This may reduce the negative effects associated with confronting messages and the avoidance of media to portray such messages which may challenge their audience. In a sense the lack of media which challenges the audience creates an audience which doesn't expect to be challenged as discussed in Cultivation Theory in Chapter 6. Therefore the education of journalists needs to incorporate a more comprehensive understanding of the cumulative effects of their work.

Image of transport users and their perceptions

Symbolic value has played an important role in the proliferation of smoking as well as car use (as mentioned in Chapter 2). The examination of messages in Chapter 5 and the more detailed examination of media in Chapter 6 have shown that many messages associate cars use with various symbols and myths and show it as normal in contrast to the use of other modes of transport. Key symbols identified for car use were excitement, progress, freedom, status, power and socialisation. Similarly, efforts to reduce cigarette use have faced the symbols associated with smoking, including being 'popular', 'cool', 'good looking', 'brave', 'independent' and 'trendy' (Ioannou, 2003). Because transport takes place in public, it offers an opportunity for people to express themselves and demonstrate their values and status through transport-related symbols. Therefore, the development and dissemination of symbols that attempt to increase the symbolic values associated with public transport and active transport use could prove to be effective.

... most citizen-consumers cannot imagine how the use of green symbols and products in the context of everyday life practices might result in an increase of their present levels of emotional energies. They do not know yet how to frame the emotional

energies they get from subscribing to green energy schemes. The potentially 'energizing' part of sustainable consumption is hardly considered by environmental social scientists when organizing research on sustainable consumption. (Spaargaren, 2011)

Therefore it is particularly important to examine ways that the image of transport users and their perceptions could be shifted to be more favourable to the use of public transport and active transport rather than car use. It has been noted that there is a need for increased use of advertising techniques in sustainable transport, with an emphasis on imagery within such campaigns (Wiltshire, 2004). In addition to creating new messages that promote positive images for public transport and active transport, it may also require challenging or restricting current messages associating car use with positive symbols. This may involve a long campaign which incorporates de-marketing the car (C. Wright & Egan, 2000) and using emotional appeals in order to market active transport and public transport (Reiter & Wilhelm, 2004). Restrictions on particular imagery within car advertising may also play a role in altering the symbolic value of different modes of transport.

As mentioned in Chapter 6, producers of messages use well-established symbols with an assumption that the audience will be familiar with the associations. This can be to make messages succinct, to allow the audience to relate to the story and to assist artistic expression. Conscious efforts to reduce the presence of cars in the media and to alter the symbolic values of cars presented could result in changes to the symbolic value of cars over time. Media producers are now sensitive to the use of smoking within their productions and may be more likely to avoid unnecessary smoking scenes (Snowdon, 2009). While the media portrayal of smoking may have come from shifts in the mindset in the wider community, which has naturally led to media professionals' use of a different set of symbols in association to smoking, one must ask whether there is the potential for the education of media professionals to incorporate an understanding of the effects of their use of symbols.

The perception of prevalence and acceptability of transport use

With the pervasive presence of transport use in people's everyday life and throughout media and social networks, it is difficult to escape messages that show cars are the most commonly used form of transport in cities such as Sydney. Therefore strategies which reduce people's exposure to this demonstration of the prevalence of cars are required. In addition, where possible, the prevalence and acceptability of public transport and active transport needs to be emphasised in order to evoke descriptive social norms around their use. Misconceptions,

where people believe that car use is higher than it is, also need to be corrected (Schultz et al., 2007).

Social marketing campaigners, both from government and non-government organisations, should ensure that they do not emphasise the prevalence of a behaviour they are attempting to reduce. The perverse effects of such messages, which can lead to an increase in the behaviour, are caused by evoking the descriptive social norm about car use. To avoid this, it is important to educate social marketers and to develop guidelines for campaign development to ensure messages are not creating effects that are contrary to the campaigns objectives. If values within mass media and other cultural institutions reflect a need to reduce car use, educating journalists and other media producers may induce them to reconsider their portrayal of events with messages which could evoke descriptive social norms. If controls on promotional material that reinforce social norms are also introduced to some extent, this will limit the messages that the public are exposed to that impede modal shift. Messages in mass media are particularly important to target because of the mutual exposure of a cross section of the community to these messages, which enhance the potency of the normative messages (as discussed in Chapter 4).

Messages related to descriptive social norms can also be altered by changing the way people observe transport. By limiting access to cars through pedestrian zones, congestion charge zones and no parking areas, people are less likely to see cars and are more likely to see people using other forms of transport. While little research has been conducted in this area, the introduction of smoke-free zones has led to a reduced exposure of the general population to smoking behaviour (Jamrozik, 2004). The effect of this reduced exposure to smoking may have an effect on people's propensity to smoke.

The proximity and familiarity to transport use

At present there are fewer people using public transport and active transport than cars, so naturally people have fewer experiences with these modes of transport. People also know fewer people, and can relate to fewer people, who use these modes of transport. Thus they have less opportunity to observe the use of such transport, because there is simply less use to observe. Messages in the mass media and in social networks are also likely to portray more car use, because their content draws from current culture. Strategies must therefore attempt to create familiarity and proximity to the modes of transport that people have had less experience with. This can be done through creating experiences for the public or through showing that public transport and active transport are used by people similar to them and

close to them. Thus it can be demonstrated that the act of using these unfamiliar modes of transport is not very different from other parts of their lifestyle.

The way existing networks relay information about different modes of transport also needs to be addressed through innovative policies that guide these networks to consider public transport and active transport more comprehensively in their communications. Currently, many messages related to travelling to activities or to working out logistics assume that participants will drive to the destination. Ample information is provided for drivers, but there is often little consideration for public transport and active transport options. This can make people feel they are expected to use a car and that people going to the same destination will be driving. By emphasising the public transport and active transport options, people may feel that considering such options is normal and other people will be using these modes of transport.

Creating experiences of using a mode of transport does not just create familiarity with the procedures and conventions involved in that behaviour. It also gives people more opportunity to meet people who use that mode of transport, to learn from their experiences and to understand them better. This is particularly the case for active transport, where people are out in the community while using these modes of transport (Kennedy, 2011). Events which encourage large populations to make an effort to ride a bike on one particular day have the potential to demonstrate how prevalent cycling can be and the variety of people who are prepared to ride (Rose & Marfurt, 2007). Other messages created through social marketing could also focus on the possibility of using public transport or active transport by portraying images of people, to whom the public can relate, using the mode of transport and conveying the experience of using the mode of transport through stories or pictures to create familiarity.

Where current travel behaviour is habitual, it may be difficult to encourage people to seek out familiarity with other modes of transport. Strategies which merely provide information or opportunity for people to change their behaviour may not effectively address habits which limit the individual's attention to new information or innovations. It is therefore necessary to introduce messages which require limited attention and may be absorbed at a subconscious level or to introduce initiatives which challenge someone to re-evaluate their behaviour. If parameters around car use are altered, people may be forced to adjust how they use the car and may also consider other options. If experiences of using other modes of transport can be created, people may reconsider their habitual behaviour and may start to develop habit

around a new behaviour. This could occur through events such as a ride to work day, a car-free day for the city, or offers of free public transport on certain days.

Developing competency to deal with complexity of transport

As established in Chapter 2, there is a vast array of factors involved in the use of urban transport and these vary greatly between different modes of transport. There are factors that directly affect the individual and contribute to the complexity of using a mode of transport. In addition, there are broader impacts of urban travel and the complexity of developing solutions to transport problems. The use of a mode of transport can require an investment of money, time and effort. There may be the need to acquire new vehicles, tickets or even move one's place of residence. An understanding of certain skills, protocols and tacit knowledge will allow one to efficiently and effortlessly use a new mode of transport and optimise the experience. In light of this, a major barrier to using a different mode of transport can be one's self-efficacy. This can be addressed by creating opportunities and tools to facilitate behavioural change and thus increase their self-efficacy. This may involve the provision of useful information such as maps and timetables in social marketing campaigns or through existing networks, such as efforts to improve the usability of London's transport information system with improved interfaces in online systems (Inglesant & Sasse, 2008). Such functional material has proved to be effective at promoting modal shift to some extent (RED³, 2005). Perceived self-efficacy can be improved through campaigns which demonstrate that changing behaviour is not as difficult as previously thought. This may include social marketing campaigns which encourage trialling a new mode of transport, such as 'Ride to Work Day'.

It is not only the typical experience of using a mode of transport that affects people's travel behaviour. People rely on transport to get where they need to be within a particular timeframe and in an appropriate state. Therefore, people also need to feel comfortable in dealing with various situations which may arise while travelling. Troubleshooting advice as well as keeping transport users informed while travelling could enhance one's self-efficacy. This could be introduced through support networks such as transport user groups, as discussed earlier in this chapter.

Reducing one's self-efficacy in using a car may also increase the potential for people to make a modal shift. If cars are restricted or made difficult to use in certain areas, it may make people question their ability to use cars successfully and efficiently. This could be the case for places with low speed limits, restricted parking, congested roads, complicated road networks or pedestrian zones. Pedestrian zones may also create more amenable areas where people can

safely walk, cycle and catch public transport. The cost of taking a car becomes greater with the introduction or increase of taxes on petrol, car purchases, car ownership or car use. This can affect people's attitude to modes of transport, particularly those who are sensitive to prices, such as low income earners who have other transport options available.

Different strategies can change the way one experiences a mode of transport by changing the qualities and costs of using it. This could be through government or workplace subsidies, and through improved facilities and services. It could also be through changes to the symbolic value described earlier in this chapter. The perception of the experience may also change through the perception that the activity which has a higher value. Aids in the form of advice systems for planning, navigation and scheduling information create efficiency and certainty for the transport user. Other aids for individuals, such as facilities for active transport users, can also alter the experience by making the journey faster and more pleasant and can enhance the walker or cyclist's ability to look and feel fresh at the destination.

7.4 Summary

This chapter has brought forward a number of possibilities for policy. Due to the focus on developing theory within this thesis and the preliminary nature of the application of this theory, it is premature to make comprehensive recommendations for policy implementation. However, there are a number of considerations for policy that have been raised throughout this chapter. It has proved fruitful to examine the anti-tobacco movements with a number of similarities becoming apparent related to the social influences which have driven the consumption of cigarettes and car use. The shift in social influences related to smoking within the last fifty years presents possibilities for how such shifts could happen in urban transport.

The issues that were established through the application of the framework developed in Chapters 5 and 6 are found to be a useful way of exploring policy selection. They create tangible targets to aim at for strategies that attempt to promote modal shift. This exploration yields interesting policy options which have had little consideration in traditional transport policy. Preliminary ideas for policy-makers to consider demonstrate the direction that further research and policy development, which considers social influences, could take. Some ideas that come from this chapter include policies to:

- Reduce/promote the voice of different actors and institutions that are promoting car transport options. This involves social marketing, restrictions on promotion and using existing networks. This would involve all levels of government and community groups.

There would need to be co-operation from road safety authorities, transport operators, health promotion and active transport groups. Specific strategies could be:

- Restrictions on promotions of cars simultaneously with increased promotions of public transport (through state government and transport operators) and active transport (through all levels of government in co-operation with health promotion, cycling and pedestrian advocates) using emotional appeal
- Anti-car social marketing campaigns (through health promotion groups, and in co-operation with car industry and road safety representatives)
- Improved networks for active transport and public transport users to share concerns and ideas (through allocation of government funding and resources to community groups with visions to connect transport users)
- Educate and facilitate various professionals and groups to understand how their messages could address the relevant themes identified in this chapter. This would need to be an initiative by the federal government and would require co-operation from tertiary education institutions. Specific strategies could be:
 - Communicating how framing affects the messages they portray and the social norms evoked – including the portrayal of prevalence and proximity of transport modes
 - Communicating how the issues presented affect whether people feel willing and enabled to use active transport and public transport or feel passive and incompetent
 - Taking account of the different ways that people can react to information that may challenge their attitudes or behaviour
 - Using myths and symbols to enhance the emotional appeal of public transport and active transport
 - Relating aspects of urban transport to public health issues and other social issues which the public already has a willingness to address
- Co-ordinate or package policies to make them more acceptable, consistent and effective. This would include co-ordination of the different levels of government by the federal government. This could also be picked up by the private sector, in companies which can regulate their policies related to transport use. Specific strategies could be:
 - Ensuring that regulations made for various reasons are not unnecessarily promoting car use

- Giving people a number of opportunities and empowering them to make choices to use public transport and active transport, particularly when faced with other policies that restrict car use
- Hypothecating revenue from strategies to reduce car use to fund others that enable modal shift, so that people can see that taxes are spent appropriately and funding for campaigns comes from appropriate sources
- Consider how policies may ostracise or legitimise institutions and members of the public. This would particularly involve the state and local governments, which have the principal responsibility for urban transport provision and urban planning. However, the framing of messages related to transport can come from all levels of government. Messages from governments should aim to:
 - make it easier and safer to partake in different travel behaviour
 - shape the way responsibility is distributed between different transport users and institutions
 - avoid vilification of members of the public

Policy should be implemented and evaluation with consideration of the time required for strategies to mature and become effective. This may require staging the introduction of policies, with the initial implementation of policies based on incrementalism to create the climate for more radical policies. This would require a nation-wide policy plan. It would also be essential to secure long-term funding, expertise and research for the policies. This would require co-operation from all levels of government, tertiary education institutions and other research institutions.

Some of the social influences identified cannot easily be dealt with by policy, for example, the exposure to the prevalence of car use through observing transport infrastructure and the number of cars on the streets. However, such influences should not be ignored in policy discourse. They can be used to show where there might be additional effects of policies which lead to conditions which affect these social influences over time: for example, policies which lead to a reduction of the presence of cars on the street. Therefore, outcomes from research into social influences on modal choice can lead directly to ideas for policy as well as contribute to the justification for other broader transport policies.

8 Conclusion

8.1 Introduction

This thesis has researched travel behaviour in the context of urban transport. In particular, it has explored the potential for a reduction in car use by investigating how social context influences mode of transport choice. The research questions were:

- To understand how the social context of individuals influences their mode of transport choice.
- To explore how this understanding of travel behaviour can be used to improve policies to reduce car use in the urban environment.

To achieve this, the thesis has developed a theoretical framework, drawing upon sociological and psychological literature related to social influences on behaviour, and has applied it to urban transport. It has also applied to travel behaviour some of the insights gained from the successful public health campaign to reduce smoking in Australia. The exploratory nature of the thesis has led to the development of a number of new ideas and perspectives related to the choice of urban transport mode, thus expanding and systematising the way this issue can be considered. The framework developed in this thesis permits a comprehensive study of a diverse array of contexts, interactions and messages that are related to transport. There is the potential to use this structure for further research as well as for policy analysis and strategy development. By gleaned key considerations from various disciplines, this work allows urban transport researchers, who may come from a technical background, to increase the scope of their studies into urban transport systems. In addition, the examination of mass media represents a template for more detailed research into samples of other texts, including conversation, education and sustainability messages. This conclusion is structured around the insights gained during the investigations required to develop, apply and note the implications of the framework.

8.2 Development of a framework

In order to develop a framework to examine the social influences on mode of transport choice, a number of considerations were required:

- The issues, processes and perspectives related to urban transport and how they affect the content of the messages people receive and the way people interpret them

- The psychological processes that affect how messages are interpreted, motivations formed and behaviour determined
- The features of messages that affect how they are developed and portrayed as well as the meanings that are interpreted from them
- The situations where people receive transport-related messages, with people engaging with these messages either by seeking them or by coming across them as a matter of course in daily life.

To investigate these, there was a need to draw upon theories from various disciplines of social science, with different benefits and constraints coming from the various disciplines. It was found that while psychological literature has focused on characterising the mechanisms that could explain behaviour at an individual level, there is often a lack of consideration for the range of social factors that make up the context within which a choice is made. Literature from sociology, which acknowledges the various influences that affect how practices persist or evolve, has therefore become useful in this thesis. By focusing on the individual, while taking into consideration a diverse array of influences and the various institutions that are involved in urban transport, one gains an understanding of both broader social factors and the psychological processes that lead to people's travel behaviour.

8.2.1 Framing the problems in urban transport

Six contexts of urban transport were identified in Chapter 2. Through the examination of these contexts some insights were gained into the issues related to different modes of transport, particularly the car. This approach was developed by examining transport-related literature and ascertaining that it defines transport issues within either one or more of these contexts. These contexts are:

- The material and energy context – the operation of modes of transport consumes resources, and produces waste and emissions
- The urban planning context – modes of transport impact the landscape and function of a city
- The economic and industrial context – modes of transport require financing and their operation impacts on the wider economy

- The psycho-social context – modes of transport impact users' psychologically and socially through the experiential, symbolic and utilitarian values that transport offers them
- The public health context – modes of transport impact the health of people who use the transport as well as other people in the community
- The political/cultural context – modes of transport have broad impacts on the culture and political ideologies of the society, and conversely, transport development is also influenced by culture and politics

Identifying the problems and benefits from numerous perspectives facilitates an understanding of the cumulative impact of different modes of transport. This facilitates the characterisation of the diverse problems caused by modes of transport. Hence, the potential synergistic or adverse effects of different solutions can be recognised. This may demonstrate where systemic changes are required. Cars were identified as the most problematic mode of urban transport, with problems identified within most of the contexts examined, while real benefits from cars were also noted. The flow of money, materials and energy required to keep cars running is a burden on people's economic situation and the environment. This can lead to inequity, due to how these resources are distributed. Within an urban planning context, it is the flow of vehicles and people that are key elements of the system. The flow of cars creates danger, noise and reduces the urban amenity and accessibility of the city, particularly for people not in cars. While people are shown to benefit from cars in some ways within the psychosocial context, these benefits are often at the expense of the social wellbeing of others. Indeed, the standard treatment of benefits focuses on the individualistic values such as saving time and feeling autonomous, protected and prestigious. A number of ways that cars burden people within the psychosocial context is through stress, inequity and through the slow 'effective speed' of cars resulting from the time requirements to maintain and pay for the costs of running a car. While cars are shown to be safer for the occupant than bicycles, they are responsible for creating more risk of death and disability than other modes of transport and also pose risks to public health through air pollution and encouraging a sedentary lifestyle. This range of problems, which is much more extensive than those related to public transport or active transport, cannot be addressed easily without reducing car use, because the problems stem from different aspects of car use. For an individual there are a range of factors that can contribute to the feasibility of a mode of transport for them. However, one particular

factor from one context may override other considerations and this was found to be commonly the case for car users. Therefore, strategies must either

- address the factors that car users consider; or,
- attempt to broaden the perspective of the car user to consider issues in other contexts; or,
- address psychological processes which do not involve consideration of these issues.

The perception of issues within each of the contexts plays a crucial role for a person's considerations in choosing a mode of transport. Often these perceptions are not a true reflection of how the modes of transport function, with many perceptions being more favourable to car use than the actual attributes of cars would merit. Some examples include the underestimated financial cost of cars, considerations of travel time which do not consider how travel time is experienced, and the symbolic value of freedom, which is closely linked with car use, even though other modes of transport afford different forms of freedom. Perceptions of risks may discourage people from using bicycles, while perceptions of cognitive effort required to use public transport may discourage people from using that mode. However, the actual risk and cognitive effort associated with these modes of transport may be much lower than believed. There are also perceptions that the institutions associated with car use are so extensive that they are irreplaceable in our society. These perceptions that are favourable to car use may impede modal shift away from car use. The examination of messages that people receive helps identify how such misconceptions may arise. Even when people understand a negative impact of transport, there can be a lack of correlation between social concern for this impact and the mode of transport choice. Meanwhile, people embrace changes which address these social concerns to some extent through technological innovation. It becomes clear, even before examining the way messages are received and processed, that people's perceptions of transport are not a pure reflection of the physical system itself and how it is experienced. It is necessary to understand how these perceptions are formed and which other factors are important in determining travel behaviour.

8.2.2 Implications for examining characteristics and determinants of travel behaviour

In this thesis travel behaviour is defined as the act of taking a certain mode of transport. To understand how different social influences affect travel behaviour, it is important to understand how determinants of behaviour are conceptualised as well as the characteristics of

travel behaviour which affect what role different determinants of behaviour play. This was achieved through the work in Chapter 3 of this thesis.

Characteristics of behavioural determinants

The behavioural determinants examined in this thesis are attitude, norms and values, efficacy, habit and emotion⁵. Psychological theories demonstrate that there are multiple factors which affect the way these determinants are formed, the characteristics of these determinants, what functions they play for people and how they affect travel behaviour. Some key insights found in the thesis include:

- Attitudes are complex and serve a number of different functions. Multiple attitudes play a role in defining behaviour. While many theories of behaviour incorporate an attitudinal component, they rarely consider the functions, the valence, salience or the way that attitude is linked to self-identity, which may affect the role of attitude in determining behaviour.
- The structure that values and norms give to people's lives makes changing them a more difficult task, particularly when they are internalised and become personal values and norms. Therefore, it may require a consistent effort over some time to change values and norms.
- Attitudes and values are formed and altered by a range of avenues including parents, peers and media. They form through a variety of conditioning techniques, including rewards and punishment, using logical argument, associations with good and bad, and observation.
- The formation of values and general attitudes through conditioning, which does not involve transport-related messages, may be important in determining travel behaviour. For example, norms of self-interest are promoted through general commercial interactions and the marketing that accompanies them, and self-interest has been associated with low levels of public transport and active transport use.
- Descriptive social norms are particularly interesting to examine with respect to transport-related messages, because they show norms through evidence of what happens rather than what ought to happen. Normative messages of this nature are not prescriptive and may be powerful in situations where people do not want to be challenged.

⁵ Some of these terms have special meanings, which are defined in the glossary.

- Beyond motivations, the ability to adopt successfully new travel behaviours (self-efficacy) and to contribute to changes they would like to see (outcome efficacy) are also determinants of behaviour. One's perception of one's efficacy can be important in determining whether they will attempt new behaviour.
- When behaviour becomes habitual, people are less likely to pay attention to information and to process it cognitively. Therefore when developing messages, one could attempt to portray meanings which do not require cognitive effort to be effective, such as descriptive social normative messages.
- Messages should be targeted at times when habit strength is weak, such as when people are changing the conditions of their travel or through special events.
- Emotions play a role in organising and prioritising people's behaviours, are less dependent on consideration of the attributes of the mode of transport and are, instead, linked to associations with symbols and perceived reactions of others. Emotions also play a role in diffusing messages, because people have a strong inclination to recount emotional stories.

These insights give an impression of the general determinants of behaviours. It is important to understand the conditions under which these determinants of behaviour operate and how accessible they are for research.

Perceptions versus motivations

The actual causes behind their own behaviour may not be comprehended by the individual. There can be a complex array of determinants of behaviour involved that are not seen as important by the individual. The assumption that people know their attitudes, values, emotions, self-efficacy and the role of habit in determining travel behaviour can be problematic. This does not show the whole picture, with only cognitively processed and salient determinants being considered. This presents problems for research and policy development which relies on self-reporting to gain insights into the reasons for various behaviours and may therefore focus on the determinants of behaviour that people believe are important to them rather than all the determinants of behaviour. However, self-reporting does give an impression of what people believe determines their behaviour.

The difficulty of quantifying psychological processes

Psychological processes are problematic to examine, because many of the variables are complex and abstract, and cannot be directly observed. Psychology research has emphasised the importance of measuring these constructs and quantifying the influence they have on behaviour. Beyond the problems with the actual measurement, this focus on measuring the

variables and interactions, which involves a great deal of effort, limits the factors that can be considered. Therefore, such studies cannot be comprehensive in their examination of the factors that affect travel behaviour. My research has been less concerned with understanding quantifiable influences and, instead, has focused on the exploration of the range of possible factors that may influence travel behaviour.

Urban travel behaviour has particular characteristics

Through my examination in Chapter 3 it became apparent that travel behaviour has a number of characteristics that affect these determinants of behaviour. These characteristics make it different from other behaviours related to consumption, sustainability and health. They should, therefore, be considered when specifically examining the determinants of travel behaviour. These characteristics affect which behavioural determinants play an important role in travel behaviour. While some literature has alluded to the habitual nature of urban travel, there has been a lack of consideration of the range of features that make travel unique. These are outlined here:

- Many attributes and issues are involved (as previously discussed in this chapter) and therefore various attitudes and values play a role (although many are often overlooked). Hence, priming central values or emotional appeal may be important in triggering people to focus on particular aspects.
- Urban travel is an everyday occurrence. This may promote the formation of habit and reduce the cognitive effort required to use commonly used modes of transport in comparison to others. For example, someone who always takes the bus does not contemplate how they could use other modes of transport and is not receptive to such information, meanwhile, they can catch the bus 'without thinking'.
- Transport use is an activity people prepare for. The preparation for and use of a mode of transport may create a lock-in effect. Long-term decisions affect the feasibility of different modes of transport. Examples include decisions about where to live and work as well as the purchase of vehicles. Therefore efforts to encourage modal shift need to persist so people can gradually prepare to use different modes of transport.
- The functioning and improvement of transport systems require co-operation throughout society. In order to address a number of problems, modal shift needs to be widespread. The burdens of climate change, energy security, road safety and other impacts of car use are diffuse throughout society and a co-operative effort is needed to address them.

Therefore it is necessary to address the behavioural determinant of outcome efficacy, which may suffer given such a need for co-operation in order to achieve results.

- Urban travel takes place in the public domain. This enables an individual to see what modes of transport other people use and therefore what is prevalent. This may evoke descriptive social norms around the use of modes of transport that are more frequently seen. This is particularly the case for car use and active transport with the transport users taking up street space. In contrast, evidence of people using public transport can be difficult to observe by people who do not use it themselves. The image that people portray may have an added importance if they know that they will be seen in public. This may increase the symbolic value of modes of transport in determining travel behaviour.
- Transport systems have a pervasive presence in cities and frame much of city life. In addition to the fact that travel behaviour takes place in public, the infrastructure for transport is a major determinant of cityscapes. This is particularly the case for infrastructure to support car use, and this demonstration of car use also reinforces descriptive social norms. Evidence of public transport, cycling and walking, such as bike paths and bus shelters, could evoke social norms around the use of these forms of transport.
- Urban travel is an undertaking that involves a complex mix of skills, protocols and navigation. There may be requirements to learn and practice various skills, as well as to understand protocols and navigation in order to be confident and have a sense of self-efficacy in using a mode of transport.
- While traveling one can be confronted by a number of situations. Different environments and sensations experienced while travelling may lead to a range of emotions or a sense of less control than when one's environment is more constant. This affects people's emotions and self-efficacy in mode of transport choice.

Each of these characteristics has implications which affect the role of the determinants of behaviour examined. Therefore, when researching how messages affect determinants of travel behaviour, these characteristics of travel behaviour must be considered.

8.2.3 Implications for understanding the effects of messages

There are many effects of messages that are not evident from one's first impression of the information contained in the message. This was demonstrated by the development, portrayal and interpretation of messages in Chapter 4. There are elements of messages which are not consciously processed and therefore their effects are not understood by the receiver of

messages. In addition, the effects of messages are not necessarily immediate, with cumulative effects occurring through agenda setting and cultivation theory. Therefore, it has been fruitful to examine the different effects of messages, particular the unintuitive ones. Beyond their immediate effects, messages can alter how subsequent messages are then portrayed, by either setting the agenda for other communications or by cultivating terms of reference for other messages to be built around.

The concept of framing is useful for understanding how messages portray meanings beyond the explicitly stated information which is cognitively processed. By defining how people see, rather than what people see, framing incorporates numerous assumptions about how people view the world. People need to make these assumptions, explicitly or implicitly, to make sense of the message and relate to the message. Framing requires mutual understanding of ideas or words that have been developed throughout society. Therefore, frames are powerful in developing and reinforcing social norms and other determinants of behaviour that depend on mutual understanding or mass participation, such as outcome efficacy. This thesis has uncovered a number of ways by which framing takes place, particularly by examining linguistics, and these can be identified within various samples of transport-related messages in order to determine their potential effects.

The context within which the message is developed, portrayed and received plays a role in both the characteristics of the message and how it is interpreted. This context includes situational factors as well as personal, social and interpersonal variables. Some messages are portrayed without conscious intent: for example, the streetscape, which is viewed by everyone on the street, conveys messages, which simply depend on the current state of infrastructure and transport use. However, other messages are portrayed deliberately by institutions and individuals, who may be influenced by various motivations, including how they wish to negotiate the relationship with the audience of the message. Therefore, messages may be produced that are sympathetic to what the audience wants to hear, avoiding challenge and confrontation. The motivations of the institutions in developing messages should be considered when studying social influences related to them. The communicator of messages is also constrained by a number of factors, such as money, time, and expertise, access to information and space for the message. These factors may limit the quality of the message and constrain ability for the message to be portrayed in the way that is desired by the communicator. People's ability to receive and interpret messages is also limited by their

attention and time available, as well as by their abilities to process messages, including prior knowledge and trust in the source.

There are also a variety of social and cultural factors that affect how messages are disseminated through society and how well they are received. Various networks can promote the diffusion of messages through social encounters, the media and workplaces. Such networks occur where community is stronger, where people access mass media, social media and education, and where people are more active. This is an important consideration when developing new messages to promote modal shift from cars, because the networks determine how well the messages will be diffused. Cultural values also affect how people behave towards different messages, with various cultures being more individualist or adverse to uncertainty, which could change how they behave towards new information.

8.3 Application of the framework

Encountering transport-related messages is a part of daily life. This is partly due to the characteristics of travel behaviour mentioned previously, including its pervasive presence, complexity and use on an everyday basis. In order to apply the knowledge gained about how transport-related messages can theoretically influence travel behaviour, it was necessary to identify the main ways in which people engage in messages related to transport. Through brainstorming and the transport information diary, the prominent transport-related messages were found to come from the following sources:

- Primary messages in which people directly observe or experience transport by either
 - their experience in using transport;
 - their observation of the transport system;
 - their observation of people who use different modes of transport.
- Secondary messages in which people are exposed to portrayals of transport developed by other individuals or institutions through
 - mass media;
 - education;
 - social networks;
 - information designed to support transport users;
 - sustainability information and promotion.

By focusing on the prominent messages that these sources disseminate, one can establish theoretically feasible, causal chains between messages and behaviour as demonstrated in

Chapter 5. These causal links use the knowledge gained through the previous chapters to establish intermediate steps, which relate to how messages are interpreted and how the determinants of behaviour are influenced and then subsequently influence behaviour. Consideration of the particular characteristics of travel behaviour ensured that relevant behavioural determinants were part of the causal chain. Multiple causal chains were developed for each source and they reflected both the characteristics of the source, as well as the prominent messages that come from these sources. Evidence was used from the travel information diary (described in Chapter 5) where relevant, keeping in mind that these diaries relied on self-reporting, so that only consciously processed messages would be recorded. Through this work a number of issues were identified which demonstrate how messages may influence the perceptions of urban transport and travel behaviour. These were:

- framing problems, solutions and responsibilities;
- addressing power structure and fairness;
- addressing image of transport users and their perception;
- demonstrating prevalence and acceptability of transport use;
- creating proximity and familiarity with transport use;
- creating competency to deal with complexity and variability of transport.

These issues are used as a focus for further research and for recommendations to assist the design of future strategies to encourage modal shift. A more detailed examination of mass media also demonstrated the importance of these issues.

8.4 Role of the media

Mass media is a key institution in disseminating messages and it is accessible for research. Hence it lent itself to being studied in detail in this thesis. Through this more detailed analysis of media samples in Chapter 6, more conclusive results could be obtained about the role of the media in travel behaviour. The three parts of mass media studied were news, advertising and film, and a wide range of transport-related messages were found in these sources. There are a number of constraints within media institutions which should be acknowledged when studying the messages they produce. Media producers are limited due to sources of funding, news sources and artistic inspiration, limitations in audience attention, space and time in which to convey message. The characteristics of the audience and the need for them to continue viewing may also alter how challenging and immediate the content of messages can be. Therefore, within the expertise and budget of media producers, they must create messages

that use myths, symbols and other established ways of thinking to convey messages efficiently and they must use frames that the audience can relate to and are not confronting.

The theoretical implications of these messages for travel behaviour were generally favourable for car use, although there were exceptions. Some of the more prominent and interesting conclusions from the media chapter include:

- In contrast to the positive impressions about the experience of using public transport that were recorded for the transport information diary, the news overwhelmingly portrays public transport experiences negatively. Indeed transport problems are often a focus of news articles, particularly lack of public transport services and congestion. Therefore, people who rely on media for their understanding of public transport are likely to have a more negative view than those who experience it firsthand.
- The blame for transport problems and the responsibility for solutions are predominantly allocated to the government, while the public are framed as victims of these problems. The way problems are framed tends to limit the debate and make the audience feel passive to the problem. This may reduce people's sense of self-efficacy and subsequently their motivation to shift their mode of transport.
- Prevalence of car use is frequently mentioned or implied in news items, car advertising and films. In a number of news articles, this extends to the prevalence of car use in the future and the prevalence of related emotions and attitudes to car use and public transport use. Mentions of road traffic congestion also indicate high car use, as do movies where car ownership is universal and there is rarely any use of other modes of transport. These messages can evoke descriptive social norms around car use, which could cause the public to be more inclined to use cars and not question their use.
- The prominence and familiarity of car use are demonstrated in all forms of media. Car use is often employed as the reference point for what is normal, routine or everyday activity. Advertisements and news articles directly engage with the public with the assumption that they drive. This is done by using the first person plural or second person to include the public in events and issues relevant to car drivers. Assumptions are made that no one uses public transport, particularly in certain regions. Similarly to messages of prevalence, these normative messages are likely to reinforce car use.
- A range of symbols related to car use were identified in advertisements and films. These are mainly focused around the experiential and symbolic value of cars rather than their utility value. Cars are shown as symbols of freedom and independence, status and power,

danger and excitement, as well as a vehicle for socialisation. These can foster the experience of positive attitudes and emotions in relation to car use.

- Myths are particularly prominent in advertising, with key myths tending to focus on the opportunity that cars can offer in an exaggerated light, rather than on their utility. Such myths include:
 - the car can make mundane and routine tasks exciting;
 - cars are progressive and visionary;
 - cars are used to leave the city.
- Car advertisements also raise a number of issues which may create certain perspectives within the contexts of urban transport identified in Chapter 2:
 - the financial viability of cars as a transport option;
 - the appropriateness of driving cars in the city;
 - the safety and responsibility of car use.
- The framing of messages and agenda setting also focuses the public's attention on issues related to car use, with an assumption that everyone drives a car and is concerned about issues affecting car drivers. For example, the stresses of higher fuel prices for car drivers are mentioned frequently in the news, while the stresses that prevalent car use put on people who do not own a car are generally ignored by the media.

These insights into the mass media demonstrate a number of ways in which messages in the media can stimulate determinants of behaviour that are favourable to car use, and subsequently promote car use. While some of these messages naturally come from the constraints of media institutions, others are produced unintentionally by the media producer for no particular function. Such messages could potentially be addressed by policy. Ultimately, this research into the role of media should be followed up by investigating the effects on the audience in an empirical study. However, many of the effects of media, such as agenda setting, normative changes and cultivation of terms in which issues are addressed, would require a long period of observation to be examined with integrity. They are therefore outside the scope of this thesis. Nevertheless, this work has developed the groundwork for such studies to take place. The contributions of this thesis to urban transport research and policy are now discussed.

8.5 Implications of the framework

In attempting to understand the social influences on mode of transport choice, this thesis broadens the way in which researchers can understand and discuss urban travel. It adds a

number of considerations to the way modal choice is explained. These considerations have come through a reframing of the transport system to include transport-related messages that are part of the social context of city life. Future policy and research could use the framework developed, along with the observations made from the preliminary application of the framework.

8.5.1 Policy implications

One of the overall objectives of this thesis is a more comprehensive consideration of social context in strategies to implement policy. Chapter 7 examined how the framework developed in this thesis can be used to assist policy development. The framework could be applied to facilitate an understanding of social influences wherever policy implementation could be improved through such an understanding. It could also be applied to evaluate the viability of various strategies that already exist, through an examination of how they are affecting social influences. This evaluation could lead to recommendations for improving the strategy or the development of complementary strategies. Innovative policy, which involves the development or change of institutions and networks, may also be developed by studying the framework. This is illustrated in Figure 8.1, which is taken from Chapter 7.

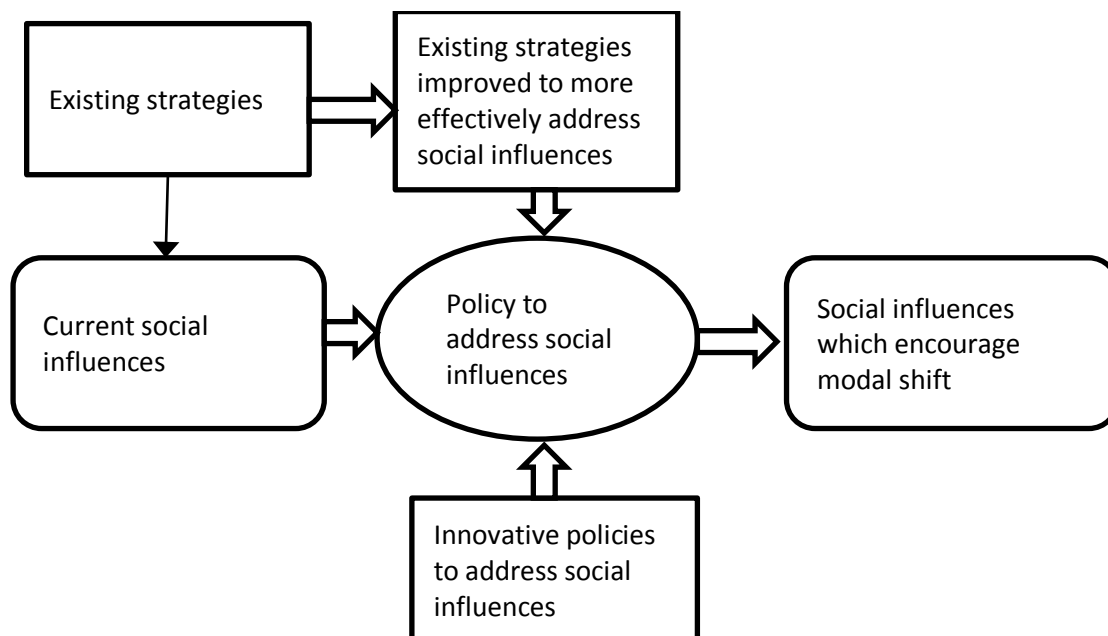


Figure 8.1 Incorporating innovative policies and improved existing strategies to encourage modal shift

From the work in Chapter 7 it is not possible to make definitive policy recommendations. However, a number of ideas to be considered during the policy process were outlined. These include the importance of policies which:

- Reduce/promote the voice of different actors and institutions that are promoting car transport options. Specific strategies to implement such policy could be:
 - restrictions on promotions of cars simultaneously with increased promotions of public transport, using emotional appeal;
 - anti-car social marketing campaigns;
 - improved networks for active transport and public transport users to share concerns and ideas.
- Educate and facilitate various professionals and groups to understand how their messages could address the relevant themes identified in Chapter 7. Specific strategies could be:
 - communicating how framing affects the messages they portray and the social norms evoked – including the portrayal of prevalence and proximity of transport modes;
 - communicating how the issues presented affect whether people feel willing and enabled to use active transport and public transport, or feel passive and incompetent;
 - taking account of the different ways that people can react to information that may challenge their attitudes or behaviour;
 - using myths and symbols to enhance the emotional appeal of public transport and active transport;
 - relating aspects of urban transport to public health issues and other social issues which the public already has a willingness to address.
- Co-ordinate or package policies to make them more acceptable, consistent and effective. Specific strategies could be:
 - ensuring that regulations made for various reasons are not inadvertently promoting car use;
 - giving people a number of opportunities and empowering them to make choices to use public transport and active transport, particularly when faced with other policies that restrict car use;
 - hypothecating revenue from strategies to reduce car use to fund others that enable modal shift, so that people can see that taxes are spent appropriately and funding for campaigns comes from appropriate sources.
- Consider how policies may ostracise or legitimise institutions and members of the public. Messages from governments should aim to:
 - make it easier and safer to partake in different travel behaviour;

- shape the way responsibility is distributed between different transport users and institutions;
- avoid vilification of members of the public.

These strategies have stemmed from the preliminary application of the framework. Through applications of the framework which target specific groups, the specific social influences for these groups can be better understood and addressed in policy development. This may be particularly interesting for people from lower socio-economic backgrounds who struggle to afford car use. It may also be pertinent for young people who can be particularly impressionable and who are making decisions about what modes of transport they will take in adulthood. It could also be used to optimise patronage and gain support for new infrastructure projects, which are designed to improve public transport or active transport options.

8.5.2 Future research

The complexity of urban transport warrants that there are no easy solutions to existing problems, and therefore a wide variety of approaches with sound research are required to develop transport solutions. This thesis offers a way to facilitate approaches that attempt to find solutions by exploring the social context of urban travel. It is hoped that such research will legitimise modal shift as a more viable solution for urban transport problems, and will also promote modal shift in a way that is positive for the population rather than through obligation, stigmatisation or force, which may come about through urban transport policies that ignore social influences. The framework developed in this thesis can be applied as part of research into various aspects of travel behaviour. A focus on specific sources of messages, such as the analysis of media in this thesis, could benefit from the framework as guidance for what aspects to examine. Comparative studies, which examine the social influences in different cultures and different cities, would also benefit from this framework.

One constraint on my thesis is similar to that for media producers. In the same way that media producers source more material based on cars than active transport or public transport, the selections of texts for analysis in this thesis naturally focused on cars because cars are currently more prevalent in texts. It was very difficult to find movies depicting bicycle use or public transport use. While some were found, it was decided that further research would be required to find an adequate sample. It would be interesting to expand the sample of media texts to include talk shows and car-focused segments, because they portray cars as a

worthwhile and interesting topic of discussion. This is in contrast to the limited exposure of public transport or active transport in this style of media.

The systems approach to examining social influences lends itself to identifying feedback loops that may demonstrate where there is a conflicting or amplifying effect due to particular messages. Future research could delve further into the effects of these feedback loops which may demonstrate leverage points for policy and expected changes over time. These feedback loops occur at both an individual level (such as people who use public transport receiving more positive messages about public transport) and a societal level (if there are more people cycling, people observe more cycling in the street).

Refining the framework

While my work has taken elements from various established theories, the framework developed to examine urban transport is quite original. This originality has led to the development of many ideas and considerations which could be considered for further research and within policy development. However, the novelty of this approach also means that more detailed research and refinement of the approach in this thesis, in collaboration with policy development, could lead to more comprehensive conclusions. This is compounded by the complexity of urban transport systems and the limitations of the insights one can gain. Having said that, further research into various aspects of the social context of urban transport is not futile and it is indeed necessary in order to improve the effectiveness of policy. This thesis is part of the groundwork of a much larger body of future work to investigate and understand the influence of social context on travel behaviour. It has explored various methodologies in combination with the construction of frameworks to help guide work in this area. It has also linked various theories from social science to applications in transport policy, highlighting the potential for further uses of social sciences in transport policy.

Due to the large array of disciplines that have been incorporated into the structure of this thesis, refinement of my work by researchers within these disciplines could improve the insights made about causal links which characterise the social influences. This is particularly the case for the use of psychological theories which have not previously been applied to urban travel behaviour specifically. Further research into their applicability for travel behaviour would be valuable. More involvement from the community would be required both to gain samples to understand other transport-related messages, such as those in conversation and experience, as well as in the development of policies based on this research. Even within the examination of media, improvements could be made by including more public involvement.

This could be achieved through getting people to recall or to notice where they have been exposed to transport-related media messages or by empirical studies to start assessing how media exposure correlates with the determinants of travel behaviour or travel behaviour itself.

8.6 Final reflections on my thesis

Before undertaking this thesis, my interest in modal choice had been focused on technocratic and economic rationalist perspectives. While I was mainly searching for information deficits within the public sphere, which I believed could be rectified with better information services, I realised that these informative messages were only a fraction of the messages that had the potential to impact modal choice. I also realised that people's reactions to messages were far from those represented by economic rationalist logic. Realising the urban transport system needs to incorporate much more than train lines, highways and bike lanes and with my limited understanding of social sciences, I have attempted to take elements of different disciplines to gain insights into urban transport and the associated social influences and behaviour. I tried to grasp concepts I could inherently relate to and marry them with theories developed in social psychology and sociology by using a systems approach. I took messages that people are exposed to as a central element to this thesis, because I saw this as an interface between the psychology literature which focuses on the mental processes of the individual and the sociology literature which focuses on the institutional and environmental factors that are responsible for these messages, as well as on how these messages can interact and can set the agenda for further messages. Therefore, I anticipate that this thesis can take other urban transport researchers down a similar path of discovery in understanding that social influences on modal choice are worthwhile considerations.

Throughout the duration of my research, I have had the pleasure of using, advocating and celebrating the different modes of urban transport. I have enjoyed the many conversations about transport with people from different walks of life. Through these experiences and conversations I have gained insights into how people perceive urban transport and how they experience travel. While some people are excited about the prospect of researchers solving all the transport problems for them, I have also experienced people's excitement in recounting transport experiences and their enthusiasm to try using a different mode of transport. Others have less faith that people will be able to look beyond the car but are still interested in the role of social influences in travel behaviour. I have also overheard many conversations about transport and the way it affects people's way of life. These social encounters have enriched my understanding of urban transport and its social context. It has also taught me to empathise

with individuals facing a variety of different transport-related situations, with various expectations.

A little PhD poem...

I am a PhD
Perhaps you've heard of me
I am difficult to get to know
But it's even harder to let me go

Maybe one day you were coaxed
By a scholarship or was it just a hoax
But now you are stuck with me
And how you wish you could be free

I will eat your every waking hour
Til your social life turns sour
And if you start to dream
I will introduce my friend caffeine

Your friends who have graduated
Are now happy and sedated
Working from nine to five
Money and a car to drive

Meanwhile you pray that you might
Have food to eat tonight
I will expect you to use your brains
While your body withers and wanes

You will be a machine with features
Of churning out papers and speeches
Turning hundreds and thousands of trees
Into twenty page bibliographies

And just when you think you are done
I will pull out my correction gun
Filled with "red pen" galore
Until you scream out "No more"

I know you'll finish me one day
Maybe when your hair is grey
But until then we'll just pretend
That I am your special friend

9 References

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