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Understanding Driving Culture – Safe Systems and the ACT

A report prepared for the NRMA-ACT Road Safety Trust

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Research team:
Dr Ruth Wright (contact)
Professor Debra Rickwood
Professor Diane Gibson
Faculty of Health
University of Canberra ACT 2601
Phone: +61 (0)2 6206 8652
Email: Ruth.Wright@canberra.edu.au

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www.canberra.edu.au

Postal Address:
University of Canberra ACT 2601 Australia
Location:
University Drive Bruce ACT

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Table of Contents

OVERVIEW 1

I. EXECUTIVE SUMMARY 3

Context 3

Road Use Culture and Research 3

Preliminary Research into the Road Use Culture of the ACT 4

Future Research 4

II. GENERAL SUMMARY 5

Introduction 5

Road Safety: current realities and future vision 5

Road use culture 7

Group Based Explanations of Road Use Behaviour 7

Theories of Social Influence and Learning of Road Use Behaviour 8

Preliminary Research into the Road Use Culture of the ACT 8

Research proposal 10

1 CHAPTER 1 THE ISSUE: ROAD SAFETY IN AUSTRALIA AND THE ACT 11

1.1 Introduction 11

1.2 The ACT Road User Attitudes and Behaviour 14

1.3 Safe Systems and the ACT 18

1.4 Summary 21

2 CHAPTER 2 THE ROAD SAFETY VISION 23

2.1 The Traditional Approach to Road Safety 23

2.2 Vision Zero and the European Approaches to Road Safety 24

2.3 Norway and Zero Casualties Objective 26

2.4 The Netherlands and Sustainable Safety 26

2.5 Australia and Safe System 29

2.6 The ACT and Road Safety 30

2.7 Summary 32

3 CHAPTER 3 ACCEPTANCE OF VISION ZERO/SAFE SYSTEM ADOPTION 34

3.1 Opposition to Vision Zero 34

3.2 Resistance to Speed Restrictions in the United States 35
3.3 Community Consultation in WA 37
3.4 Engendering Support for Road Safety Initiatives 40
3.5 Community acceptance and willingness to engage 42
3.6 Summary 52
4 CHAPTER 4 ROAD USE CULTURE 54
4.1 The Social Meaning of the Car 55
4.2 The Car as a Private Lounge Room in a Public Space 58
4.3 The Car and Driving Behaviour as Social Outcomes 61
4.4 Symbolic, Affective and Instrumental Motives of Vehicle Use 64
4.5 Driving Culture and Urban Design 66
4.6 Driving Culture as a Shared Experience 68
4.7 Road Use Subcultures 72
4.7.1 Car Subcultures 72
4.7.2 Motorcycle Subcultures 74
4.7.3 Bicycle Subcultures 76
4.7.4 Pedestrian Subcultures 81
4.8 Summary 84
5 CHAPTER 5 GROUP BASED EXPLANATIONS OF ROAD USE BEHAVIOUR 85
5.1 Lifestyle 85
5.2 Lifestyle and Life Stage/Age 87
5.3 Older Drivers 89
5.4 Peers and Younger Drivers 90
5.5 Gender 93
5.6 Summary 98
6 CHAPTER 6 THEORIES OF SOCIAL INFLUENCE AND LEARNING OF ROAD USE BEHAVIOUR 99
6.1 Theory of Planned Behaviour 99
6.2 Social Learning Theory 101
6.3 Deterrence Theory 104

6.4 Persuasive Communication 106
6.5 Optimistic Bias and Driver Self-assessment 108
6.6 Individual Differences and Road Use Behaviour 110
6.7 Personality and Driving Behaviour 111
6.8 Aggression 112
6.9 Anger and road use behaviour 120
6.10 Aggressive driving and mood 122
6.11 Aggressive driving and situational variables 124
6.12 Positive driving behaviour 124
6.13 Summary 126
7 CHAPTER 7 KEY ROAD SAFTETY INFORMANT VIEWS IN THE ACT 127
7.1 Aim 127
7.2 Participants 127
7.3 Procedure 131
7.4 Results 133
7.5 Summary 145
8 CHAPTER 8 DISCUSSION AND RESEARCH PROPOSAL 147
8.1 Background 147
8.2 Proposed research program 149
***8.3 Project Plan* 151**
References 154

OVERVIEW

This document presents a scoping study into the issue of road safety in the ACT. It considers factors that are likely to affect the implementation of a Safe System approach to eliminating road fatalities. The scoping study reviews the literature on road safety from statistical, sociological and psychological perspectives, emphasising the importance of taking a multi-faceted approach to the factors affecting road safety and understanding road cultures. The current views of ACT road-user interest groups and road safety experts were investigated through a qualitative methodology and these views are describes. The literature review and views of ACT road safety experts are used to develop an outline for a three-year research program to fully investigate the best ways to implement a Safe System approach in the ACT.

Chapter 1 introduces the issue of road safety in Australia and the ACT, and outlines the reasons for the current scoping study.

Chapter 2 covers traditional approaches to road safety and summarises the innovative European approaches, such as Vision Zero.

Chapter 3 reviews arguments supporting and opposing implementation of Vision Zero-type approaches.

Chapter 4 considers the road use culture in the ACT and elsewhere and the factors that affect this.

Chapter 5 presents a demographic-related group-based analysis of road use behaviour, considering the influences of lifestyle, life stage, age and gender.

Chapter 6 summarises the major theories of social influence that apply to road safety and the factors that affect the learning of road use behaviour.

Chapter 7 describes the methodology used to elicit the views of ACT road-user interest groups and road safety experts, and provides an account of these views.

Chapter 8 summarises the findings of this scoping report and presents the outline for a proposed three-year research program to investigate the best ways to implement a Safe System approach in the ACT.

I. EXECUTIVE SUMMARY

Context

- The ACT Government has expressed a commitment to address the persistence of road fatalities in the ACT and to the achievement of the road safety goals of the innovative Safe System and Vision Zero approaches.
- Safe Systems require a community willing and able to adopt a culture of safe driving behaviour that minimises the likelihood of crashes.
- Currently, little research exists on the culture of road use behaviour as it relates to drivers' attitudes towards their car, the road, ownership, road use and road safety.
- There is a need for comprehensive evaluations of behavioural responses to road safety interventions and campaigns.

Road Use Culture and Research

- The car has significant personal and social meaning and conveys societal messages regarding power, influence and success.
- Subcultures distinguish different types of road users, including differentiating among types of car drivers, as well as car drivers from other road user groups. Belonging to a particular road user group corresponds with different road use behaviour.
- Demographic and other social and economic factors are associated with road use subculture and road use behaviour.

- Young males are the demographic group of greatest road safety concern.
- Theories of social influence and learning of road use behaviour suggest a range of responses may be required to effectively address road safety issues with different road user groups.

Preliminary Research into the Road Use Culture of the ACT

- Semi-structured interviews were conducted with 12 road safety experts/stakeholders in ACT road use safety.
- Interviewees perceive a “culture of entitlement” to exist amongst ACT road users, and that
- Expectations of entitlement clash between road user groups with different subcultures.
- Interviewees believe that the community will need to agree with and support the need for heightened safety on ACT roads to successfully implement new initiatives.
- There is general desire for more information on the most effective ways to convey the imperatives of safe road use to the ACT community.

Future Research

- A three year research program is proposed aiming to establish a comprehensive description of the current road use culture and subcultures of the ACT and identifying the factors that determine these cultures.

II. GENERAL SUMMARY

Introduction

This report forms a preliminary scoping for a larger project to examine the road use culture of the ACT and how that culture might enable community responses to the introduction of European style road safety initiatives. The report reviews literature on road safety strategies locally, nationally and internationally as they are relevant to ACT. Extensive literature is examined on the broader social context in which a "culture" of road use is formed and how such a culture promotes messages of what the vehicle means and how it should be used. The literature covered provides commentary on the ways different groups of people respond to these societal messages and some of the theoretical frameworks proposed as explanations for this variation.

The document reports a series of investigative interviews with key road safety experts /stakeholder in the ACT region. From these interviews, a number of findings are discussed. Along with indications from the reviewed literature, the opinions gathered inform a recommendation for a future major research project aimed at understanding ACT road use culture.

Road Safety: current realities and future vision

The ACT has the lowest road crash fatality rate in Australia and one of the lowest in the world for accidents occurring within the jurisdiction. On average, however, one person is killed on ACT roads every 25-26 days. ACT drivers frequently travel into NSW, where they have almost as many fatal road accidents as they do in the ACT. Taking into account crashes

that occur outside the ACT almost doubles the road crash fatality rate of ACT citizens. In particular, young males are over-represented in ACT road fatalities.

The ACT Government has expressed a commitment to address the persistence of road fatalities in the ACT and to the achievement of the road safety goals of the innovative Safe System and Vision Zero approaches. These approaches promote that no level of death or serious injury from road crashes is acceptable.

Some research involving ACT residents indicates that ACT residents currently hold attitudes that may be inconsistent with the successful implementation of road safety initiatives that restrict road travel mobility. Vision Zero requires a community willing and able to adopt a culture of safe driving behaviour that minimises the likelihood of crashes. Currently, little research exists on the culture of road use behaviour as it relates to drivers' attitudes towards their car, the road, ownership, road use and road safety. However, literature that is available on the subject indicates that such culture involves complex social processes of influence by the larger society, interest groups and the individual.

Community support for similar strategies in Western Australia has been found to be strong however, perceived efficacy of the interventions was comparatively low. Research has highlighted the need for comprehensive evaluations of behavioural responses to such interventions. Previous proposals regarding ways to engender community acceptance to such road safety approaches have focused strongly on fostering beliefs consistent with road safety in the community.

Road use culture

The car has come to assume and express meaning on a societal level. Importantly, the car is subject to societal forces for the human to strive to be powerful, influential and ahead of the rest; achievements that are promoted through advertising as accessible through the motor vehicle with an overt emphasis towards young males. The car, paradoxically, is regarded as both a highly private domain and a very public expression of social achievement. Variation in views of the car find voice in the numerous groups dedicated to motoring interests, often with distinctive subcultures and expectations for behaviour. Not only do these groups distinguish among car drivers, but the car driver is distinguished from other road user groups, which, in turn, make distinctions within their own groups. Belonging to different social groups creates the expression of different road use behaviour.

Group Based Explanations of Road Use Behaviour

Social groups also occur through demographic and lifestyle factors, with corresponding expressions and creations of different road use behaviour. Young males are a demographic group of particular relevance for road safety, with recent research providing insight into the behaviour of novice drivers through an examination of their cognitive development and risk-taking propensity. The variation in developmental, demographic and social factors that is relevant to road safety behaviour reveals that road safety interventions needs to target different social groups in different ways.

Theories of Social Influence and Learning of Road Use Behaviour

Explanatory frameworks applied to road use or associated behaviour have been dominated by the Theory of Planned Behaviour, Social Learning Theory, and Deterrence Theory. In considering how people respond to messages regarding road safety, the frameworks of Third Person Effect, Social Identity Theory and Optimistic Bias are also relevant. A review of the ways in which personality or individual differences have been researched as relevant to road use behaviour revealed that agreement is yet to be reached regarding which variables to explore or the ways in which those variables thus far explored contribute to road use behaviour. However, little research or literature currently exists that marries the observations of those examining individual differences with those exploring road use behaviour as an outcome of broader social processes; clearly both influences are likely to play a role in road use behaviour.

Preliminary Research into the Road Use Culture of the ACT

The aim of this research was to undertake a preliminary scope of the views of key informants regarding the road culture of the ACT and the factors perceived to affect it. This aim was pursued through semi-structured interviews with 12 representatives from key road use entities in the ACT. Key themes emerging included the perception that Canberrans view the road in a manner that suggests that they feel an entitlement to mobility at their own discretion; that is, they feel they should be able to decide how fast they should drive and how infrastructure and planning should be designed to best enable their mobility via a car. There was a commonly expressed view that those in different road user groups often see those in the other groups as less “entitled” to the road; a view that was perceived to support

less harmonious road use behaviour between the groups. This view was summed up by one interviewee who questioned if "the shared *right* of entitlement held by different groups is clashing?"

Despite perceiving an overall expectation of entitlement by drivers of the ACT, respondents also perceived a variety of road use cultures operating within the city with different road use behaviours demonstrated by different groups of drivers. These groups were perceived to exist along the lines of demographic factors or differing levels of motor interest.

Interviewees expressed a perception that Canberrans have either a real or perceived need to drive a car; a need believed to arise from the spread-out nature of the city and a smaller public transport system than in larger cities. There was also a perception that relatively good roads in Canberra may aid motorists to speed within the ACT and foster an expectation for similarly easy travelling outside of the ACT. It was posited that this expectation may contribute the equally high road fatality toll of ACT residents outside of the ACT as those occurring within the ACT when ACT motorists encounter roads of a lesser quality in other jurisdictions.

There was a broadly expressed belief that the community needs to genuinely agree on the need for heightened safety on ACT roads. There is a concern that this may be difficult with a perception that ACT drivers generally view themselves as being better than average drivers and attributing the road toll to "*all the other idiots on the road"*. There was a revelation that some of those in motor vehicle and motorcycle use training may convey a

view to students that avoidance of enforcement is the primary motivator for adherence to road laws rather than road user safety.

Interviewees identified a range of issues they believe should be investigated in road safety research in the ACT. In particular, there was a general concern with gaining more information on the most effective ways to convey the imperatives of safe road use to the ACT community.

Research proposal

A three year research program is proposed with the primary aim of establishing a comprehensive description of the road use culture and subcultures of the ACT and identifying the factors that determine these cultures. It is a further aim to identify areas of community resistance to and acceptance of general and specific Vision Zero implementation measures. It is proposed that research methodology for the program utilises approaches that enhance engagement with the community and key stakeholder bodies in the Vision Zero implementation process.

1 CHAPTER 1

THE ISSUE: ROAD SAFETY IN AUSTRALIA AND THE ACT

This chapter outlines the current state of road safety in the ACT, examining statistics, vulnerable groups and the limited research available on road user attitudes and behaviour in the ACT. The gaps in current knowledge on attitudes towards road use and accompanying behaviour are identified as potentially significant for developing an understanding of the likely acceptance of road safety initiatives such as Vision Zero in the ACT.

1.1 Introduction

On average, one person is killed on ACT roads every 26 days. This figure reflects an average of 14.8 deaths on ACT roads per year for the past 10 years (Office of Transport ACT Department of Territory and Municipal Services [TaMS], 2009) and a road death rate of 4.07 per 100,000 population (Australian Government Department of Infrastructure, Transport, Regional Development and Local Government [Infrastructure], Sept 2009). Unfortunately, 2005 witnessed a 14 year high road fatality rate in the ACT with 26 people dying on ACT roads that year. Motorcyclists were over-represented in road death fatalities in the ACT that year accounting for 10 out of the 26 fatalities. Overall, however, ACT road fatality rates have steadily decreased from figures such as 37 deaths in 1984 to the 12 fatalities of 2009, which gives the ACT a current road fatality rate of 3.4 deaths per 100,000 population.

If it is accepted that death on the roads is an inevitable outcome of human road travel mobility, the ACT statistics are relatively good compared to national and international figures. Nationally, the 2009 road death rate was 6.9 per 100,000 (Infrastructure, Dec 2009).

Internationally, road death rates vary considerably. For instance, in the OECD in 2007, the Netherlands recorded the lowest rate of road deaths at 4.3 per 100,000, whereas Poland recorded the highest rate of 14.7 per 100,000. Notably, Australia lags behind many others with a ranking of only the twelfth lowest road fatality rate (OECD / ITF, 2008). Nonetheless, these national and international figures suggest that the ACT is doing very well in achieving a relatively low road death rate.

Regardless of the relatively positive road death statistics for the ACT, some research suggests these figures may not accurately represent the 'true' death rate for ACT road users. According to a number of research reports (Cairney & Gunatillake, 2000; Imberger, Styles & Cairney, 2005; Pyta, 2007), when ACT drivers travel into NSW, they have just as many fatal and serious injury road accidents as they have in the ACT, effectively doubling the road death rate of ACT citizens. Additionally, the ACT has demonstrated a capacity for lower road death rates that currently are not being achieved. For example, current rates are above those experienced during three of the past seven years. In 2002 for instance, the ACT road death rate was 2.7 road deaths per 100,000 compared to the most recent 3.4 per 100,000 population (Infrastructure, Dec, 2009).

Road traffic crashes cost the ACT and Australian community socially and economically. The 2005 economic cost of crashes for the ACT was conservatively estimated to be $180 million for that year alone (TAMS, 2007). On a national scale, these costs have been estimated to be $17 billion annually (Connelly & Supangan, 2006). The ACT Government's direct investment in road safety can be conservatively estimated at approximately $3 million per annum (personal communication, TAMS, Manager, Road

Safety). This figure excludes the safety considerations that are addressed indirectly through investments in capital works and construction, enforcement, registration and licensing, speed cameras and administrative costs of relevant agencies.

The current level of investment in road safety within the ACT has been additional to prior investment in sound road layout and planned road hierarchical structure (TAMS - http://www.tams.act.gov.au/move/roads/road_safety/speedandspeeding/act_road_hierarchy, retrieved 22/03/2010). The road hierarchy refers to the classification of roads according to their primary function in terms of the movement of traffic and access to property. As the TAMS website clarifies, "A road's physical characteristics and traffic volume will reflect its function and role in the network". For instance, in the ACT the road hierarchy classifications reflect arterial roads, collector roads and access streets. The provisions of the past and current investment in road infrastructure and associated road safety initiatives have likely contributed to the relatively low crash rate within the ACT boundaries. Nonetheless, despite considerable investment, road fatalities persist in the ACT with the goal of single figure fatalities achieved only once since 1963.

One potential reason for the persistence of road fatalities for ACT residents may be the relatively high level of passenger vehicle ownership in the ACT high compared to other states and territories in Australia. For instance, in 2008, there were 599 registered passenger vehicles per 1000 of the population of the ACT. This statistic exceeds the national average of 555 per 1000 population and compared to other states and territories, only Western Australia exceeded the ACT rate with 603 passenger vehicles per 1000 population (ABS Motor Vehicle Census, 9309, 2008). However, there is not necessarily a positive relationship

between level of vehicle use and road fatality rate. Rather, factors such as driver behaviour, safe vehicles and infrastructure can actually lower road fatality rates as vehicle ownership increases (Kopitts & Cropper, 2008; Koren & Borsos, 2009). Therefore, with sound road infrastructure and high use of sound vehicles in the ACT, driver behaviour is likely to be a critical factor in road crash statistics.

Furthermore, the road safety credentials of the ACT indicate behavioural vulnerabilities similar to those encountered elsewhere, with some population groups being at higher risk than others. According to ACT government statistics, the single most vulnerable road user group for casualties in the ACT is those aged between 20 to 24 years of age, and over 40% of all casualties are experienced by those younger than 30 years of age (ACT Government, TAMS, 2009). Males are disproportionately represented in vehicle crash casualty and fatality statistics in the ACT accounting for 60% of all motor vehicle crash casualties in 2008 (55% in 2007).

1.2 The ACT Road User Attitudes and Behaviour

In terms of the road use behaviour of the citizens of the ACT, a propensity for speeding and drink driving continue to feature as the most common contributors to ACT road casualties. According to media releases from ACT Policing, data for 2009 indicate that alcohol was a factor for seven of the 12 road crash fatalities for that year (AFP Media release 18/01/2010). Of note is that the risky behaviour of drink driving in the ACT was not confined to young male drivers in 2009. Media reports suggest that of the 10 drink drivers with the highest blood alcohol concentration charged with the offence in 2009, 40% comprised

women and a range of ages were represented with half of the offenders aged in their 30's and older drivers also being charged (The Canberra Times, 19/01/10). Additionally, six percent of ACT residents surveyed in 2008 and 2009 responded that it was "very or fairly likely" that they had driven over the Blood Alcohol Concentration (BAC) limit in the last 12 months (Pennay, 2008; Petroulias, 2009).

Some valuable self-report road use behavioural and attitudinal information is collected from ACT residents each year in the Community Attitudes to Road Safety Survey, also referred to as the Community Attitude Survey or CAS program published by the Australian Government, Department of Infrastructure, Transport, Regional Development and Local Government (Infrastructure). The information gathered from the CAS program increases our understanding of attitudinal trends and self-reported road use behaviour. In 2009, the CAS surveyed 150 persons aged 15 years and over who were residents of the ACT. Survey respondents were contacted using Computer Assisted Telephone Interviewing (CATI) technology. A person of 15 years plus was randomly selected for interview from each household that was randomly selected by phone number.

Results from the CAS reports suggest that the attitudes held by the ACT community towards road use continue to support some risky driving behaviour, particularly with regard to speeding. In the 2008 survey, ACT residents were more likely to agree that it is "Okay to speed if driving safely" than people surveyed in the rest of Australia with 38% of ACT respondents agreeing with this statement (Pennay, 2008; Petroulias, 2009). In comparison, the lowest rate of agreement with the statement was expressed in Tasmania with only 19% of respondents agreeing. The ACT level of agreement with the statement has decreased

considerably in the 2009 survey results. Nonetheless, in 2009, 21% of ACT respondents still agreed with the statement and 59% of ACT respondents agreed that speeding fines are mainly intended to raise revenue. These attitudes are held despite the fact that even low-level speeding accounts for a substantial proportion of the total harm associated with speeding (Australian Transport Council, 2008).

Unfortunately, currently there are no data available on the level of social acceptance of drinking and driving among the ACT population. However, one finding from the CAS indicated that 30% of the ACT residents surveyed hold the view that a blood alcohol reading of .05 would not affect their ability to act safely as a pedestrian (Petroulias, 2009). It may also be the case that a proportion of the ACT population believes that a blood alcohol reading of .05 would not affect their ability to safely drive a vehicle. This question does not appear to have been addressed in road safety surveys to date.

Nevertheless, ACT residents rate drink driving and speeding as the factors most likely to contribute to road traffic crashes. The next highest contributor is "inattention /lack of concentration" with 35% expressing this view in the 2009 CAS (Petroulias, 2009). Regardless of the expressed awareness of the dangers of distraction, 62% of the same ACT survey sample also reported engaging in the distracting behaviour of using a mobile phone whilst driving. Those ACT residents surveyed also considered driver fatigue to be a major contributing factor to road crashes and 17% of respondents reported that they had fallen asleep while driving. The examination of drug-driving does not feature prominently in the CAS reports. The only question to address this behaviour is as a factor interviewees can nominate as perceived contributors to road crashes. National data for this question revealed

that only 1% of those surveyed considered it to be the highest contributor to road crashes and only 11% of those surveyed made any mention of drugs as a contributor to road crashes. The survey report provides no state or territory results for this factor.

It appears that despite awareness of the dangers of and enforcement sanctions against certain driving practices, a proportion of ACT residents continue to engage in such practices. It may be that ACT road users do not see that the road use behaviour they engage in might be risky. Based on the surveyed attitudes and behaviour of ACT road users it could be argued that to reduce ACT road fatalities and serious injuries ACT road users may need additional road safety measures to be employed. There is currently little research available to clarify this need and further evidence is required to determine directions for effective road safety initiatives. For example, knowledge is required on the extent to which the road users of the ACT value road safety, particularly in relation to their possible desire to have unrestrained road travel mobility. That is, even with awareness of dangers of certain driving practices, the extent to which road users are prepared to alter their behaviour to lower risk to themselves and others is not known. Nor is it known the degree to which they do desire unrestrained road travel mobility. Further research is also required to address attitudes towards road use behaviour in relation to road users other than motor vehicle drivers. That is, attitudes and behaviour of ACT road users towards others that share the road with drivers such as bicyclists, pedestrians and motor cyclists are currently under researched.

It is also not clear whether the attitudes expressed in the CAS reflect those held by specific demographic groups in the ACT, including occupation, location, socio-economic status, or interest groups. Evidence suggests that attitudes and behaviour can be shared by

communities and sub-groups of communities (Haslam, 2004). That is, attitudes and behaviour are likely to differ by groups of drivers and road users. Young males, for example, may have different attitudes and patterns of behaviour around drink driving, when compared to older males, or indeed to women. Although all of these groups engage in drink driving (Canberra Times 19/1/2010) and other risky behaviour, a 'one size fits all' campaign may be less effective than one targeting the specific attitudes and behaviour of these sub-groups.

1.3 Safe Systems and the ACT

Although the road fatality statistics for the ACT are lower than in many other jurisdictions, they can only be considered "positive" if it is assumed that death and serious injury on the roads are inevitable outcomes of human mobility. The ACT Government is currently exploring adoption of a Safe System or Vision Zero –type approach to road safety similar to that adopted by the governments of Sweden, Norway and The Netherlands. Such an approach promotes that no level of death or serious injury from road crashes is acceptable. Although there are differences between the approaches adopted by different countries, there are also similarities, particularly in so far as the philosophical base and the community engagement required by such approaches. To this end, while recognising the differences between approaches, this report will, at times, refer to the collected approaches as "Vision Zero – type" approaches. The distinctions between these approaches are described further in the report. In general, the above approaches espouse a philosophy that re-directs the responsibility for serious road injuries away from resting solely with the road user. The goal of eliminating serious injury is redistributed to be shared by all major players

in the road system, with a significant share resting on the engineering of the road system in addition to compliance by road users. The adoption of a similar system in the ACT could see significant alterations to the road environment and restrictions in mobility, particularly with reference to speed. For example, one of the first notable changes in Sweden's road use strategy was for wide-scale reductions of speed in built up areas to 30 km/h (Vägverket, 2006). Additionally, traffic calming initiatives in Sweden have included the elimination of through-traffic in busy residential and shopping areas and the physical separation of pedestrians and bicycle facilities from motorised traffic (van Schagen, 2003). The changes required by the Vision Zero policy have extended beyond residential and high pedestrian areas. Open roads also have been the focus of changes in design with physical barriers increasingly separating opposing traffic. Where physical barriers do not separate traffic, speed limits have been reduced to speeds at which impact can be survived by the human body (Vägverket, 2006). In essence, in a Vision Zero approach the physics of kinetic energy prescribe appropriate speed limits and road conditions such that impact is likely to be survivable by the human body.

Successful implementation of the Vision Zero approach has been stated as being dependent upon community acceptance of the mobility restrictions inherent in the approach (e.g. see OECD/ITF, 2008). Moreover, there has been an explicit assumption that adoption of the system at the government level "will alter the community's view of the inevitability of road trauma" (OECD/ITF, 2008, p. 5). However, there is currently little evidence to support this claim. In fact, there is a claim that even though there may be support in society for mobility restrictions to enhance safety, there is often strong opposition to concrete measures

that restrict people's level of mobility (Wittink, 2001). Nonetheless, there is also evidence suggesting that the active involvement of those affected by policy changes can foster acceptance of and engagement with changes (Eggins, Reynolds, & Haslam, 2003). Such involvement may guide implementation of concrete road safety measures with the cooperation of the public. Importantly, based on the experience of the Netherlands' implementation of road safety initiatives, De Vroom and colleagues (cited in Wittink, 2001) recommend that when negotiating for public support the driving body should set out realistic aims emerging from a clear understanding of the existing social norms.

The assumption of community acceptance of and willingness to engage with road safety initiatives to ensure their effectiveness is one that may be questioned in light of the success of previous road safety initiatives in Australia such as the compulsory use of seat belts. This question will be examined alongside consideration for societal and subgroup-level norms and attitudes further in the chapter entitled "Acceptance of Vision Zero/Safe System Adoption". Such norms and attitudes are considered in light of the expressed commitment of the ACT Government to address a plateau in ACT road fatality rates for some years. Information that accompanies this plateau indicates that a notable percentage of ACT residents surveyed hold attitudes that are contrary to safe road use behaviours.

This report aims to investigate some of the factors that could contribute to attitudes that are counter-indicative to safe road use behaviour. It reviews available literature on the factors and transmission of a road use "culture" and conducts a systematic identification of variables that play a significant role in a community's adoption of road safety approaches. Additionally, evidence-based approaches to promotion of an alternative culture are

described. This unique report sets the stage for a much-needed longer-term, in-depth research project into the existing road safety norms and the preparedness of ACT road users for implementation of more stringent road-use initiatives along the lines of Vision Zero. The current report provides the rationale and foundation for further research by investigating the current views of ACT road-user interest groups and road safety experts, and the literature on road safety from statistical, sociological and psychological domains.

1.4 Summary

This chapter introduced the issue of road safety in Australia and the ACT, and outlined the reasons for the current scoping study. The chapter highlighted that although the ACT has the lowest road crash fatality rate in Australia, and one of the lowest in the world for crashes occurring within the jurisdiction, a plateau has occurred in recent years in the reduction of ACT road fatalities. The ACT Government has expressed a commitment to address the persistence of road fatalities in the ACT and to the achievement of the road safety goals of the Safe System and Vision Zero approaches. The strategy promotes that no level of death or serious injury from road crashes is acceptable.

Some research involving ACT residents indicates that ACT residents currently hold attitudes that may be inconsistent with the successful implementation of road safety initiatives that restrict road travel mobility. Vision Zero-type approaches require a community willing and able to adopt a culture of safe driving behaviour that minimises the likelihood of crashes. Currently, little research exists on the culture of road use behaviour as it relates to drivers' attitudes towards their car, the road, ownership, road use and road

safety. However, literature that is available on the subject indicates that such culture involves complex social processes of influence by the larger society, interest groups and the individual.

2 CHAPTER 2

THE ROAD SAFETY VISION

Chapter Two reviews the frameworks of traditional and newer approaches to road safety as implemented in Europe and Australia. The current strategies employed within the ACT are reviewed as the foundation for a proposed implementation of the European styled interventions within the framework of the Australian Safe System approach.

2.1 The Traditional Approach to Road Safety

The traditional approach to road safety implicitly assumes that some degree of road trauma is an inevitable outcome for the mobility offered by road-based motor vehicles. Although safety has been a primary concern of the transport network, a cost-benefit analysis approach has been employed to establish the benchmark for safety improvement decisions. That is, an economic model is used to determine the balance between safety and road travel mobility, with mobility the general term employed in transport literature to refer to the ability to move around as desired using the road networks (Fildes, *n.d.*).

The traditional model has provided the impetus for prominent road safety initiatives, such as mandatory seat belt use in Australia. These initiatives have aided the significant road toll reduction in Australia over the past 30 years. However, road toll statistics have steadied in more recent years. As stated through the Australian National Road Safety Strategy (Australian Transport Council, 2008), Australia is now turning to the policies and philosophies adopted in northern European countries to guide future road safety developments.

2.2 Vision Zero and the European Approaches to Road Safety

"Vision Zero" is the name of the road safety policy originally adopted by the Swedish parliament in 1997. As its foundation, the policy rests on the stance that it is ethically unacceptable for road users to die or be seriously injured as a consequence of their road use. In addition to its ethical base, the Vision Zero policy encapsulates a philosophical position that responsibility for the safety of the road user should be shared by all involved within the road system. This philosophy signals a shift from a view that placed the burden of responsibility for road use outcomes with the individual road user, to a position that recognises road use outcomes as also impacted by design and construction of the vehicle and road environment (see Falquist, 2006; Tingvall, 2008, 2009).

The Vision Zero policy is guided by five principles:

1. The vision needs to be shared by all key stakeholders.

2. The vision has a three-point ethical platform:

    i. human life and health is paramount;

    ii. life and health cannot be traded against other benefits; and

    iii. mobility is a function of the safety level.

3. There are driving forces for change – e.g. the individual has the right to survive, ANCAP (Australian New Car Assessment Programme – Crash testing for safety), technology, aggressive targets stated by key players such as Volvo's goal that "no one will be killed or injured in a Volvo car after 2020" (Austroads, 2008).

4. There is shared responsibility – from designers to road users. System designers are responsible for the level of safety within the entire system. Road users are responsible for following the rules for using the road system as set by the designers. However, if road users fail to follow the rules for any reason, system designers maintain responsibility to take additional steps necessary to counteract the likelihood of death or serious injury in the road system.

5. Safety philosophy – it is accepted that people make errors and that this error must be accommodated in the design. Design must account for biomechanical tolerance limits. The focus is on serious and fatal injuries rather than crashes. For example, traffic lights tend to reduce the number of collisions, but those that do happen often result in more serious injury. However, if the key objective is to avoid serious injury rather than the number of collisions, then installation of a roundabout is the recommended strategy. Although it is likely that there will be more collisions at a roundabout, those that do occur tend to result in only minor injuries (Vägverket, 2006).

Importantly, since the adoption of Vision Zero, Sweden has experienced significant reductions in fatalities and serious injuries despite an increase in traffic (OECD/ ITF, 2008). Johansson (2009) cites that within the past 10 years road fatalities have dropped from approximately 550/year to 450/year. More specifically, he states that roads redesigned since the implementation of the Vision Zero strategy with median barriers have experienced an 80% reduction in fatalities, and streets with 30 km/h design speed show similar results.

2.3 Norway and Zero Casualties Objective

Norway adopted a similar approach to Vision Zero in the National Transport Plan of 2001. The Norwegian plan, however, was not articulated as Vision Zero per se and was not necessarily intended to be a replication of the Swedish approach and there are notable differences between the approaches of each country. For instance, the Swedish approach has heightened the responsibility of both the authorities and the system designers for road safety outcomes, whereas the Norwegian policy continues to emphasise the responsibility of the road user. Norway explicitly limits the responsibility of road authorities to prevent the consequences of *unconscious* road user error and has not tied the vision to numerical targets as has been done in Sweden (see Elvebakk & Steiro, 2009). Nonetheless, as with the Swedish policy, the Norwegian approach rests on the ethical pillar that human life is "unique and irreplaceable". Referred to as "Vision Zero" or the "zero casualties objective" in the Norwegian National Plan for Transport of 2006 – 2015, the Norwegian vision expresses similar objectives to that of Sweden in that it "entails that means of transport and the transport system must be designed in such a way that they promote correct conduct on the roads while as far as possible preventing fatal consequences of incorrect actions. Road users must also be influenced to adopt safety-conscious behaviour." (cited in Elvebakk & Steiro, 2009, p. 960).

2.4 The Netherlands and Sustainable Safety

The Sustainable Safety vision was launched in the Netherlands in the early 1990s and revised in 2005. The SWOV Institute for Road Safety Research recognises many similarities

between the Swedish Vision Zero and the Dutch Sustainable Safety vision. In particular, the human vulnerability to make mistakes and vulnerability to kinetic energy are the guiding premises for both systems (SWOV, 2007).

A fact sheet for the Institute asserts that a clear difference in the systems is that "Vision Zero only makes statements about the physical environment, i.e. vehicle, road and other traffic. Enforcement and education are not regarded as system components." (p. 4). To strengthen the articulation of these components in the Sustainable Safety approach two socially-oriented principles were added to the existing platform of principles in 2006 (SWOV, 2006). The inclusion of the principles of "state awareness" and "social forgiveness" further distinguish the Dutch system from that of Sweden. The revised approach to Sustainable Safety considers these two principles as encompassing the educational aspects of the human in traffic "and his moral and social actions" (SWOV, 2007, p.4). These newer principles are in addition to the existing principles of functionality of roads, homogeneity of masses and / or speed and direction, and predictability of road course and road user behaviour by a recognizable road design.

The principle of "state awareness" considers the varying levels of capability that road users possess. In response to this consideration, the Sustainable Safety approach urges that *generic road safety measures* be supplemented with *specific measures* targeted at groups with a diminished task capability. In addition to employing Intelligent Transport Systems (ITS), education is encouraged to enable road users to identify when their road use capability may be diminished through factors such as lack of experience, excessive alcohol consumption or fatigue.

The principle of "social forgiveness" in Sustainable Safety is referred to as the social elaboration of the *forgivingness* principle. The revised Sustainable Safety approach states that "forgiving road behaviour (e.g. anticipating behaviour) by more capable road users should enable less capable road users to make errors and go unpunished. In order to work correctively, the less capable should recognize their errors as such, but the errors should less often result in a crash" (SWOV, 2006, p.14). Unfortunately, Advancing Sustainable Safety in Brief (2006) and subsequent documents such as the SWOV fact sheet (2007) provide no references or indications of research on these principles and the scientific basis for their likely contribution to enhanced road safety. The suggestion is that educating people on the need to forgive and accommodate other road use behaviour will have an impact on actual road use outcomes. According to the SWOV Fact sheet (2007), the inclusion of these principles into the Sustainable Safety policy aligns with the view that the inadequate ability to adhere to road rules is a human weakness whereas, it is asserted, Vision Zero sees it as a human responsibility. Accordingly, the Sustainable Safety approach sees that education and enforcement can assist to address this weakness. Nonetheless, there is no evidence provided to support this claim. This is clearly an area for further investigation.

It has been estimated that following the full introduction of Sustainable Safety measures there was a reduction of about 6% of all deaths and in-patient admissions in the Netherlands during the 1997-2002 period (SWOV, 2006).

2.5 Australia and Safe System

In November of 2001, every state and territory in Australia adopted the Safe System approach through the Australian Transport Council (ATC). This strategy forms a key component of the Australian National Road Safety Strategy (ATC, 2008). The Safe System approach takes a systemic view of the contributors to road safety. The focus of the system is on crash prevention and shared responsibility for road safety by all of those involved in the system. The aim of the system is to protect responsible road users from death and serious injury by accounting for and accommodating human error and physical vulnerability to impact. The four essential elements of the system are:

- alert and compliant road users;
- safe roads and roadsides;
- safe speeds; and
- safe vehicles (Turner, Tziotis,, Cairney, & Jurewicz, 2009, p. 20).

The Safe System approach to road safety requires that:

- roads and roadsides are designed and maintained to reduce risk to as low as reasonably practical;
- speed limits are set according to the safety of the road and roadside;
- road users are advised, educated and encouraged to comply with road rules, and be unimpaired and alert, and drive according to the prevailing conditions; and

- consumers are encouraged to purchase vehicles with primary safety features (that reduce the likelihood of a crash, such as electronic stability control) and secondary safety features (that reduce injury severity in a crash, such as side curtain airbags) (Turner et al., 2009, p. 21).

It is significant that an additional feature of the Safe System approach is the encouragement of "a better understanding of the interaction between the key elements of the road system: road users, vehicles, roads and roadsides, and travel speeds" (Turner et al., 2009, p. 21). The report also urged further examination of how Safe System outcomes can be delivered through safer road users.

2.6 The ACT and Road Safety

Within the ACT, road safety records are generally very good in comparison to other parts of Australia. However, Cairney and Gunatillake (2000) demonstrated that ACT residents had as many fatal and serious injury accidents in NSW as they had in the ACT. Therefore, in addition to addressing other elements of the Safe System approach, the ACT is in as much need as other jurisdictions to examine road user compliance with Safe System requirements.

Having confirmed a commitment to the Safe System framework along with other national jurisdictions in 2008, the ACT is currently working towards the establishment of Safe System operations in its Road Safety Strategy and Action Plans. The current strategy covers the period from 2007 to 2010 and a new strategy is being developed for the next period from 2011.

There are four pillars of the ACT Strategy and Action Plan 2007 - 2010 that categorise responses to the road safety goals and objectives. These are referred to as the "4 Es" of road safety: namely, Education, Encouragement, Engineering and Enforcement. The three strategic goals for Road Safety in the ACT in the current Strategy and Action Plan are:

1. Road trauma rates continue to be reduced despite increases in population and travel.
2. The community shares the responsibility for road safety.
3. Road safety coordination and support arrangements are improved.

The first two of these goals are considered within the framework of the strategic objectives that are drawn from the Safe System essential elements of safer speeds, safer roads and roadsides, safer vehicles, safer road users, and safer behaviour. The current Action Plan items for those goals and objectives that rely on the community are targeted primarily through awareness campaigns and enforcement by ACT Policing. These 'Education' and 'Encouragement' strategies are central to the directions adopted by the ACT Government with the Chief Minister requesting that campaigns focus on "changing culture so that the Canberra community takes road safety more seriously" (Office of Transport ACT Department of Territory and Municipal Services, 2009). Priority campaigns as indicated in the ACT Road Safety Action Plan 2009-2010 are intended to maintain strong links to police enforcement measures and include:

- speeding, particularly in residential areas;
- drink driving;
- sharing the road – pedestrians, motorcyclists and cyclists;

- ACT drivers travelling interstate, particularly at holiday periods;
- driver distraction – use of mobile phones while driving; and
- bicycle helmet wearing and lighting (p. 10).

It is a significant progression in the 'Education' strategy for the ACT Road Safety Action Plan that the development of an ACT Road Safety Education Strategy is to be developed. Additional Action Plan items include (p.11):

- Develop and implement a two-year program of priority road safety awareness campaigns.
- Update the Roads ACT website to form a central hub for ACT road safety information.
- Develop a suite of brochures on key road safety issues in the ACT.
- Implement a program of revised road safety message signs to improve awareness of the risks of speeding and drink driving.
- Commence a program of installing permanent Variable Message Signs on the ACT road network.
- Continue to coordinate vehicle inspection, Variable Message Sign and traffic camera van activities with ACT Policing traffic operations.

2.7 Summary

This chapter traced the development of a relatively new road safety philosophy first introduced by Sweden in 1997 under the title "Vision Zero". Of significance is the baseline premise that to assume the inevitability of death and serious injury through road use is

unacceptable. As a corollary, it is also unacceptable that safety is tradeable against road travel mobility. With similar initiatives implemented in The Netherlands and Norway, Australia has also adopted a comparable framework within the Safe System Approach. With a new Road Safety Strategy due to be released for 2011, the ACT is now looking to strengthen its relatively excellent road safety approach with the initiatives of the Safe System and Vision Zero Approaches.

3 CHAPTER 3

ACCEPTANCE OF VISION ZERO/SAFE SYSTEM ADOPTION

This chapter briefly explores some of the themes of resistance to the Vision Zero-type approach to road safety that have been discussed in the literature. Notably, new initiatives have the opportunity to learn from the community consultation process conducted in Western Australia prior to the implementation of its *Towards Zero* road safety initiative. Research related to this initiative is briefly reviewed before consideration of two perspectives on how it is that a road use culture can be engendered towards acceptance of such initiatives.

3.1 Opposition to Vision Zero

There is currently little literature available examining the social acceptance of rejection of Vision Zero-type road safety initiatives. Three primary opposing arguments to the introduction of a Vision Zero type system that places human safety above all other considerations have been identified by Fildes and Langford (2002):

1. Vision Zero is impossible to achieve and is setting unrealistic targets.
2. The restrictions required by Vision Zero (e.g. speed restrictions) are unacceptable to a highly mobile society.
3. Funding required for Vision Zero implementation will need to be requisitioned from other important areas. (This challenge has also been identified by Turner

et al., 2009, reporting on the Safe System Infrastructure – National Round Table.)

In contrast, supporting such a system Fildes and Langford (2002) propose that the arguments against adoption fail to account for the ethical stance that human life and safety is not a tradeable commodity. They further counter that any increase in time for individual trips is small and of no discernable consequence. Finally, they assert that to maintain a system that does not aim for zero road deaths or serious injuries continues to place the burden of responsibility for these outcomes with the road user. In so doing, attention will continue to be deflected away from the other contributors to the system that should bear responsibility, such as planners, construction and maintenance of the system, and car manufacturers.

3.2 Resistance to Speed Restrictions in the United States

Richter, Berman, Friedman and Ben-David (2006) trace the discoveries that have clarified road trauma as the outcome of speed of impact and the limitations of the human body to absorb kinetic energy without serious injury. They note measures wherein driving speeds have been reduced accompanied by a drop in road fatalities. The authors further suggest that fatalities in some areas may be associated with urban sprawl which leads to pressures to increase speed to cover increased distances.

Richter et al. (2006) suggest that there are eight primary barriers to accepting the role that speed plays in road death and injury and to instituting greater speed restrictions into government policy. These barriers include:

1. **Time saved from speed –** increased high speed mobility is valued by the community and considered of similar value to individual freedom, liberty and the pursuit of happiness.
2. **Speed sells** – speed is marketed as desirable. The authors premise that speed-creep and the ability to travel at speed predispose drivers to road rage when those travelling at speed are forced to suddenly slow down due to other driver actions.
3. **Reporting systems equate attributed circumstance of crash with cause for injury** – speed is often not recorded as the cause of crashes.
4. **Indifference to speed-creep** – particularly noted in the USA context where the authors claim that speed issues are no longer being addressed in policy and literature to the same extent as in other countries where road tolls have reduced significantly.
5. **Ideological and institutional barriers** – libertarian opposition to regulation as a denial of civil rights. Richter et al. counter that life and safety are the most basic of all human rights.
6. **Epidemiological overstatement of benefits of crash-phase countermeasures** – Richter and colleagues suggest that the successes of countermeasures may have diverted attention away from the reality that speed continues to be a killer on the road. They assert that the science of countermeasures has not addressed the critical issue of how to avoid the impact of high kinetic energy by establishing lower maximum built-in vehicular speed.

7. **Epidemiological understatement of the risks of speed by "correcting" for exposure** – The authors argue that lower deaths due to congestion and countermeasures conceal the genuine Case Fatality Rate which expresses a direct relationship between speed of impact and risk of death.
8. **Compartmentalisation of traumatic injury and environmental protection** – The authors assert that to lower speeds is a necessary condition for positive environmental outcomes from lower CO2 emissions. The result of lower speeds is positive environmental outcomes, safety promotion and protection of public health at a broad level.

A number of the assertions made by Richter et al. (2006) have not been supported by empirical references, such as the assertion that mobility is valued to a degree similar to values of individual freedom, liberty and pursuit of happiness. The authors place responsibility with public authorities to engineer a shift away from the paradigm that values mobility and the thrill of speed. They propose that this can be done by mandating decreased speed limits. However, the authors stop short of examining the likely social implications of such a mandate or proposing ways to alter the actual values of the paradigm.

3.3 Community Consultation in WA

In 2008, the Western Australian government and Road Safety Council initiated a 12-year road safety strategy based on Australasia's Safe System Approach and Sweden's Vision Zero (Corben, Logan, Johnston, & Vulcan, 2008). In preparation for strategy implementation, widespread consultation was conducted with community and stakeholders during 2007. The

primary objective of the consultation was to "evaluate the level of support for the recommended strategies – and the broader Safer System philosophy – covered in the discussion paper *Towards Zero, getting there together*" (Synovate, 2007, p.9).

The broad findings of the consultation process indicated that community support for safe road use strategies is strong. However, the perceived effectiveness of the strategy was comparatively low with only 9% of those consulted believing that the strategy would be "highly effective". Additional responses indicated a perception that a system that relies on education and enforcement will be compromised by those who choose to break the road rules. Modelling by Monash University Accident Research Centre (MUARC) supported this perception to some extent by recommending that investing in areas other than behaviour change will provide more efficient outcomes (Corben et al., 2008). The modelling considered the four elements of the Safe System Approach that addresses: 1) safe roads and road sides; 2) safe speeds; 3) safe vehicles; and 4) safe road use. According to the outcomes of modelling, taking moves to reduce speed and improve road infrastructure is the most effective means of mitigating the negative effects of driving whilst fatigued, distracted, under the influence of drugs and/or alcohol, and non-restraint use. The authors suggest that this may be more effective than addressing these dangerous road use practices through behaviourally targeted measures such as "an integrated suite of campaigns that present and promote the Safe System road safety philosophy" (Corben et al., 2008, p18). That is, from the MUARC analysis, addressing the behavioural change of the relatively few non-compliers may not deliver as high returns in road safety as may be gained from concentrating on considerations such as the design and engineering of roads that respond to the relatively low

level yet risky behaviour of the broader population. In part, this recommendation emerges from the understanding that the level of legal road use compliance is already quite high (Office of Road Safety, Government of Western Australia, 2007). Therefore, concentrating on education and enforcement or other measures that focus on road user behaviour may be less economically viable than other road safety initiatives such as infrastructure improvements.

Although the MUARC report suggests that road user behaviour is a less efficient direction for road safety intervention, it is difficult to ascertain from the report exactly what behaviour would be targeted in a suite of campaigns or in what way. Indeed, Haworth (2005) raises the point that the efficacy of message campaigns that focus on road user behaviour can be difficult to evaluate with data often not published. Haworth (2005) argues that it is rare for road safety programs aimed at behavioural change to be adequately evaluated so it is difficult to be fully informed as to what works and what doesn't in road user behaviour and road safety. Additionally, she points out that it is often difficult to disentangle the effects of media campaigns from other elements of a road safety strategy.

Importantly, the view that deviant driver behaviour is the primary contributor to road use crashes echoes the community perception that "crashes happen because some idiot was being irresponsible" (Office of Road Safety, Government of Western Australia, 2007, p.20). This type of attribution to others who we see as very different to ourselves supports often erroneous perceptions such as "I am a safer driver than average" when bell-curve data indicate that it is not possible for the majority of drivers to be "better than average" (e.g Svenson, 1981; Parker & Malone, 2004). Such self-serving attributions can further support

dangerous road use behaviour such as speeding when guided by the belief that ***I*** can speed because I do so safely (e.g. Parker & Malone, 2004; Pennay, 2008).

The desire to travel in a manner chosen by the individual also emerged in other areas of the Western Australian "Towards Zero" documents. The Discussion Paper for *Towards Zero: getting there together* (Office of Road Safety, Government of Western Australia, 2007) briefly considers elements of the WA context that distinguishes WA road safety considerations from other Australian states. One of those elements indicates that although Western Australians are aware that speed is a factor in many crashes "we don't want to be restricted in our freedom to move about where, when and how we want" (p.15). Although this value is presented as being unique to Western Australians, Redshaw (2008), Rothe (1994) and others suggest that the desire to seek freedom with a motor vehicle is likely widespread and the outcome of broad social norms and road use culture.

3.4 Engendering Support for Road Safety Initiatives

The ways in which support for the system can be garnered were not covered in the reports by Fildes and Langford (2002) and Turner et al. (2009). Presuming that government and legislative support was established for such a system Elliot (1992) proposes 11 key factors which *ought* to be in place to achieve road user compliance with road safety laws. These are:

1. a desire to want to obey the law (moral attachment) based on a view that the law is fair, proper and protects all;
2. a belief that most people ("like me") obey this highly approved law;

3. a belief that non-compliers are a deviant minority in need of punishment and forced behaviour modification;
4. a belief that the speed zoning system is appropriate, accurate and flexible;
5. a belief that enforcement of the speeding laws is primarily (even exclusively) carried out in the name of road safety, not revenue collecting;
6. a belief that speeding is as socially undesirable and as indefensible as drink-driving or rape or assault, etc;
7. a high perceived probability of detection;
8. a very strong desire to avoid punishment because it is severe and certain;
9. a belief that speeding, even at low levels is dangerous;
10. highly visible (enforcement) units aimed at prevention rather than detection; and
11. knowledge of and a clear understanding of precisely what behaviour is acceptable and unacceptable (Elliot, 1992, p.28).

Although Elliot's paper was published some years ago, Christie (2002) noted that 10 years on many of his comments remained highly relevant. In particular, Christie drew attention to Elliot's challenge to the myths surrounding the effectiveness of advertising and information provision to influence road safety behaviour. The research reviewed by Christie supported Elliot's list of common myths in road safety behaviour modification advertising efforts. These myths include:

- people are rational and only need information to change;
- advertising alone is critical to changing behaviour en masse;

- if advertising is sophisticated and appealing enough people will extract the intended meaning and act accordingly;
- the best way to achieve behaviour change is to change individuals;
- people are interested in our messages about the need to change; and
- behaviour is the result of attitudes, so attitudes need to be changed first.

The literature reviewed by Christie (2002) supports the approach he championed with the caution that information campaigns should only be considered as one tool in a tool box aimed at achieving compliance with road safety behaviour. This is a view that supports a system wide approach to road safety such as that found in the "Four E's" approach, as adopted by the ACT Government, which proposes that at a minimum a road safety approach should include education, encouragement, engineering and enforcement (see Office of Transport ACT Department of Territory and Municipal Services 2009).

3.5 Community acceptance and willingness to engage

As mentioned in an earlier section, it has been claimed that improved road safety outcomes require a community willing and able to adopt a culture of safe driving behaviour that minimises the likelihood of crashes (e.g. see Elliot, 1992; Christie, 2002; OECD/ITF, 2008). One question that arises from such a position is the degree to which such willingness is essential to achieve safe road use behavioural compliance that might otherwise be achieved through legislative and enforcement action. Indeed, initiatives in road safety have demonstrated that legislative enforcement action can be the impetus for significant positive road safety behavioural change. Nonetheless, it appears that this action alone is not always

sufficient to foster the required behavioural compliance in all sectors of the community in all instances. From an examination of earlier road safety initiatives, it appears that understanding the ways in which societal level and sub-group norms are promoted may be of use for achieving some of this additional change.

An example of an earlier highly successful road safety initiative is that of the increased use of seat belts in Australia in the 1970s which has been credited with a reduction in road fatalities by approximately 49% by the mid 1980's (see Hanfling, Mangus, Gill & Bailey, 2000). In regard to this practice, both attitudes and behaviour seemed to alter dramatically in a relatively short period of time, although not necessarily together. Public opinion in 1962 demonstrated little awareness of the critical safety role of seat belts. In 1970, however, awareness presented as much higher with 75% of survey respondents rating seat belts as either "important" or "very important" (Freedman, Champion & Henderson, 1971). However, of concern was the finding that this reported awareness did not necessarily translate directly into seat belt wearing behaviour. In fact, based on the apparent lack of relationship between awareness of the increased safety afforded by seatbelts and behaviour in wearing them, Milne (1979) concluded that "it is probable that continued publicity campaigns in the absence of compulsory wearing legislation would have been largely unsuccessful in raising wearing rates" (p.5).

There is even greater complexity added to the above picture on seat belt use of an apparent disconnect between awareness, attitudes and behaviour by the data discussed by Vulcan (1977). From this data taken from 1971 to 1974 it appears that some people were fitting and wearing seat belts even before it was mandatory to do so whilst some were not,

even once it was mandatory to do so. One notable trend in this data was the ever increasing wearing rate as time went on, even after the dates legislatively requiring them to be worn. The point here is that it was clearly not only the legal requirement to do so that lead to the behaviour to wear seat belts. If that was the case, there would likely have been no belts worn before the date of legal requirement with 100% compliance following that date.

More recent data indicates that seat belt wearing rates have continued to rise in the absence of legislative changes. These changes may have occurred in the face of stronger law enforcement over time, although there is evidence that suggests that this may not always be the case. For instance, the earliest CAS data from 1993 indicates that there has been a gradual change in self-reported seat belt wearing over the 16 years to 2009. Even though there had been no further change in laws, those reporting always wearing a seat belt in the rear seats of a car has risen from 85% in 1993 to 92% in 2009. Interestingly, this increase in usage of seatbelts has been accompanied by a *decrease* in the perceived level of enforcement for usage over the prior seven years. It seems that something other than fear of enforcement is driving the increased usage of seatbelts. It may be that societal or subgroup-level attitudes and norms, drive such road safety-oriented behaviour. It is gaining greater understanding of the factors in addition to legislative and enforcement imperatives that will be the primary concern of the current report and further proposed research.

Drink driving

Legislative and enforcement moves to counter drink driving could also be considered to have had mixed results with regards to efficacy although initiatives in these areas have witnessed significant improvements in road safety. The introduction of random breath

testing (RBT) in Australia has been a major weapon in the attack on an on-going problem. The state of Victoria again led the way with this road safety initiative in Australia, introducing legislation in 1976 to enable police to pull over and breath test drivers of motor vehicles without having witnessed any deviant driving or riding behaviour, generally through highly visible, multiple testing operations (see Watson & Freeman, 2007).

In many ways, evaluations have been able to claim RBT as a success in defeating alcohol associated road fatalities. Loxley et al. (2005) point out that "Between 1990 and 1997, 31% of all driver and pedestrian deaths on Australian roads were alcohol-related…but by 1998 this had dropped to 26%" (p. 562). A Watson & Freeman (2007) review cites reductions in fatal crash rates of up to 42% in overall fatal crashes following the introduction of RBT. Indeed, early assessments recommended that highly visible RBTs should be administered at a level equivalent to one test per licence holder per year (Henstridge, Homel, Mackay, 1997). Briscoe (2004) noted reductions in alcohol related road fatalities and serious injuries corresponded with survey findings at the time indicating a high perceived probability of apprehension through RBT if drinking and driving. Briscoe further cited research indicating that RBT appeared to be associated with similar road fatality reductions ten years after introduction.

However, the Watson and Freeman (2007) review twenty years after the introduction of RBT indicates that the efficacy of RBT appeared to fluctuate over time. This apparent fluctuation is potentially due to the deterrent basis of RBT and the difficulty of maintaining a constantly high salience of threat of enforcement or the individual's perceptions fluctuate over time.

Haworth & Johnston (2004) also question the on-going efficacy of RBT over time. They point out that predictions made in 1998 for the year 2010 suggested that by the current year only about 15% of drivers killed would have a BAC above .05%. However, these predictions seem to have missed a significant contributing factor in light of the current day figures of 25% in Victoria for 2009, 35% in SA for 2009, a ten year average of 22.9% in Qld and 18% in urban NSW in 2007 – although 27% in rural areas.

Recidivist drink drivers (Freeman et al., 2006) appear resistant to many of the enforcement measures that have seemed so effective with the broader population. Baum's (2000) research suggests that socially formed and held attitudes may be at the core of drink driving as a problem and may distinguish drink driving offenders from the general community. In particular, he found that drink driving offenders expressed generally more accepting attitudes towards drink driving than did non-offenders. This finding should be considered in conjunction with findings such as that of Cairney and Carseldine (1989) who found that support for RBT was high even amongst drink driving offenders. Brimson and Anderson (2002) also found strong support for RBT in the Canberra community with the strategy being rated the second most effective out of six enforcement techniques after 40km/h school speed zones for achieving the following:

- Increasing road safety;
- Reducing road deaths;
- Improving driver behaviour;
- Being fair and reasonable to drivers.

Another interesting finding reported by Cairney and Carseldine (1989) was that drink driving was increasingly being viewed as socially unacceptable with a hypothetical drink driver decreasingly viewed as "unlucky" to be involved in a motor vehicle crash. This apparent movement of social attitude echoes that reflected in the CAS data in relation to seat belt use reflecting a growing use of seat belts even though there was no apparent additional enforcement motivation to do so.

Cairney and Carseldine (1989) further identified that knowledge, attitudes, beliefs and behaviour with regards to drink-driving differed along sub-group normative lines. They identified five distinct attitudinal clusters. They highlighted that two groups in particular should be targeted through advertising campaigns which needed to have different foci for each group. The first of these groups is referred to as the "Socially Pressured", who are described as those "who accept that alcohol affects crash risk but are nevertheless at risk of drinking and driving" (p. ix). The second primary audience for drink driving advertising and publicity is the "Opposers" group. These people are described as a group "who do not believe that their usual drinking pattern increases crash risk" (p. ix).

Also of interest was the finding that, in relation to the broader community sample, drink driving offenders were over-represented in lower levels of education, lower income levels, and more often in the category "not in paid employment". Interestingly, as noted earlier, Freedman, Champion and Henderson (1971) made a similar observation about those who wore or did not wear seat belts in their study. That is, there appeared to be socio-economic differences in seat belt wearing frequency with frequency of use tending to decrease with movement down the socio-economic scale.

Speed cameras

The enforcement of speed through speed camera technology has been another approach which has been found to be highly effective in Australia. Once again, the state of Victoria was an early adopter of this technology with its first speed cameras operating in 1986 at a small number of sites and a major program launched in 1990 (Bourne & Cooke, 1993; Cameron, Cavallo & Gilbert, 1992). Early evaluations were extremely positive with regard to both speed, collisions, serious injuries and fatalities. From the introduction of the program through to 1992, road fatalities had reduced by 45% in Victoria with an overall monetary saving of over $300million saved due to road traffic collisions and ancillary costs in Victoria alone (Bourne & Cooke, 1993).

The ACT introduced speed cameras in October 1999 in response to research indicating that speed had been a likely significant contributor to the severity of serious motor vehicle crashes in the ACT and that 75% of ACT motorists regularly exceeded the speed limit by 10km/h (Anderson, 2000). Early evaluation indicated a positive response to the newly introduced technology with substantial reductions in speed (see Anderson, 2000 for a review).

The ACT also demonstrated initiative with speed camera technology being the first Australian jurisdiction to employ digital technology in a combined fixed speed and red light camera in early 2001 (Brimson & Anderson, 2002). Early evaluations of the efficacy of the technology provided mixed results with regards to speed reductions and uncertainty with regard to collisions. However, of interest is the community attitudinal survey that was conducted during the early deployment of this program. The authors indicate that a sample

of ACT respondents were positive about the effectiveness of the cameras. Unfortunately, the possibility that these responses were attributable to chance is not accounted for in the reporting of these results hence, it is difficult to draw solid conclusions from these statements. However, media editorial and reports around the time of the initial introduction of speed cameras to the ACT also suggest community support for speed cameras (see Canberra Times 27,10,1999, pg 12; CT 06,08,2000, pg 10; CT 08,08,2000, pg 2).

In spite of the exceptional head way made with the use of speed detection technology throughout Australia and particularly with reference to the ACT, as discussed earlier in this report, speed remains a road use behaviour of great concern with evidence that it is a significant contributor to road crash fatalities. Further, in spite of early research suggesting some community support for the use of speed cameras, as indicated earlier, CAS data of 2009 indicates that the majority of Canberran drivers surveyed viewed speeding fines as revenue raising with a percentage prepared to agree that it is "Okay to speed if driving safely" (Pennay, 2008; Petroulias, 2009). These attitudes appear discordant with the apparent support for speed detection technology claimed in the earlier research and but congruent with behaviour reported by police that ACT drivers do continue to exceed speed limits.

There are few who would claim that legislative requirements alone could change the behaviour of all towards safe road use behaviour. The issues faced in the ACT, as in many other jurisdictions, point to the fact that despite legislation to prohibit practices such as speeding and drink driving, these practices continue and in some instances, behaviour is overtly supported by attitudes. It therefore remains that legislation is unlikely to be a

completely effective measure in all circumstances and a greater understanding of those psychological processes that support safe road use behaviours may assist road safety initiatives.

The relationship between awareness, attitudes and behaviour remains a point of interest in the literature of social psychology some 30 years since Milne's (1979) comments. Nonetheless, research over that time suggests that there is a considerably more complex relationship between such constructs and behaviours than was considered to be the case when Milne was writing. For example, more recent research suggests that other considerations in the attitudinal-behavioural link include consideration that as attitudes are being formed, they are more likely to have a stronger relationship to behaviour if they are readily accessible or easy to recall, if they tend to remain stable over time, if the person has had direct experience with the focus of the attitude and if people tend to report their attitude frequently (see Vaughan & Hogg, 2008 for a review of this literature). It has also been found that moderators can vary the strength of the attitude-behaviour relationship. For instance, certain kinds of attitudes such as those that emphasise self-concept, can be better predictors of behaviour than those that simply maximise rewards and minimise punishments (e.g. Verplanken & Holland, 2002) such as may be the impact of certain legislative measures on road use behaviour.

Certain situational variables such as social norms can also act as moderators to the attitudinal-behavioural relationship and may be powerful predictors of behaviour. As norms can vary between different groups of people, we may find quite different behavioural responses to the same stated attitudes depending on how such attitudes fit with the norms

for a particular group (e.g. Terry, Hogg & White, 2000). So, although it might be the case that behavioural compliance with recommendations to perform certain road safety behaviours may increase when legislation demands, we are yet to learn if that is the best way to target all sectors of the population.

One way to refer to a broadly shared conglomeration of beliefs and attitudes and concomitant behaviours might be summed up as "culture". Currently, little research exists on the culture of road use behaviour as it relates to drivers' attitudes towards their car, the road, ownership, road use and road safety. However, literature that is available on the subject indicates that such culture most likely involves complex social processes of influence by the larger society, interest groups and the individual.

In conclusion we return to the primary question raised in the beginning of this section that examined the degree to which community willingness to engage with road safety programs is essential to achieve safe road use behavioural compliance that might otherwise be achieved through legislative and enforcement action. In short, then, although many positive behaviour road safety changes can and have been achieved through such actions, extending societal uptake of safe road use behaviours might be enhanced through initiatives focussed at the social, cultural and sub-group normative level.

3.6 Summary

This chapter presented a review of the opposition that has been posited to exist or be likely against Vision Zero-type approaches to road safety, such as mobility restriction through speed reduction.

The chapter also looked at outcomes from community consultation in Western Australia prior to the implementation of the Vision Zero-styled road safety approach adopted by that state. Community support for the general strategy was found to be strong, however, perceived efficacy of the interventions was comparatively low. The need for comprehensive evaluations of behavioural responses to such interventions was heightened with some research suggesting that behaviourally focussed strategies may be less effective than other means.

Possible ways of engendering community acceptance to such road safety approaches were also reviewed. In their recommendation actions for the development of community acceptance, Elliot (1992) and Christie (2002) focused strongly on fostering beliefs consistent with road safety in the community.

The imperative of community acceptance of and willingness to engage with road safety initiatives was questioned with an examination of past successful initiatives and such as the compulsory wearing of seat belts introduced in Australia during the 1970s, random breath testing for drink driving and the use of speed detection technology. Legislation and enforcement have been seen to play what is likely a necessary but not sufficient role in moving a society to full adoption of such safe road use practices. Supportive societal or

subgroup norms and attitudes were proposed as the additional factors required to enable successful implementation of such initiatives.

4 CHAPTER 4

ROAD USE CULTURE

This chapter examines the broad concept of the relationship with the car as a societal phenomenon. The chapter further explores the ways in which those with common interests seek and form groups – or avoid forming groups – depending on the meaning their form of travel holds for them. As the car dominates the road, so too will it guide most of the discussion of this chapter. However, the car only dominates and is perceived as dominant on the road because there are other road user groups that are subordinate to the car's road presence. The way car drivers form a view of their car and the way they drive is partly formed relative to the way they view others on the road. The chapter will therefore consider car drivers as one group of road users relative to other road user groups such as motorcycle riders, bicycle riders and pedestrians. Additionally, the chapter will explore the ways in which these larger groups can be examined at the sub-group level as is the case with different motor interest clubs and motorcycle groups that can promote particular expectations for behaviour both on and off the road.

It is evident that individuals do not necessarily sit in only one road user group. Such awareness has led to requests to the ACT Road Users Working Group (RUWG) to avoiding using the terms 'cyclists, motorists, motorcyclists and pedestrians' in RUWG meetings as such group divisions can be divisive. Nevertheless, the current report attempts to reflect the way in which road users come to feel about themselves and others on the roads, and these categories are important ways to investigate different types of road use.

4.1 The Social Meaning of the Car

Discourse on road safety has accompanied the interest in the motor car and has been prevalent since at least the first motor vehicle fatality in 1869, if not since the creation of the motor vehicle by Nicolas Joseph Cugnot in 1769 (Suri & Parr, 2004; Redshaw, 2008). By 1904, the public of Sydney were protesting for regulation of this new and dangerous form of transport (Knott, 1994). As discourse on the motor vehicle has developed, comment and analysis of the interplay between the vehicle and society as a cultural consideration has emerged as critical in discussions of road safety. This analysis has developed to the point wherein literature makes the distinction between *car* culture and *driving* culture. In general, *car* culture refers to the types and uses of vehicles within different subcultures. *Driving* culture refers to "the ways in which cars are meaningful, and the particular driving styles through which relations to cars and to the roads and traffic are expressed" (Redshaw, 2008, p. 13). Although referring to driving culture as distinct to car culture, Redshaw impresses that the car is indeed the dominant form of mobility over and above public transport, cycling, motor cycling or pedestrian traffic and her analysis extends from that assumption. Hence, "driving culture" as a topic of research tends to maintain a focus on mobility through the car and the terms will be employed interchangeably in this report where appropriate.

In "Automotive Emotions" Sheller (2004, p. 225) argues that "the individual psychological investment in the car can be said to arise out of the sensibility of an entire car culture". This is demonstrated by the enormous popularity of the TV show "Top Gear", which is devoted to automobile culture and the existence of over 40 interest groups in the ACT dedicated to cars and motorcycles. Redshaw (2008) has recently published a

comprehensive account of the literature in the area she refers to as driving cultures. From her perspective, numerous complex social and cultural factors need to be considered to capture any real understanding of driving cultures. To understand some of this complexity requires an acceptance that the motor vehicle has been socially prescribed as far more than simply a means of mobility.

Significantly, the motor vehicle is a personal, private habitat that exists and operates in a highly public environment. As such, our relationship with our car is likely to be shaped by the social forces that shape our relationships with those objects that we regard as our private domain. However, the car also has to accommodate the expectations that we hold for living in a public world. In this public world, we are openly encouraged to compete with others to win the prizes of social success. As Redshaw (2008) discusses, the automobile is not immune to the competitive social values of being ahead of others, faster, more powerful, more beautiful, more desirable. Quite the contrary: the vehicle enables higher exposure of the individual to more people than any other personal possession is likely to offer. Not only does it expose the individual to society but it also becomes a means through which the individual can communicate about themself to society and a means to achieve expression of societal values of competition: I am faster; I am more powerful; I am more beautiful; I am more desirable; I am more successful.

Despite the automobile being responsive to societal influence, its availability as a private habitat remains. Private habitats tend to be the places where people seek to retreat from the responsibilities of societal living—the place where they feel free. The automobile as a vehicle to freedom has not been lost on marketers. Television advertisements mention

little about the car being an environment from which one can demonstrate respect for communal rights to use the road; rather, in one's car, one is king. The car is marketed as a mobile, private palace of power (see Redshaw, 2008).

Given the constructed nature of the vehicle as a social expression, other culturally significant dimensions interact with the vehicle to prescribe different meaning for different groups. For example, age and gender are dimensions of cultural and social significance that have been prevalent in driving research. The dominance of these dimensions in this literature is not surprising given the general over-representation of males and particularly young males in road fatality statistics (Australian Government, Jan, 2010).

Cars have been marketed to appeal to a masculine occupation with speed, power and masculine identity. Even car design has been primarily directed towards male tastes. Redshaw (2008) talks about such design factors being "baked" into the technology and construction. For example, car colour and look can meet gendered tastes with cars being constructed or modified to present as "aggressive" and "powerful" for males or "feminine" for females.

Redshaw (2008) points out that the car exemplar as aggressive and powerful is highlighted in the racing car associations given to the passenger vehicle in general marketing. Racetrack or rally driving is generally presented as the authentic driving style which one can strive to emulate with the car that is best designed to handle such conditions. The enthusiast who aims to meet this challenge is portrayed as the serious driver. The commuter, for whom a car is primarily for convenient mobility, is often regarded as having no genuine connection to driving. "Real" driving is viewed as skilful and fast. In an earlier paper, Redshaw (2004)

highlights that racing analogies for passenger cars promote the pursuit of "competitive individualism" through the promotion of cars that are perpetually faster and better. She notes, however, that "the violence of the race and the rally, and their inappropriateness as a model of driving is overlooked" (2004, p. 5). Furthermore, whilst technologically "the race car has moved further and further away from the road car…the alliances are being emphasised more than ever" (p.6).

4.2 The Car as a Private Lounge Room in a Public Space

Butler-Bowdon (1998) asserts that the physical design of the car interior has strengthened the social definition of the car as a private place. In fact, the Ford brochure of 1949 is reputed to have marketed the 49 Ford as "a living room on wheels" (see Urry, 2004). Butler-Bowdon suggests that increased enclosure of the car cabin, with the trappings of a lounge room, such as temperature control and stereo, has produced more than just a level of comfort and the car now offers a capsule of psychological "self-time" that can rarely be found in any other context such as at home or work. Moreover, the restricted space and time afforded in the car amplifies any intrusions into this pleasurable "self-time", perhaps offering some explanation for the increased accounts of "road rage" as the car has evolved into a personal and private territory.

The prospect of the car being regarded as a private territory has been considered in a number of publications (e.g. Diekstra & Kroon, 1997; Marsh & Collett, 1986), but the empirical investigation of this has been limited. One series of studies that examined driver behaviour in shopping centre car parks suggested that drivers wanted to assert protection

over their particular parking place (Ruback & Juieng, 1997). Fraine, Smith and Zinkiewicz (1999) questioned whether such behaviour was indicative of drivers holding a sense of territory for the road-space surrounding their car. Fraine et al. employed the framework of Altman's territoriality theory (Altman, 1975; Brown & Altman, 1981), which is premised on the assumption that to view something as one's *territory* enables the establishment, maintenance and expression of personal identity through that object. This might be achieved through actions such as decorating or modifying the car to meet aesthetic goals as is done with street machines (defined as: "modified, customised or restored street cars that were originally built after 1948 and then changed from original to suit the owners taste" http://www.summernats.com.au/index.php?option=com_content&view=article&id=46. Another function of territorial behaviour is asserted to be the regulation of social interaction through the establishment of social and possibly physical boundaries. For example, formal membership of particular motor interest groups may stipulate certain behavioural expectations. This can be seen at potentially its most extreme in motorcycle "gangs" with strong codes of behavioural expectations of their members. Signals of this type of social regulation are commonly seen in the "markings" adopted by such groups through symbols like the motorcycle gang "colours" or name icon worn on their leather bike jackets.

According to Altman's analysis, there are three different levels of territory being primary, secondary and public. Primary territories are characterised as being of long term duration and being highly central to a person's sense of identity and are generally personalised through efforts such as decorating and using protective barriers to maintain exclusivity. Secondary and public forms of territoriality are decreasingly enduring and central

to identity formation and maintenance to the point that public territory is considered to be in no way psychologically central.

Although Fraine et al. (1999) postulated the relevance of Altman's (1975; Brown & Altman, 1981) theoretical framework as relevant to cars, this idea was empirically explored by Fraine, Smith, Zinkiewicz, Chapman, and Sheehan (2007). They investigated drivers' relationships with their cars as a function of the driver's age, trip purpose, car ownership categorization (drivers of work vehicles and a group over the age of 25 who did not regularly transport children). From their findings, the authors concluded that there is wide variation in the ways in which different drivers view their relationships with their cars. Additionally, there is variation within individual drivers regarding their perceptions of their car as territory. That is, although they may ascribe territorial connections to their cars in some ways, in other ways, they do not. For instance, they found that people often referred to their cars in ways which inferred a high degree of psychological centrality, describing their car as a "safe haven", for example. However, the car did not emerge to be important in the regulation of social interaction with no indication of markings to distinguish territorial boundaries and therefore seems discordant with Altman's theory.

It is, therefore, not the case that the dimensions of territoriality theory can be applied to all drivers in all circumstances. However, although they did not find alignment with Altman's theory (1975; Brown & Altman, 1981), Fraine et al. (2007) did not fully rule out the possibility that car owners and drivers may have some type of territorial regard for their vehicles and the road around them which may be considered within a an alternative framework. As such, this area remains open for future research.

Bull (2000, 2004), has considered a highly specific element of the vehicle to focus on regarding the construction of the car as private space. By focusing on the effect of a sound system, and hence music provision to the driver, Bull highlights that the physical environment of the vehicle fosters a driving *experience*—so much so that, as Miller (2001) points out, the intensity of the music experience in the car can enable the car to become more of a "home space" than the actual house can be (p. 27).

4.3 The Car and Driving Behaviour as Social Outcomes

Significantly, Redshaw (2008) alludes to the attraction of the motor vehicle as a means to "get ahead of the rest" both literally and in social status. In this context, the car is again a response to and reflection of broader social norms and pressures. Rothe (1994) expressed similar observations regarding the motor vehicle as an expression of the pace of life at the societal level. Rothe notes that speed is relative. In examining early motor vehicle speed legislation in Great Britain, he observed that speed limits were set with consideration for the speed with which other elements of life operated. For example, in 1861, horseless carriage speed was limited to two miles per hour (approx 3.2 km/h) within towns. Such speeds in the society of the 2000's would seem highly discordant with the speeds of all other elements of an advanced technological society.

In addressing speed issues, Rothe (1994) contends that "speed or speeding is not necessarily a pathological condition on the part of the drivers … Drivers have learned to speed as a normal social behaviour despite the threat of sanctions being held over them" (p. 145). He suggests that a way to approach the issue is to gain an understanding of why

people speed and to consider "how their reasons reflect the social ethos of the times" (p.145).

Speed to progress in life is also a theme emerging as Rothe (1994) discusses the pursuit of freedom via the car. Although freedom seems to be a pervasive construct for marketers of the motor vehicle (both dual track such as cars and trucks, and single track such as motorcycles and bicycles) to all demographics, for young drivers the attraction to the freedom of the car is amplified. Acquisition of a drivers' license generally marks a social transition to adulthood in Australian society. To have one's license not only marks a milestone in development but, coupled with access to a vehicle, enables freedom from the constraints of childhood and parents. The mobility entitled through legal use of a vehicle allows freedom to more readily engage in other markers of adult life such as dating, socialising and accessing certain types of employment.

Rothe's (1994) social framework for consideration of motor vehicle speed and freedom also extends to his broader social views on traffic safety. From Rothe's perspective, traffic safety is a social process. He challenges that to examine traffic accidents as the outcome of individual choice for risk-taking behaviour is to presume the individual chooses to deviate from the social norm rather than enacting behaviour that follows what is perceived to be a social norm. He further argues that traffic safety approaches need to account for "knowledge, standards, beliefs, and codes of conduct that drivers use as blueprints" (p.6). He suggests that to reduce motorists' behaviour of study to single aspects and isolated social factors negates the quality of road safety research and commentary. Rothe suggests that research could be enhanced by addressing the central question as to

how it is that road users often seem to operate according to social norms that are in stark contrast to those that guide traffic safety agents and researchers.

In an effort to address this question, Rothe (1994) proposes that the road user engages with three forms of responsibility in their use of the road. These forms include social responsibility, legal responsibility and personal responsibility. Although he discusses all three concepts to some extent, it is through the notion of personal responsibility as a road user that Rothe introduces varying types of "intention" to clarify road use behaviour. He proposes that although intention does not negate legal responsibility, it does clarify circumstances that underlay road user actions. He contends that there are four different levels of intentionality. The term "actual intention" refers to behaviour that is consciously chosen with a reason for so doing. For example, deciding to drink to excess before driving with the full intention of driving over the legal limit is to have an actual intention.

Virtual intention is an intention to behave towards a specific goal even though other actions may be performed and take attention off the primary goal. Rothe gives an example of virtual intention as performing a series of acts such as tuning the car radio whilst enroute to a destination. With virtual intention, the mind is not fully attending to the primary goal of reaching one's destination all of the time.

Habitual intention is, as suggested, behaviour performed through habit. It is to negate the impact of habitual intention that a sign alerts drivers when the sequence of traffic lights changes so as they are less likely to proceed in a sequence to which they have been habituated in the past.

The final intention described by Rothe is termed “interpretive intention”. Interpretive intention will be engaged when one alters one’s intended behaviour to suit the context and deliver the original intended outcome. For example, if delayed unexpectedly by road works enroute to an appointment, a driver might then choose to drive in a manner that they had not initially intended, such as speeding, to make their appointment.

Similarly, Rothe also discusses factors that may modify the legal responsibility of the driver and introduces the potential modifiers of ignorance, passion, fear, health and habit. With all of his considerations of the responsibility borne by the road user, Rothe is adamant that acknowledging social constraints on responsibility does not negate the responsibility; rather, it offers a way of understanding road user actions.

Rothe’s conclusion in his monograph, *Beyond Traffic Safety*, argues for a move beyond victim-blaming in traffic safety considerations to an understanding of traffic accidents as “complex social phenomena” wherein all of those within the traffic system are viewed as inputs that can affect traffic outcomes.

4.4 Symbolic, Affective and Instrumental Motives of Vehicle Use

Another way of understanding road user actions is offered by Ditmar (1992) and Steg (2005) whose research highlights the importance of social considerations in driving behaviour. They discuss three primary categories of vehicle use motives distinguished in the literature. Instrumental motives are those motives related to convenience and functionality of a vehicle which are related to considerations such as speed, flexibility and safety. Symbolic or social motives refer to the ways in which people can express themselves and

their social position or social identity by means of the use of their car. Affective motives refer to the emotions that are evoked or expressed through the use of a vehicle.

Accessing perspectives on symbolic and affective relations with cars could be particularly useful for predicting future car use of a community through the likelihood of taking public transport rather than a private vehicle. According to Stradling, Meadows and Beatty (1999) those who express strong affective value for their car and the benefits of driving are less likely to intend to reduce their car use. Importantly for those programs aiming to reduce motor vehicle usage, Nilsson and Küller (2000) found that those who are emotionally attached to their car not only use their car more frequently but are less accepting of policies aimed at a car use reduction. Not surprisingly, those people who report that driving enhances their quality of life are more likely to possess and drive a car (Sandqvist & Kristroöm, 2001).

It is interesting that Steg (2005) found that the level of car use was not related to the evaluation of the instrumental aspects of car use. This was even the case for commuter travellers who made their decision to travel to work by car more as a function of symbolic and affective motives rather than the functionality of the car. So, even for a purpose that might be presumed to be essentially instrumental, such as getting to and from work, it was found that the way people felt about the car and related the car to their expression of identity was a greater determinant of whether they would commute by car instead of other transport, more so than, for instance, getting to work on time in a convenient manner.

Steg's (2005) research also found that individual differences were experienced more within the symbolic or affective motives than was the case for instrumental motives. These

differences were examined within demographic groupings with the findings that affective motivations were more important to younger participants than they were for older. Likewise, affective motivations were more valued by those from low income levels over those of higher income levels. Males valued the symbolic functions of the car more than did women. Also, it was found that the greater the distance travelled in a year, the more valued was the car on the symbolic dimension of motivation.

In contrast to differences on the symbolic and affective motivations for car use, from Steg's research it appears that there is general agreement between car drivers as to the instrumental motives for using cars, such as speed to reach destinations, flexibility over time and route, and general convenience. People seem to express similar levels of desire for the flexibility and convenience that driving a car affords. It appears that there is much wider variation in the way they *feel* about their car than the way they think about the usefulness of their car.

One important implication of Steg's (2005) findings is that any policy relating to road vehicle use would be advised to account for the reality that people use their vehicles for more than instrumental reasons. She clarified this position clearly with the statement, "People do not only drive their car because it is necessary to do so, but also because they love driving" (p. 160).

4.5 Driving Culture and Urban Design

Another broad social element that may help to clarify road user behaviour is the physical environment. Engwicht (2005) argues that urban design that removes the visibility

of social interaction or the play of children from the road, removes valuable incentives to keep neighbourhood speeds and traffic density lower. Moreover, the community ties that are fostered through visible and accessible interaction of community members, such as neighbours chatting and children playing by the road sides, may be pivotal to engendering a caring regard for those around us who may also be using the road.

Engwicht (2005) cites a 34% reduction in car use and reduced speeds in one street in Brisbane in 1996. Although Henry Street had been earmarked as the target for a traffic reduction intervention, the cited reductions were noticed prior to any formal interventions taking place. Community feedback suggests that the triggering factor was heightened community interaction and reduced anonymity through a pre-intervention street party. According to Engwicht, "a short time after the street party" Henry Street residents reported to him that there had been positive changes in the traffic (p. 10). Following the party, neighbours who now knew each other chatted on the street and children played on the footpaths. The traffic moving around them did so at a slower pace to that at which it had previously travelled, and there was less of it.

Engwicht (2005) suggests a number of factors may have contributed to the traffic outcome of the street party. Firstly, he argues that where people are visible on the street traffic slows to account for the unpredictable nature of children playing or simply to understand and share the experience that one might expect to be happening when one sees a group of people in a social gathering on the road side. He further offers that this slower traffic engenders a sense of increased safety from the residents who are then more likely to

let their children out to play or to walk to the shop or school, thereby reducing use of the car among residents.

Research in the domain of social psychology also offers frameworks for a possible explanation of the Henry Street phenomenon. Some research suggests that there may be many positive psychological and behavioural outcomes when people feel that they belong to a positive group or community in a way that could have positive implications for traffic safety. By heightening the visibility and hence awareness of those in the community through the initial Henry Street party, a sense of "my community" may have been engendered for those involved. In particular, research suggests that feeling like one is a part of a positive community is likely to engender behaviour that will protect and enhance the positives of that community. For example, people are likely to follow instructions more accurately in order to achieve something that will lead to a positive outcome for their group rather than a negative (Wright, 2008). Some research suggests that people are even prepared to sacrifice self-benefit for the benefit of their group (e.g. see Hogg, 2001). It may therefore be the case that drivers or road users may be prepared to give up some of the freedom to do the speeds they wish or even reduce their travel by car, if they see that the community, to which they feel a sense of belonging, will benefit.

4.6 Driving Culture as a Shared Experience

There are collective means by which a culture of driving is shared and promoted. The influence of other people in our groups, communities or society has featured prominently in the research on road use behaviour. Zaidel (1992) argues that it is the social processes

around us and that we are a part of that are a fundamental determinant of our driving practices; “Each driver is influenced by the collective behaviour of other drivers. At the same time each driver is also part of this collective, and thus influences others” (p. 585). It is not only other drivers who influence driving behaviour. Many road safety programmes aiming to encourage positive road use behaviour have leveraged off the influence of significant others. For example, graduated licensing systems can employ the influence of family members, usually parents, as positive models of driving behaviour to influence positive driving behaviour in novice drivers. Likewise, school-based curriculum programs such as Skills for Preventing Injury in Youth (SPIY) may be effective in reducing road use risk-taking behaviour partly because adolescents actively seek to protect their friends (Buckley & Sheehan, 2008). Research such as that conducted by Buckley and Sheehan is indicative of a line of inquiry into social influence in road user behaviour that is becoming more prevalent in the literature.

Sheller’s (2004) analysis of driving behaviour carries a similar emphasis on the importance of understanding the influence of others. She warns against an approach to the understanding of driving behaviour that attempts to reduce the causal agent down to the independent individual. She observes that although marketing has long recognised the value of emotion to sell a car; emotion that is readily seen in enthusiast car subcultures, this value of emotion has not been well explored in the literature. She argues that the movement provided by mobility, whether it be via an automobile, a bicycle, a bus or train, or even as a pedestrian, sponsors emotion. She posits that the meaning and ethics ascribed to car use generate “rules” that prescribe appropriate feelings towards and those elicited from car use. These feelings relate to all of those needs and motivations met through the car such as

identity clarification and display, familial relationships and sociability, which she argues can easily override any ethical conflicts about driving. Sheller's emphasis on the seduction of the emotion associated with cars is summed up in the statement:

> *Cars will not easily be given up just (!) because they are dangerous to health and life, environmentally destructive, based on unsustainable energy consumption, and damaging to public life and civic space. Too many people find them too comfortable, enjoyable, exciting, even enthralling.* (p. 236).

Of potential significance is Sheller's (2004) hypothesis that the emotions that are experienced by those sharing a love of the car or the joy of driving may also be involved in "feelings of hatred for traffic, rage at other drivers, boredom with the same route or anger at government transport policies" (p.224). Unfortunately, Sheller does not expand on how this could be so, however, this idea poses an interesting direction for future research in the psychological realm.

Edensor (2004) also suggests that emotion could be a fundamental element of distinctive road use cultures, and that there are particular national driving cultures within which collective emotions emerge from and contribute to. He gives the example of driving in India—an experience that entails considerable noise, smell and constant intrusion from others. Edensor claims that such a road use environment delivers distinct affective states compared with what driving in a westernised environment might elicit.

It is the feelings of those driving the car, or using the road, that Zaidel (1992) argues are the essence of road use culture. Zaidel (1992) points out that regardless of the views of "experts" or what researchers measure objectively on roads, the culture of driving is the

more general or "world view" that road users hold of the traffic system. He defines driving culture as the:

> *understanding and evaluation of the different components of the system and how they interact. It is the lay person's theory … of "how things work". This view is derived from direct experience, from inferences while observing others, from instructions, from the media, and from talking to other people and accepting their ideas. This view is changing and evolving over time, just as situational environmental factors keep changing* (p.595).

Zaidel (1992) cites the observation of Furnham (1998) that lay beliefs have behavioural consequences beyond the view and actions of an individual. The example of the market force is cited wherein, regardless of the view held by the experts, when consumers collectively express either their confidence or the lack thereof, there are economic ramifications. Zaidel's comments highlight that to get a true understanding of the culture of road use, it is, in fact, the road users that hold the information. Additionally, it is suggested that there is less likely to be cultural differences based on personality type per se but rather, differences found as a function of "situational environmental factors".

Zaidel (1992) further asserts that it is the road user's view of the traffic system and appropriate behaviour that guides his / her behaviour. It is important to recognise that this view is formed, in part, from what the road user thinks that other people think and do. Therefore, accessing information on what they think that others think could be useful information. This proposition is empirically supported by Ulleberg and Rundmo (2003) who found that attitudes towards risky driving could be an important predictor of driving

behaviour. More recent research, however, has posited that particularly for novice drivers, attitudes expressed in one context, such as in the absence of peer pressure, may not be a sound predictor of behaviour under a different social context, such as in the presence of peers (Ivers et al., 2009). Nonetheless, these findings reinforce the point made by Zaidel (1992) that situational factors that vary the way we feel about elements of the road use system can affect our behavioural responses to that system.

To return to Steg's (2005) observations, it is the affective response to the car and the experience of driving that determines the level of car and road use for many. She claimed that people drive not only for the instrumental rewards but because they "love" driving. But as Zaidel's (1992) work highlights, there can be variation in the way people feel about all parts of the road use system. The "love" of driving can be experienced and expressed differently. Such differences can be seen in the abundance of subcultures that exist with the car or motorbike as the central focus, but the same processes that enable such differences within and between car and motorcycle riders also enable distinctions for cyclists within cyclists and likely for pedestrians within pedestrians.

4.7 Road Use Subcultures

4.7.1 Car Subcultures

In the same way that emotion and social influence can contribute to the creation of distinct road use cultures on a broad national scale, the existence of various car-oriented groups and subcultures suggests that different and smaller road use cultures can exist within broader cultures. Much of the literature around road use subcultures incorporates an

analysis of the way in which the car, or other mode of transport, can have meaning to the individual which is expressed in groups of like-minded others. Maxwell (2001) argues that the construction of meaning around car use serves to reduce guilt and anxiety in relation to the increasing levels of car use and ownership and the associated negative social and environmental impacts. O'Dell (2001) suggests that a car can assume positive meaning for one segment of society when it is rejected as negative by another. For example, O'Dell illustrates how the rejection of the large and embellished American car by the upper classes in Sweden positioned it to become the vehicle of choice for young working class Swedish men who sought ways to express a counter-culture identity and could do so through the relatively affordable car.

Garvey's (2001) sociological commentary suggests that the domestic utility of the car can also lead it to have particular meaning to different social groups. In particular, Garvey highlights the different relationships expressed towards the car by males and females. For those societies where the males typically care for the car whilst women care for the home, for women the car can represent the escape from the mundane. For men, the car may facilitate a connection to and pursuit of modernity through access to speed and display.

Relatively recent sociological discussion has challenged the consideration of car use in terms of subcultures. Rather, it is argued that the car has been articulated as a product of social consumption. According to Carrabine and Longhurst (2002), consumption is not based on the acquisition of a commodity to fulfil a utilitarian function. Rather, consumption is based on desire for "difference" and "social meaning" (p. 187). This analysis again suggests an alignment with the symbolic and affective motives of vehicle use proposed by Ditmar

(1992) and Steg (2005) as discussed earlier. Importantly, although a distinction from subculture analysis is argued for, the consumer approach to the car highlights the social influence around car ownership and use, and emphasises its meaning beyond mere functionality.

Within the ACT, there are currently 31 car / auto clubs listed on the "Canberra City Life" web site suggesting that the distinctions between different road users is important to many with auto interests in the city. Given the possibility that the road and means of mobility can have meaning that is enacted through road use behaviour, the efficacy of road safety initiatives may need to account for the ways that such meaning and behaviour is expressed by different subcultures and sub-groups in the community. Furthermore, research findings suggest that there are lines of subcultural or group division in the ACT between road user groups based on their means of transport. For instance, according to a recent report commissioned by insurance agency, AAMI (media release 04/02/2010), there is greater discord between cyclists and car drivers in the ACT than exists anywhere else in Australia.

4.7.2 Motorcycle Subcultures

Distinctions in vehicle user groups are also evident among motorcycle riders with identification of motorcycle subcultures long evident in the literature. Interestingly, consideration of consumer forces has also been a feature in this genre of writing. However, unlike Carrabine and Longhurst (2002), Schouten and McAlexander (1995) argued that motorcycle subcultures could be identified within a culture of consumerism in their paper entitled "Subcultures of Consumption". These authors caution against the use of simple demographics to identify meaningful subcultures and suggest that consumer culture enables

the purchase of items such that people can construct meaningful categories to which they want to belong. Literature in this ilk contrasts with earlier writings on motorcycle subculture which focused on the motorcycle lifestyle as a counter-culture movement often with outlaw connotations (e.g. Montgomery, 1977). Ironically, the identification of such groups as subgroups of consumer culture (e.g. Schouten & McAlexander, 1995) potentially nullifies some of the counter-culture ideologies that were identified in earlier literature.

More recent research on motorcycle subculture has documented the transition of these groupings from what was traditionally geographically and demographically aligned membership to predominantly identity and values based group membership. The longitudinal research conducted by Austin and Gagne (2008) highlights the finding that geographically dispersed subgroups can experience strong group cohesion through their sense of shared values and identity. Additionally, the researchers argue that these positive (psychological) outcomes can be achieved even through a recreational subculture. This research potentially strengthens the argument of Schouten and McAlexander (1995) that subcultures can be identified beyond the boundaries of demographics.

A recent unpublished report on Australian motorcycle riders suggests that at least six distinct groups or "tribes" of motorcycle riders exist in this country, with different tribes having different approaches to road safety (InsureMyRide, media release, Oct., 2009). The commissioned report suggests that the majority of riders are safety conscious. Of the six groups, only those categorized as "performance riders" were identified as having a propensity for taking more risks on the road than those who belong to the other tribes. The research report suggests this group is distinguished by its youth and confidence, which is

unfortunately accompanied by less experience than some of the other identified tribes. Other tribes identified include the “Specialists” who are distinguished by their high level of experience; the “Sport” tribe of riding purists who tend to prefer competing in a controlled environment; the “Lifestyle” riders are described as “classic enthusiasts who choose to ride a bike over driving”; the “Commuter” tribe seek the practicality of financial savings through motorbike riding compared to car driving; and finally, the “Drifter” tribe members who may not own a bike and remain noncommittal to bike riding.

Unfortunately, the validity of the measures used and tribes identified in the report is difficult to establish, as the completed report remains inaccessible to the public. Importantly, however, the report on motorcycle tribes suggests a link between the ways in which a vehicle can have meaning to its owner/operator and the way in which they engage with that vehicle in terms of road safety. A similar analysis was offered for car use by Redshaw (2008), who argued that the adoption of the car for identity enhancement has consequences for driver behaviour; an approach she applied to her analysis of the driving of young males in particular.

4.7.3 Bicycle Subcultures

Literature on cultures surrounding the use of bicycles is limited relative to that on cultures related to cars and motorcycles. Nonetheless, a variety of topics are covered in the literature on this mode of mobility and some of the associated social and cultural considerations.

Discussion on bicycle culture can examine the culture as a homogenous entity which is compared to non-bicycle culture (e.g. Dahl, 2005). In this style, the technological

development of the bicycle has been discussed as a precursor to the motorcar with social and cultural implications (e.g. Mom, 2004; Rosen, 2002). For instance, the advent of the bicycle made the travel of distances by human power, as distinct to horse power, more accessible and consequently reduced a myriad of social boundaries, hence distinguishing a bicycle culture as one distinct to the existing or non-bicycle culture. As a step in the progression of "human powered" mobility, the development of the bicycle sponsored technological refinement towards the development of the car. Rosen draws attention to the paradox that while the bicycle enabled transportation and aided the development of the car over a century ago, recently it is once again being regarded as a transportation option to resolve some of the predicaments that mass car use brought with it. Further, to ride a bicycle seems to be gaining momentum as an expression and tool of a counter-culture movement for environmental protection.

Another way in which the bicycle has been viewed as a precursor to the car was offered by Walker, Butland and Connell (2000). From their interviews with young men they suggest that many of the cultural components of car culture such as "competitiveness, freedom, mateship, display, technical skill and agility, speed and performance – are present in peer group bicycle culture" (p. 161). They also found that an interest in bicycles in childhood can be "a fantasy substituting for the "real" toy, the car or motorcycle" (p.161).

On its evolutionary path, the bicycle has been the outcome and genesis of various subcultures. For instance, the innovation and development of the bicycle has been linked to artisan cultures who engaged with the creative ideals of travel under human power. "Consumer cultures" have emerged around innumerable motives for cycling use such as for

racing sports of numerous categories (Mom, 2004; Rosen, 2002). Leisure cycling was embraced by those of the upper classes of the 1860's as an elegant form of leisure transportation (Rosen, 2002). In a similar fashion to the discourse associated with car culture, there is also commentary on the cultures associated with production of bicycles (Mom, 2004; Rosen, 2002). Rosen (2002) has dedicated an entire book to the consideration of the politics and challenges of bicycle production and the accompanying "competitive business culture" (p. 32) associated with bicycles.

A point about the culture or cultures associated with the bicycle is that in the same way that car cultures shape and are shaped by what is meaningful, so too it is for people's relationship with the bicycle. Rosen (2002) brings this sentiment to the fore with the opening sentence of his monograph stating "Bicycles have many meanings" (p.1). Pacey (1999) reflected similar thinking with an analysis of the different uses of the bicycle being defined by those activities or purposes that have meaning for the rider. In the same way that variations within "the" car culture exist as a function of different meanings for individuals, Williams (1989) identifies that with these different expressions of meaning, varied relations can be experienced by the members of different cycling groups. In particular, he looked at the power relations that exist between groups that occupy different social strata in bicycle road racing. An interesting observation emerging from Williams' study was that there can be conflict between groups based on ideological differences such as the supremacy of individualism contrasted with the supremacy of collectivism.

The meaning of bicycle use has been indirectly examined in one unpublished study that was submitted to a Committee on Bicycle Transportation in Davis, California. Presented

at the 2008 Annual Meeting of the Transportation Research Board, Xing, Handy and Buehler considered factors associated with bicycle use and ownership in order to target campaigns designed to encourage increased bicycle use (Xing, Handy & Bueler, find year). The research of Xing et al. echoed similarities to the findings of Steg (2005) discussed earlier, who found that symbolic and affective factors played a greater role in prediction of car use than did instrumental motives. For Xing et al's examination of factors associated with bicycle ownership and use, it was found that social environmental and attitudinal factors played a greater role in determining the use of the bicycle than did physical environmental factors. Individual attitudinal factors included things such as an expressed "like" of riding and also a desire to limit car use. The social environmental factor found to be associated with bicycling was the perception that "most bicyclists look like they are too poor to own a car" (p. 11). This perception was negatively correlated with use of a bicycle. Interestingly, although perception of bicycling infrastructure was not found to be related to bicycle use, there was an indirect role for infrastructure in so far as it impacted on perceived level of safety of bicycling.

The functionality of a generic "bicycle culture" is occasionally discussed in policy advice-type reports that examine the bicycle as a functional alternative to the car via policy and infrastructure alterations (e.g. Buehler & Handy, 2008; Martens, 2004; Oja & Vuori, 1999). One such document looks at 50 years of bicycle policy in the city of Davis, California, which has featured bicycle use as a design basic throughout its city planning history. The authors rejected the possibility that the dominance of bicycling in Davis was due to its "ideal geography" (p. 13) and the city's function as a university town. Rather, they attributed the

success of the bicycle to "a strong advocacy coalition, clear identification of problems facing bicyclists, nourishment of political will, and development of policy solutions" (p.13). Although not directly addressing the issue of meaning and subcultures, the acknowledgement of collaborative lobbying for bicycle use is suggestive of certain groups of people who share views on the value of the bicycle and the form of travel it enables. Additionally, through omission, this statement indicates that there were those who needed to be lobbied; those who held a different regard for the bicycle than those doing the lobbying. There are those for whom the bicycle had different meaning.

Recent research in Canberra supports the assertion that the bicycle can mean different things to different people. A 2010 survey commissioned by insurance agency, AAMI, indicated that 69% of ACT residents surveyed view cyclists as a road hazard. The AAMI survey interprets the national and ACT data to indicate that "motorists tend to see cyclists as a nuisance and are not always willing to share the road" (AAMI media release, 4/02/2010). However, those riding or wishing to ride bicycles as commuters also see cars and other road users as an impediment to their use of the road with 81% of those surveyed indicating that ACT roads are not safe for cyclists.

The experience of ACT road users in relation to bicycles and other modes of road use highlight the potential for not only different groups to co-exist, but for such group divisions to experience a degree of tension. These road user groups have different views of the road environment depending on the position they occupy at any point in time. Not all "drivers" are drivers all of the time and not all "cyclists" are cyclists all of the time. Nonetheless, the evidence suggests that group divisions exist with each group holding expectations as to how

the other should behave on the road. However, the AAMI also believes that exposure to different road user needs can bring a change of culture to one wherein sharing of the road is expected by all and commonplace. According to Yves Noldus of AAMI:

> *Our findings suggest that the increasingly common sight of bike commuters is gently forcing drivers into accepting the merits of sharing the road safely. The experience in other countries tells us that once a significant number of bikes appear in traffic, motorists adjust their behaviour and learn to anticipate how riders use the road. That will ultimately help reduce the number of accidents between cars and bikes and encourage safer driving overall.* (AAMI Media release, 4/02/2010).

Unfortunately, from the limited information available to the public via the AAMI media release, it is unclear on what basis Mr Noldus can claim that the "sight of bike commuters is gently forcing drivers into accepting the merits of sharing the road safely". Rather, the finding that 69% view cyclists as a road hazard suggests that acceptance is some way off. It would appear that a genuinely inclusive culture that upholds the right to safe use of the road by all will only be possible when all are viewed as legitimate road users, albeit with different interests.

4.7.4 Pedestrian Subcultures

The limited literature on pedestrian travel suggests that the pedestrians may seek similar meaning enhancement and experience similar group-level and subcultural differences to those seen in auto and bicycle travel. For instance, Demerath and Levinger (2003) consider pedestrian travel in terms of its contribution to community interaction and

consequent enhancement of the community on a range of dimensions. They suggest that pedestrian travel offers a unique opportunity for community interaction and hence for developing "shared meanings" (p. 218) with others. They further argue that these "meaning making" (p. 218) interactions empower those involved "when they increase …awareness of shared interests and potential resources" (p. 219) and hence add to the health and general well-being of the community.

The meaning-based analysis offered by Demerath and Levinger (2003) starts with highlighting the different approaches to urban design to accommodate the pedestrian. Planning that gives supremacy to the motor vehicle, excluding or reducing pedestrian traffic, is viewed not only as an approach which reduces beneficial interaction, but also one that imposes group distinctions between pedestrian and motor vehicle drivers. The pedestrian is forced into a subordinate position relative to those with powered transport. They argue that where pedestrian mobility increases and consequently increases social interaction, so too does social mobility among "diverse groups and economic strata" (p. 221).

One social group distinction that has been the focus of more intense pedestrian-oriented literature is the distinction along the lines of gender. The Women's Issues in Transportation Conference (2004) was convened with one of the primary objectives aiming to increase understanding of the ways in which women experience transportation and travel, including pedestrian travel, in a way distinct from men. In particular, the objectives sought discussion on the ways in which the travel of women is influenced by their perceptions of safety and security. In her keynote address at the conference, Rosenbloom argued that even though women's and men's travel patterns have shown some convergence as lifestyle roles

have altered, distinctions remain. At the same conference, Handy examined the implications for women's travel as a function of community design indicating that design can particularly affect whether women feel safe to walk to and from public transport or walk directly to a destination.

Oxley (2005) of Monash University Accident Research Centre also discusses the fact that design of road use environments can lead to distinctions of user groups along the lines of gender and also of age. She argues that road design standards in Australasia are "based on the performance capabilities of young, fit males and rarely take into account the variability in the abilities of the range of different road users" (p. 3). Hence, while Oxley includes pedestrians and cyclists in the group of "vulnerable road users", she breaks this category into sub-categories of those who are more or less vulnerable. Oxley makes the point that for a safe road use system to be truly safe, the capabilities of all road users, particularly the most vulnerable, need to be accommodated.

Also commenting on urban design, Giusti (2005) considered the attitude and experience of the "city walker". This analysis distinguished the city walker as a unique category of pedestrian, particularly in comparison to the small town or country walker. From his perspective, the country walker has the opportunity for an emotional connection to the environment which is lost to the city walker due to the intensity of stimulation in the urban environment. Although an essentially descriptive account, Giusti recognises that the metropolitan walker "naturally takes on a thousand individual modifications" (p. 7). Although these individual modifications receive no elaboration in Giusti's text, the message is

delivered that there are different collections of pedestrians who have different needs and view the experience of walking in different ways.

4.8 Summary

This chapter commenced with an examination of some of the broad social processes that influence road use behaviour. In particular, the car has come to dominate not only the road environment but has also taken on significant meaning as a central object in the modern society and the lives of individuals. Of significance is the way in which the car is manufactured and marketed as a means to achieve valued markers of success, independence, freedom, privacy and masculinity. Certain ways of driving are likewise portrayed and perceived as essential for achievement of these socially defined ideals. Importantly, the social meanings of the car have been demonstrated as significantly more important determinants of car use behaviour than the instrumental or simple functions of the car. Viewing road safety through this social context, it too can be viewed as a social process.

The chapter also highlighted that shared views of the vehicle and its centrality to lifestyle has engendered the existence of a myriad of different groups of road users with different views of the road and of their mode of transport. Road use has different meanings to different people depending on where they sit within the system at any point in time. As such, the culture of driving and car use, motor cycle use, bicycle use and pedestrian mobility, is an ongoing social process. It is also a reflexive process in that the individual creates and is created by the broader norms to which road users refer to guide their driving behaviour.

5 CHAPTER 5

GROUP BASED EXPLANATIONS OF ROAD USE BEHAVIOUR

This chapter reviews literature that examines the very broad context of "driving/road use culture" through investigation of the ways in which the larger social approach to the car and driving is picked up in different ways by different people. This is undertaken with particular reference to demographic groupings and the ways that one's relationship with the car and road use behaviour can vary as a function of being male or female, younger or older, or living particular lifestyles.

5.1 Lifestyle

One broad factor that can encapsulate the significance of how social context influences different behaviour in different groups of people is "lifestyle". This is a complex factor to define and is treated in different ways across disciplines. In epidemiological research, lifestyle is often considered in terms of discreet health-related behaviour such as smoking, drinking of alcohol, diet and exercise (see Chliaoutakis, Koukouli, Lajunen, & Tzamalouka, 2005). In the sociological literature, lifestyle is treated as a broader factor comprising conglomerations of patterns of behaviour. For example, Backett and Davison (1995) considered lifestyle as incorporating attitudes, activities, beliefs, values and various behaviour. From an economic perspective, lifestyle may be viewed as socio-economic status (Weber, 1978). In relation to driving practices, Chliaoutakis et al. (2005) argue that socio-economic status is too limiting a definition, failing to account for numerous other factors

such as age, gender, and ethnicity. Nonetheless, as O'Dell (2001) has noted, in societies that prize upward social mobility, the car can be an accessible and highly mobile demonstration of one's social position in society. In a statement that supports this position, Sawyer (1999) points out that for many "a car is the only one of your dreams you're likely to see come true…" (p. 26).

Beirness and Simpson (Beirness & Simpson, 1988, 1991; Simpson & Beirness, 1992) proposed that certain risky lifestyle factors could predict vehicle crash involvement up to three years before crash involvement. In particular, they found that the best predictors of crash involvement were: age; gender; frequency of alcohol consumption; maximum quantity of alcohol consumed; life trouble due to excessive alcohol consumption; experience seeking; less than eight hours sleep per night; and general attitudes towards alcohol. Begg, Langley and Williams (1999) extended this research in application to crash severity, distinguishing between injury and non-injury and serious injury crashes over a period from age 18 years to age 21 years. Importantly, results suggested that there may be different lifestyle predictors for injury crashes than there are for non-injury crashes. This was particularly the case for young males who showed an increased crash risk where they had low involvement with their family, had a motorcycle licence, a low level of restraint on their behaviour and previous crash experience. Chliaoutakis, Daviri and Demakakos (1999) found that religion also seems to offer a different lifestyle framework that may protect some from crash risk. They found that for those whose salient lifestyle feature was "religiousness", there was a significantly lower risk of a car crash.

In their sociological account of young men and their relationship to automobiles, Walker, Butland and Connell (2000) argue that socio-economic positioning is a critical context in the uptake of the car as a central lifestyle feature for many young men. Particularly in an area of high youth unemployment with lower levels of education, they offer that "the practices of road use allowed the building of a masculine identity, and thus a sense of dignity and self-worth, in a context where the culturally approved source of masculine identity – holding down a job and being a breadwinner – is no longer generally available" (p. 159). The authors also highlight that for many, acclaim at school for academic success was also inaccessible. As a consequence, these young men seemed to use the car and the road to seek status and a sense of pride. They found that the young men they interviewed perceived the road to be a place where all are equal and thus they can have a chance to demonstrate their prowess from a level position. For some, this level position appears to be a position of higher social status than where they have come from. For instance, one young man considered the ability to acquire a car as a "move up onto something upper class" (p. 161).

5.2 Lifestyle and Life Stage/Age

The majority of work on the contribution of lifestyle factors to driving has been done in relation to young drivers (see Møller, 2004). Møller's focus group research aimed to increase understanding as to why and how the lifestyle and traffic behaviour of the young driver are related. The findings from this explorative work suggest that the way in which young people's lives are organised could impact on their driving behaviour. In particular, it was found that those young people who drove without planned intent, who had few hobbies

and for whom the meeting of friends was the central goal of their driving, tended to take more risks when driving than did others. Additionally, Møller emphasised that a car-centric lifestyle may be particularly related to risk-taking road use if self-enhancement is sought in a traffic situation. Importantly, this research again highlights that young driver behaviour is influenced by factors beyond their understanding of safe road use practices. The pervasive norms present within peer groups as they relate not only to road use but to leisure time in general appear to be influential to young driver behaviour.

Møller's (2004) conclusions have been supported by recent large sample research conducted through the George Institute for International Health. Ivers and six colleagues (2009) aimed to increase understanding of young peoples' risky behaviour, risk perceptions and crash risk. Their research with young drivers supported earlier findings that perception of risk is not an important predictor of crashes. Rather, even when young people can effectively perceive risk, they may nonetheless engage in risky driving behaviour with a higher risk of motor vehicle crashes. This finding suggests that factors other than cognitive perception of risk may be better predictors of crash risk. Importantly, the researchers also found that the relationship between risky driving and risk of crash did not alter for gender. That is, for both male and female novice drivers, risky driving increases the risk of crashes. The gender difference is expressed in terms of young men reporting engaging in risky driving more often than young women.

Interestingly, Redshaw's (2008) research tapped into a possible point of change in regard for the car as a function of increase in age and change in lifestyle. In her focus group research involving young people between 15 and 25 years, some older participants reported

that their interest in cars had changed from focussing on car modifications for improved power and presentation to an increased interest in comfort and convenience. Additionally, there was some evidence in a change in driving practices to a growing concern for the safety of passengers as the drivers aged, even only into their early 20's, compared to their driving practices when they were 17 and 18 years. This noticeable change in such a short period of time suggests that further investigation into attitudinal change within this age group could be fruitful.

5.3 Older Drivers

The majority of literature on the older driver focuses on the vulnerability of older drivers and road users to serious injury in crashes and age-related deficits in driving behaviour. However, there are also some positive comparisons with younger drivers. For example, McGwin and Brown (1999) concluded that whilst older drivers have difficulty judging and responding to traffic flow, they are more risk averse than younger drivers and are less likely to engage in drink driving than younger drivers. Lyman, Ferguson, Braver and Williams (2002) reported from a United States population that there is a trend for older drivers to be increasing numerically at a faster rate than any other age groups. Additionally, drivers are tending to maintain their driving licenses longer than previously and are driving more often and greater distances than earlier populations. It is therefore anticipated that older drivers are likely to become a greater percentage of the road crash fatalities and serious injuries. This is also more likely to occur with the older age group as their

physiological abilities to withstand the trauma of a crash are generally reduced relative to those of younger ages.

Despite the projections of increased involvement of older drivers in crashes with higher fatality and serious injuries per crash there appears to be little current literature available on the social foundations for the ways in which older road users approach road use and how they view themselves as a road user group. It is therefore as important for research to engage with this group or groups of road users as it is with younger age groups in order to ascertain their views of the road and road safety so that interventions can be tailored to meet the unique needs of this growing demographic group.

5.4 Peers and Younger Drivers

Age has long been considered as a factor in risky driving behaviour (e.g. see Arnett, 1992) with adolescents more likely to engage in more risky behaviour than adults. However, decreased ability to assess and perceive risks is not necessarily the cause of the higher incidence of adolescent risk-taking in general and risky driving behaviour in particular. Laboratory research has suggested that discrepancies between adolescents and adults in ability to perceive risk may diminish to the point of non-existence by mid-adolescence (see Gardner & Steinberg, 2005 and Reyna & Farley, 2006 for reviews). Hence, the irrationality and lack of risk perception of adolescence does not appear to be the dominant factor in the high road fatality toll for younger drivers. In fact, young drivers have been shown to be highly aware of the risks associated with driving (e.g. Ginsberg et al., 2008). Nonetheless, such findings intuitively clash with the statistics demonstrating that young novice drivers are

disproportionately represented in road crash fatalities and serious injuries. It appears, as has been raised in recent literature, that there is a gap between laboratory findings and road fatality statistics.

One possible explanation for this apparent gap may be the differences in social context in which young drivers either choose to engage or not engage in risky driving. Gardner and Steinberg (2005) found that although risk-taking and risky decision making decreased with age, the presence or absence of peers was a significant influence on whether young people engaged in such behaviour. In a computerised driving game the researchers compared the decisions and actions of younger and older drivers in the presence and absence of advice-giving peer groups. The game required a decision to risk running a yellow light and potentially crashing into a wall for the potential gain of "bank credits". One of the most interesting findings from this study was that relative to adults, adolescents were more susceptible to the influence of their peers who encouraged more risky behaviour than was otherwise chosen when alone. It was also found that males, and particularly younger males, were more likely to consider the benefits of a risky decision over the potential costs. This is a concerning finding given that engagement in risky driving behaviour has been linked to a 50% increased risk of a car crash (Ivers et al., 2009).

A further point of interest from the study of Gardner & Steinberg (2005) was the investigation of why it is that young people are more susceptible to peer influence than older people. Given the random assignment of the adolescents to their group condition, it seems that exposure to peer influence is unlikely to be the primary contributor to adolescents' choice of risky behaviour. Adolescents spent no more time with their previously unknown

peers than did the other age groups in the study. Rather, Gardner and Steinberg suggested it was more likely that the differences in group risk-taking indicated that it was the psychosocial capacity to resist peer influence that is less developed in adolescents than adults. The psychosocial capacities include impulse control, emotion regulation, ability to delay gratification and resistance to peer influence (Steinberg, 2007). Steinberg (2007) reviews the recent research in the developmental neuroscience field that provides insight to the apparent discrepancy in adolescents possessing high reasoning faculties yet being more susceptible to peer influence, relative to adults. This research indicates that there are two brain networks involved in the assessment of opportunities: the socioemotional and the cognitive-control networks. The socioemotional network is sensitive to social and emotional stimuli and particularly important for responses to reward opportunities. The cognitive-control system enables functions such as planning and self-regulation. These two networks appear to develop at different rates, with the socioemotional network developing earlier and the cognitive-control network developing throughout adolescence and young adulthood. Hormonal changes at puberty are likely the reason that during adolescence, the socioemotional network gains prominence over the cognitive-control network during emotionally excited periods, such as is the case in the presence of peers, particularly when social rewards are available. During early adulthood, the cognitive-control network matures and can then compete more equitably for behavioural influence on the person. Understanding the relatively independent operations of these two networks can help explain why it is that young people can assess certain driving practices as risky when they are not in a context of social competition with their peers. However, once emotions are stimulated in a

group of peers where social rewards are sought, the young driver may not have the cognitive-control capacity to resist peer influence. From this research, Steinberg (2007) suggests that strategies such as raising the driving age are likely to have a stronger impact on young driver road fatalities than efforts to change their attitudes and behaviour through awareness education. Similarly, Ivers and colleagues (2009) used their findings to support a call for enhanced enforcement regimes as a deterrent of risky driving behaviour without the need to increase risk perception, which their research indicated was less likely to be an issue than the behaviour per se.

Redshaw (2008) reminds the reader that although specific enforcements might be targeted towards the younger driver, young drivers are also influenced in their driving by those in other age groups and broader socio-cultural issues such as the media portrayal of cars as a source of power and prestige.

5.5 Gender

One of the most prominent group distinctions in road use literature is that of gender. This literature provides such extensive distinctions between gender and specific driving behaviour that a comprehensive review is beyond the scope of the current project. Nonetheless, it is within the scope of the current review to consider the literature that speaks to outcomes and creators of road use cultures. To that end, rather than focus on specific outcomes of specific behaviour by each gender, the following section will consider *why* it is that gender comes to feature as such a prominent issue in road use fatalities and serious injuries.

Carrabine and Longhurst (2002) caution that a focus on gender differences in relationships with cars and road use may miss the many key similarities in the experiences that characterise young people's car use. Their qualitative research suggested that other social factors such as "age, class and ethnicity" (p. 184) may be more prescriptive of different relations with road use. Redshaw (2008), however, challenges the premise that age is a more suitable category for analysis of driving behaviour and argues that gender should be considered as a more significant factor than age in road casualties. In her focus group research of 2006, Redshaw found that while the car was viewed as a tool of social enablement for all of the young people in the study, gender was a significant and complex mediator. Redshaw describes gender as a complex construct that encapsulates "identity, practices, aspirations, relationships and power" (p. 17). As such, she distinguishes her analysis from those that consider gender as "simple or singular" (p. 17), or as a "pre-given, even "natural" category based simply on biological and neurological differences" (p. 17). Redshaw found that the complexity of gender-based distinctions remains relevant to young drivers. She found, paradoxically, that while young people might rebuff gender-based stereotypes of cars and driving behaviour, they also often articulated their views in the same gender-typed ways. In particular, young people often referred to cars as either "guy cars" or "girl cars" (p. 18). She also found that the power of the vehicle was particularly favoured by young men. If, however, the car being driven by the young men was not deemed to be large and powerful in its presence, they often reported taking compensatory measures such as installing large stereo systems and driving them in a way that demonstrated a "masculine

power" (p. 20). It was also seen as a problem for either a young man or young woman to drive a car that was perceived by peers as not "fitting" with their personality or gender.

There is ample evidence to support the assertion made by Redshaw (2008) that men and women appear to have different relationships with their car and road use behaviour as an outcome of these relationships. For example, Ivers et al. (2009) found a higher crash risk for young males. In a corresponding finding, Ivers et al. found that men, more than women, generally self-report performing more risky driving behaviour with risky driving being strongly linked to crash risk to the extent of overriding the contribution of risk perception. The finding of risky driving behaviour for young males has been well-supported in other studies. For instance, young men are more likely than young women to engage in high-level speeding, speed for the thrill of speeding, following too closely behind another car, violating traffic rules and not using seatbelts (see Ivers et al., 2009 for a review of this literature). Additional findings on road use behaviour for young males comes from the work of Gardner and Steinberg (2005), who found that males are more likely to consider the benefits of a risky driving action than are females. This was a particularly pronounced difference for younger males. Despite all of these concerning and distinguishing findings for the road use behaviour of young males, recent research has found that men and women did not differ in their overall self-reported driving anger (Deffenbacher, Deffenbacher, Lynch & Richards, 2003; Lonczak, Neighbors & Donovan, 2007). However, in the same research, women were found to be more angered than men specifically for anger at traffic obstruction and anger at others' illegal driving practices. Also of interest is the finding that young women are more likely to text message on a mobile phone than young men whilst driving (Ivers et al, 2009). While

Lonczak et al. (2007) argue that the factors that affect a driver's experience are "unique and individualized to the particular driver" (p. 543), they nonetheless suggest that driver training programs should include "particular emphasis on how males and females approach the driving situation" (p. 543). In so doing, these authors identify that there are factors that are, in fact, shared by many that belong to the group of "male" or, alternatively, the group of "female".

It is not only driving practices and regard for the car that can be enacted predominantly by one gender or another, the relationship between young people and their car is expressed through the extent of technological and mechanical engagement with the car. In Redshaw's (2008) research, this distinction was highlighted with basic actions such as changing a tyre, with some young women indicating they would wait for a male, while the young men maintained that women / girls "just don't want to get all dirty" (Redshaw, 2008, p. 32).

Redshaw's (2008) research offers a comprehensive examination of many of the social factors relevant to the gender of young people. She particularly argues for recognition that young people are pressured to exhibit "appropriate gender performance" (p. 43). That is, they are pressured to behave in a way that is consistent with what young people perceive to be appropriate for their gender. She also notes that this pressure to perform is additional to the challenges experienced by young people's lack of experience, hence creating a potentially deadly mixture for road safety. Redshaw argues that this is a particularly acute pressure for young male drivers, as to live up to the peer expectations for their gender involves more dangerous and risk-related activities. This is especially unfortunate for this

group of drivers, as research has also shown that young males also tend to demonstrate a greater self-enhancement bias than other groups in that they consider themselves to be better drivers than their peers (Harré, Forrest & O'Neill, 2005). As an outcome of their research into the efficacy of road safety advertisements, Harré et al. echoed the sentiments expressed by Redshaw (2008, 2009) that interventions and advertising campaigns should aim to deconstruct the association of driving skill with masculinity. Rather, they suggest that an effective campaign might feature a young male driver as being responsible for the welfare of others, instead of being presented as a skilful driver.

One of the challenges of any campaign that might be based on a view of masculinity is that it is likely to be but one of many possible views. Walker, Butland and Connell (2000) point out that as a socially perceived construct, there can be an abundance of diversity in what masculinity means across different cultures and subcultures. These authors expressed surprise that despite the over-representation of young men in road vehicle crash statistics, many road safety policies do not address the gender divide. As with Redshaw (2008), they point out that much literature dealing with gender differences in road safety treats gender as a unitary demographic, existing as a natural state without any influence from or to the social environment. They also urge for more research into the *causes* of young men's driving behaviour rather than only the effects of such behaviour.

One of the findings from the research by Walker et al. (2000) was that the interest in and masculinisation of the car as expressed by young men appears to have started in childhood and been sponsored usually by their father or a significant older male. The researchers suggest that "the mass media reinforce the father's message" (p. 160), but do

not provide evidence of this reinforcement through their study. However, they do argue that road safety education campaigns should include the building of pupils' capacity to recognise and interpret the gendered messages in media so that they can exert some power over these very powerful messages.

5.6 Summary

This chapter explored some of the less overt ways that belonging to different social groups can express and create different road use behaviour. In this context, social groups were examined as groups to which one belongs by virtue of demographic or lifestyle factors. Young males are a group of special relevance and road safety interventions need to specifically target this group, as well as consider the increasingly pressing needs of older road users in a progressively aging population. The literature reviewed in this chapter highlights the complex nature of the social processes involved in road use and road safety.

6 CHAPTER 6

THEORIES OF SOCIAL INFLUENCE AND LEARNING OF ROAD USE BEHAVIOUR

The current chapter will introduce some of the theoretical frameworks that have been posited as explanations for influence, learning and enactment in road use behaviour. Although most of these approaches consider how the social context can set the stage for the individual, they also consider how the individual comes to engage with the roles on offer.

6.1 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) (Ajzen, 1991) has been one of the most prominent frameworks in the discussion of normative influence in road use behaviour. This theory of behaviour was an extension of the earlier Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1974; Ajzen & Fishbein, 1980). The TRA posits that behavioural action is a function of intentions to behave and that these intentions are determined by attitudes toward the behaviour and subjective norms relevant to the behaviour. Subjective norms are the norms or beliefs that the individual perceives to be held by significant others. Attitude towards the behaviour must be considered with specific reference to the action rather than an object associated with it. For example, if considering speeding behaviour, one should confine consideration to speeding rather than to vehicles, motor bikes etc. Ajzen (1991) extended the TRA into the TPB by arguing that prediction of a particular behaviour is strengthened by accounting for the degree to which the actors of the behaviour believe that

they have control over that behaviour (perceived behavioural control). The normative component of the theory has been further extended through the inclusion of moral norms (i.e. personal beliefs about what is right or wrong) (Conner, Smith & McMillan, 2003), descriptive norms (beliefs about what *most* other people do)**,** and normative norms (beliefs about others' norms or opinions formed from observing their behaviour) (Conner et al., 2003). Importantly, the TPB predicts that the impact of past behaviour on intentions for future behaviour will be mediated by the variables associated with TPB and particularly perceived behavioural control.

The theory has been employed particularly in research on predicting the likelihood of speeding behaviour (e.g. Conner et al., 2003; Conner, Lawton, Parker, Chorlton, Manstead & Stradling, 2007; Parker, Stradling & Manstead, 1996). Conner et al. (2003) looked at how gender and passenger type might alter the impact of normative pressure and hence alter intention to speed while driving. From their scenario and questionnaire-based research, they found that young men perceived greater social pressure to speed and less moral norms to not speed. They also found that past behaviour was the strongest predictor for intentions to speed, however, this finding was in conflict with those of Parker, Manstead, Stradling, Reason and Baxter (1992) who found that normative beliefs were the strongest predictor of future intentions. In a further study using a driving simulator and on-road driving to assess behavioural measures, Conner and colleagues (Conner et al., 2007) found that intentions to speed could be predicted by attitudes, subjective norms, perceived behavioural control, moral norms, anticipated regret and past behaviour with these variables accounting for 82% of the variance. However, in the same study, they found the same variables and intentions

could account for only 35% of the variance for the actual behaviour on the driving simulator. They additionally found that although attitudes, moral norms, anticipated regret and past behaviour predicted 76% of variance in intentions to speed, in the same study intentions and moral norms only accounted for 17% of the variance in on-road driving behaviour. It would seem, therefore, that although the variables associated with the TPB can provide a measure of insight into and prediction of intentions for driving behaviour there is a larger margin to cover before they can fully predict actual driving behaviour.

Recent research on mobile phone usage has also found some support for the TPB with attitudes consistently predicting intentions to drive whilst using a mobile phone as did normative pressure from significant others (Walsh, White, Hyde & Watson, 2008). Taken together, the research on TPB has demonstrated that we refer to a great many significant others to benchmark what is appropriate road use behaviour for ourselves and reinforce that although only one may be "behind the wheel", road use behaviour is a complex social action.

6.2 Social Learning Theory

There is an emerging body of literature in traffic psychology based on Aker's social learning theory (Akers, 1977). Fleiter, Watson, Lennon and Lewis (2006) argue that the framework encompasses a broader range of social influence factors than others such as the TPB. They posit that this greater coverage stems from the theory's dual origins in both psychology and sociology. The theory contends that both conforming and deviant behaviour is learnt through social interaction. However, the direction of the behaviour will be determined by the balance of those behavioural influences; such that, if an individual is

influenced more by deviant behaviour, then their behaviour is more likely to be deviant rather than conforming. The level of influence of behaviour around the individual is proposed to be a function of duration, frequency and intensity, particularly when learning new behaviour. Given these factors, the relationships that are most likely to be influential in learning new behaviour are those that develop over a period of time, are relatively constant in nature and are of significant meaning. As such, familial relationships can be a primary source of learning and influence for new behaviour such as learning to drive (Akers & Lee, 1996).

For longer-term maintenance of behaviour, such as smoking behaviour, Akers and Lee (1996) premised that differential association with peers is the best predictor of behaviour continuation. Differential association is thought to be one of the learning mechanisms that operate to determine the likelihood of someone performing an observed behaviour. It refers to the degree to which one associates with others who hold favourable attitudes towards the behaviour in question. In addition, the likelihood of behaviour occurring is more likely the more one is exposed to the behaviour in question, the more one defines the behaviour as personally acceptable, and the more one believes that there will be more positive than negative outcomes from performing the behaviour.

Research has found support for social learning theory as a framework for understanding speeding behaviour (e.g. Scott-Parker, Watson & King, 2009; Fleiter & Watson, 2006; Fleiter, et al., 2006) and in particular for differential association as a predictor for speeding (Fleiter et al., 2006). That is, peer influence has been found to be a strong

predictor of self-reported speeding behaviour even above that of family members who also are an extremely important source of behavioural influence.

Social learning theory has been found to be a predictor of other road safety related behaviour such as "hooning" (Gee Kee, Steinhardt & Palk, 2007), drink driving (Freeman & Watson, 2006; Piquero & Paternoster, 1998), unlicensed driving (Watson, 2004), drug driving (Armstrong, Wills & Watson, 2005) and risk-taking behaviour of young drivers (Scott-Parker et al., 2009). Importantly, in a number of these studies (Gee Kee et al., 2007; Watson, 2004) the social influence accounted for by social learning theory was a more powerful predictor of driving behaviour than the perceived threat of punishment, which is the central factor in deterrence theory (Homel, 1986)or Stafford and Warr's (1993) expanded deterrence theory (discussed below). For instance, in predicting a willingness to engage in "hooning" behaviour, Gee Kee et al. (2007) found that social learning variables accounted for 29% of the unique variance whereas, after accounting for social learning variables, the deterrence model accounted for 6% of unique variance. Watson (2004) considered both classical and expanded deterrence theory variables along with the social learning variables in his prediction of intention to drive unlicensed in the future. He found that the classical deterrence variables accounted for 9% of the variance, the expanded deterrence variables accounted for 13% of variance, whilst the social learning variables accounted for 34% of the variance. Again, however, when considering actual driving behaviour (self-reported frequency of unlicensed driving trips per week) percentage of variance accounted for by variables from each theory decreased. In this study, classical deterrence variables accounted for 4%, expanded

deterrence variables accounted for 12%, and social learning variables accounted for 18% of the variance.

6.3 Deterrence Theory

It is a common perception that deterrence is a powerful determinant of safe road use practices. Indeed, in explaining a reduction in the road toll in Australia, South (1998) argued that "there is solid evidence that general deterrence programs have played a major role" (p. 76). Deterrence theory offers a framework for understanding why deterrence might be a significant factor in road use behaviour. Deterrence theory explains variation in individual road use behaviour as a function of the perceived level of risk and fear of legal punishment (Homel, 1986). In its classical form, the theory posits that the effectiveness of legal threat will vary depending on the degree to which the threat is perceived to be certain, severe and swift (Homel, 1986; Vingilis, 1990). Two forms of deterrence are identified. Specific deterrence considers specific punishment actions experienced by the offender. As such, this form of deterrence is generally discussed in relation to the deterrence of recidivism by offenders. The alternative form of deterrence, general deterrence, is what is experienced by the general community through the threat of punishment.

In 1993, Stafford and Warr offered an expanded deterrence theory. They argued that the classical framework of the theory failed to take into account the effect of punishment avoidance on behaviour. They suggested that from the perspective of the classical framework, some may be encouraged to engage in criminal or deviant behaviour if their direct experience has been that they can successfully commit the crime without incurring

punishment. In response to this perceived gap in the classical framework, Stafford and Warr expanded the theory to include deterrence through exposure to others' punishment. In other words, they argued that many do not engage in certain behaviour because they have had vicarious experience of punishment through seeing or learning of others' punishments. From this position they argued that specific and general deterrence are not mutually exclusive but can be relevant for the same individual at the same time.

There has been mixed support for the explanatory frameworks of classical and expanded deterrence theory in road use behaviour. The long-term effects of deterrence have been challenged. Ross (1984) found that initial effects did not last over time. However, Homel (1990) found that effects could be maintained if visible enforcement and publicity of threats were maintained. Freeman and Watson (2006) examined expanded deterrence theory in relation to recidivist drink drivers and found that vicarious exposure to the punishment of others was not a significant predictor of self-reported offending behaviour. Moreover, direct punishment was less a predictor of past offending behaviour than was punishment avoidance. As Freeman and Watson commented, this finding is congruent with the actions of repeat offenders who appear to be undeterred by the punishments they have experienced.

In terms of the classical framework, there has been some evidence that punishment can be an effective deterrent if it is certain and administered swiftly, however, the impact of severity has been less clear (Nichols & Ross, 1990; Elliot, 2003). Research by Watson (2004) with unlicensed driving offenders also found some support for both the classical and expanded deterrence theories.

6.4 Persuasive Communication

When considering how individuals vary in the way they respond to messages of safety offered by the experts, theories on responses to mass media are a relevant inclusion. One influential theory in this area involves what has been termed the "third person effect". Davison (1983) originally identified the "third person effect" as referring to a tendency for people to believe that media messages, and persuasive communications in general, are more likely to apply to and influence other people rather than themselves. Duck and Mullin (1995) found that the third-person effect for drink-driving messages could be eliminated and even reversed, when the content of the message was perceived to be positive rather than negative. They further established that the third-person effect is not a general response to media influence; not all other people are viewed as more vulnerable to media influence than oneself. Rather, vague and distant others, such as "the average person", are considered more vulnerable in comparison to those with whom one has a more intimate connection, such as "your closest friend".

In a similar finding to that of Duck and Mullin (1995), Stapel, Reicher, and Spears (1994) found that judgements of risk were greater when prior information about a road accident implicated a person who could be identified as belonging to the same social group rather than someone from another group or when no information was provided. For instance, if I can see that the person in the road safety advertisement is like me in a way that is important to me, such as in age, interests or driving style, I am more likely to accept that the information in the message is relevant to me. As discussed earlier, there has been similar research indicating that the more that one sees the source of information as being like

oneself in important ways, then not only is that information considered more relevant, but it will likely result in behaviour that matches what is asked for in the information (Wright, 2008).

Duck and Mullin (1995), Stapel et al. (1994) and Wright (2008) explained their findings with reference to social identity theory. A critical tenet of this theoretical framework is that there is a psychology that generates and is an outcome of belonging to social groups, the members of which have valued things in common. The theory recognises that there are situations in which people think of themselves as individuals quite distinct from all others. However, there are many social situations in which people think of themselves as group members who share a "social identity". Such group memberships may include thinking of oneself as being a member of a specific demographic group such as a senior person, a single person, or a married person. One could also think of oneself in road user group terms such as a "P plater", a V8 enthusiast, a "Ford man" as distinct to a "Holden man".

It is also possible that you might think of yourself as a member of a group not necessarily formed on the basis of road use behaviour but nonetheless holding beliefs about driving behaviour for that group. Research has shown that members of groups often believe that those with whom they share similarities on one dimension, such as taste in art works, will also hold similar beliefs on unrelated dimension, such as political views (Allen & Wilder, 1979). When applied to road use one might think of oneself as a plumber and have beliefs that plumbers, in general, drive a certain way, in certain types of cars and pursue certain types of hobbies.

An important implication of the research findings of Duck and Mullin (1995) and others in the social identity tradition is that there is variation in the way in which we look to others to guide our own behaviour. Therefore, as also maintained by social learning theory, although we may draw on cues from others to guide our road use behaviour, it is likely that we draw from some more than others. Likewise, as road users, our behaviour will influence some more than others.

Despite the above research on how people respond to media messages, Howarth (2005) noted a lack of sound research data and findings on the evaluation of road safety educational messages. The majority of work in this area has related primarily to the awareness of campaign messages rather than to attitudinal and behavioural change in response to different messages by different communities. Sound evaluation of current and future road safety message campaigns is an important area for focus in any jurisdiction addressing road safety through community oriented messaging.

6.5 Optimistic Bias and Driver Self-assessment

Optimistic bias (Weinstein, 1983) is a phenomenon often considered in concert with the third person effect. However, the term optimistic bias specifically refers to perception of risk rather than the perceived influence of messages to which the third-person effect generally refers. Simply, individuals believe that they are less vulnerable to risks than are other individuals. Although some research has suggested that "biased optimism" may be an underlying mechanism of the third-person effect (e.g. Gunther & Mundy, 1993), more recent research has asserted that there is either a small and inverse relationship between the two

(Chapin, 2000) or that they are in fact unrelated (Wei, Lo & Lu, 2007). It has been proposed that the mechanism of optimistic bias operates to bolster self-esteem in self-other comparisons regarding a risk (Wei et al., 2007; Weinstein, 1989). Additionally, a positive relationship has been found between optimistic bias and self-esteem in adult women (Smith, Gerrard & Gibbons, 1997) and for at-risk youth (Chapin, 2000).

An optimistic bias has been found for a number of driving behaviour, including the ability to drive safely whilst fatigued (Dalziel & Job, 1997), a tendency to judge oneself as a safer and more skilful driver than average and less likely of being involved in and injured in an accident (Svenson, Fischhoff, & McGregor, 1985), and for the probability of having an accident whilst using a mobile phone and driving (White, Eiser, & Harris, 2004). Optimistic bias has been shown to be consistent across time, and to a lesser extent, across events although these effects are moderated by experience (Shepperd, Helweg-Larsen, & Ortega, 2003). There are inconsistent results for the relationship between optimistic bias and age. Some evidence shows that optimistic bias decreases with age (Arnett, 2000; Chapin, 2008). Other evidence shows that it may actually increase on some dimensions with age and developmental stage (e.g. Chapin, de las Alas & Coleman, 2005), whilst others have argued that optimistic bias is generally consistent across age and gender (Weinstein, 1987). Nevertheless, optimistic bias is an area of potential focus for interventions with younger drivers.

Weinstein (1989) argued that although there are likely to be psychological benefits from the illusions associated with optimistic bias, a failure to admit to limitations with driving capability could, and most likely do, prove disastrous. Unfortunately, there does not appear

to have been adequate research on countering these biases in relation to road use safety. One study found only a weak correlation between optimism and seatbelt usage and no correlation between seatbelt usage and perceived effectiveness of the seatbelt (Svenson, Fischhoff, & MacGregor, 1985). Given these findings, the authors of the study suggested that providing information about the effectiveness of seatbelt use may be a less effective way of increasing usage. Rather, they asserted, it would be more effective to focus on factors such as "comfort and social norms, which cannot be outweighed by optimism" (p. 119).

6.6 Individual Differences and Road Use Behaviour

While the above theoretical frameworks help us to understand how some of the social influences work on the individual, it is a prominent belief in psychology that the individual also presents with unique characteristics that influence their behaviour. Often referred to as the study of "individual differences" the aim of most researchers in this field is to identify categories of characteristics that are relatively stable in the individual but that are shared by others in fairly unique combinations. For instance, Person A might be described as having the characteristics of someone who is warm, friendly and extroverted, whilst Person B might be described as warm and friendly but relatively introverted. Somewhat ironically, in looking to describe a person's individual differences, one is seeking to describe that person in terms of the features that they share with others who belong to the group of "extroverts" or "introverts". From this perspective it is therefore still relevant to speak of the individual as being a member of certain psychological groups.

6.7 Personality and Driving Behaviour

Tillman and Hobbs (1949) offered the oft-quoted line that "man drives as he lives" suggesting that the demeanour, affect and /or personality which one generally expresses when not driving will also be enacted when one is driving. In the realm of theories on these individual differences, personality is one of the factors considered most fervently in relation to driving behaviour.

Research on the relationship between personality and driving behaviour has been abundant but has revealed inconsistent findings. One reason for the inconsistency may be variation in definition and measurement of personality. Indeed, psychologists continue to debate the components of personality, the best ways to measure it (Maltby, Day & Macaskill, 2007) and even whether such a thing exists (see Hogg, 2008). Snyder and Cantor (1998) consider personality at its most broad level to be a constellation of "regularities in feeling, thought, and action that are characteristic of an individual" (p. 635). One of the most prominent ways to examine personality is from a "trait" approach. Current literature regards traits as the "fundamental units of personality" (e.g. Maltby et al., 2007, p. 161) with definitions of a trait varying in complexity such as "a dimension of personality used to categorise people according to the degree to which they manifest a particular characteristic" to the more challenging "conditional probability of a category of behaviour in a category of contexts" (see Maltby et al., 2007, p. 161). Both of these definitions indicate the assumptions of the trait approach that personality characteristics are essentially stable across time and situations or context.

A widely regarded trait approach typology of personality recognises five primary factors in personality, referred to as the 'Big Five' (Costa & McRae, 1992). These factors are: openness (comprises the traits of creativity and sophistication); conscientiousness (traits of conscientiousness and dependability); extraversion (traits of sociability and activity); agreeableness (interests in and warmth toward others); and neuroticism or emotional stability (sensitivity to stress and fluctuations in emotional experience). Dahlen and White (2006) found limited support for the Big Five factors in predicting some driving behaviour with only openness, emotional stability and agreeableness predicting driving behaviour. Weak relationships were evident, with risky driving predicted by reduced openness ($\beta = -.17$, $p < .05$), aggressive driving was predicted by reduced emotional stability ($\beta = -.21$, $p < .01$) and loss of vehicular control was predicted by reduced agreeableness ($\beta = -.16$, $p < .05$). The prediction of risky driving behaviour may be particularly useful as risky driving behaviour have been repeatedly implicated in higher crash involvement rates (see Vassallo et al., 2007, for a review).

6.8 Aggression

In their study, Dahlen and White (2006) also included "trait driver anger", which is defined as "the propensity to become angry while driving (i.e., a context-specific version of trait anger)" (p. 904) with trait anger being a general disposition toward anger. They additionally included sensation seeking, following Zukerman's (1994) definition of the construct as "a trait defined by the seeking of varied, novel, complex, and intense sensations and experiences and the willingness to take physical, social, legal, and financial risks for the

sake of such experiences" (p. 27). Hence, those high in sensation seeking are expected to engage in high-risk driving behaviour. They found that both of these traits, in addition to demographics such as age and gender, were predictive of a range of driving behaviour. In particular, they found that both driver anger and sensation seeking were weak predictors of risky driving ($\beta = .26$, $p < .05$ & $\beta = .26$, $p < .05$, respectively) and were also predictive of aggressive driving ($\beta = .31$. $p < .01$ & $\beta = .14$, $p < .05$, respectively). They further found that loss of concentration was only predicted by sensation seeking ($\beta = .20$, $p < .01$) (and age) and vehicular control was also predicted by driver anger ($\beta = .16$, $p < .05$). The authors concluded that there appear to be multiple predictors of driving behaviour and recommended that different combinations of personality and demographic variables be examined to explain different driving behaviour.

The need to include factors outside of the recognised personality typologies as predictors of driving behaviour has become a point of discussion in recent literature and a challenge to the way in which personality has generally been treated in relation to driving behaviour has been put forward by a number of theorists. For example, Fernandes, Job and Hatfield (2007) explored the possibility that different risky driving behaviour might be explained by different psychological factors working in a variety of ways. More specifically, they examined different demographics and attitudes, as well as personality factors as predictors of different driving behaviour. One of their primary findings was that attitudes and beliefs appear to be the strongest predictors of risky driving, above and beyond the contributions of demographics such as age, gender and personality factors. Moreover, it was found that attitudes relating to specific driving behaviour accounted for greater variance

over more general attitudinal scales. Interestingly, age was not shown to be a significant predictor for any of the driving behaviour examined. However, as age was restricted to only 17-22 years, it is highly likely that there was insufficient variation in the age range for differences to be demonstrated. It is also interesting that gender may be a better predictor than personality in for some behaviour such as reckless driving and competitive driving whereas personality accounts for greater variance in other behaviour such as drink driving. Nonetheless, combining gender, personality and attitudinal factors produced a model that was most predictive of driving behaviour. For instance, drink-driving, reckless driving and competitive driving were initially predicted by gender in a hierarchical regression analysis accounting for 2.8%, 14% and 15.7% of the variance, respectively. However, when the personality model was introduced into the equation, the model accounted for 17.1%, 13.1% and 14.9% of variance. When specific attitudinal variables related to each driving behaviour were introduced into the model, levels of variance predicted increased to 51.8%, 31.9% and 59.7%, respectively.

Indeed, Fernandes et al. (2007) highlight that the patterns of prediction varied for each driving behaviour that was examined in their study. For example, speeding was predicted by the personality construct of "authority rebellion" and a specific attitude towards speeding whilst competitive driving was best predicted by "hyper-competitiveness, time urgency, and specific attitude toward competitive driving" (p. 65). From their results the authors conclude that it is a flawed methodology that assumes that all risky driving behaviour can be predicted by the same factors.

In recent work that supports the cautions of Fernandes et al. (2007), Chen (2009) found that attitudes toward traffic safety were directly associated with risky driving whereas the influence of personality traits on driving behaviour was mediated by traffic safety attitudes. More specifically, they found that high scores on anger ($\beta = .22$, $p < .05$), sensation seeking ($\beta = .19$, $p < .05$) and normlessness (barriers towards engagement in anti-social behaviour) ($\beta = .32$, $p < .05$) were positively and significantly associated with attitudes while anxiety had a negative effect on driver's risk-taking attitude ($\beta = -.18$, $p < .05$). Altruism was the only personality factor found to have a direct effect on risky driving behaviour ($\beta = -.18$, $p < .05$). These findings indicate that those higher on altruism and anxiety are less likely to drive in a risky manner whereas those higher on anger, sensation seeking and normlessness are more likely to drive in a risky manner, primarily because they have higher attitudes. Such findings highlight that there may be complex interactions between personality factors and numerous other factors, such as social considerations, which may influence attitudes towards driving behaviour.

Although the studies of Fernades et al. (2007) seemed to diminish the significance of age and gender on driving behaviour relative to personality, a number of other studies report particular findings for personality when investigated within different demographic variables such as age and gender. For example, Gulliver and Begg (2007) found that for young adult males, aggression, traditionalism and alienation were related to risky driving behaviour and crash risk. They further found that high levels of aggression predicted being a driver in a crash and alienation predicted being a driver involved in an injury crash. They concluded that road safety campaigns directed at young adult males should be directed at "those who do

not endorse traditional views, are aggressive, and feel alienated from the rest of society" (p. 376).

The links between personality, gender and driving have also been conducted with a sample of Norwegian adolescents, which found that anxiety was negatively related to excitement-seeking and risky driving behaviour and that excitement-seeking was related to risky driving behaviour (Oltedal & Rundmo, 2006). In other words, the higher one is on excitement seeking, the more likely one is to engage in risky driving behaviour. However, the higher one is on anxiety, the less likely that one will engage in excitement seeking and consequently, the less likely one is to engage in risky driving behaviour. The authors noted that personality traits explained only part of the variance as a predictor of risky driving behaviour. Unlike Fernandes et al. (2007) they found that gender was also a significant predictor accounting for a 10% unique contribution, with only normlessness accounting for more with a 12% unique contribution. They cautioned that as not all relationships between personality variables and driving behaviour were strong, personality may work as a mediating factor rather than directly on driving behaviour.

The young adult driver was also the focus of a large, longitudinal Australian study that followed 2443 young people from infancy to the age of 19-20 years (Vassallo et al., 2007). The authors asserted that from mid-childhood (5-8yrs) it was possible to distinguish those who would become high-risk drivers and low-risk drivers. The authors used a number of factors to establish this relationship including parental reports, child health nurses, school teachers, and self-report from age 11years. The authors found that three groups could be distinguished in terms of risky driving behaviour in early adulthood with the groups exhibiting

low, medium and high risk driving behaviour. In particular, they found approximately 7% of the sample self-reported consistently engaging in high-risk driving behaviour such as speeding, driving when highly fatigued and regularly engaging in other risky driving behaviour. They found that this group of young drivers could be distinguished in mid childhood (5-8yrs) from the other children as "more aggressive and hyperactive than the other children, less task oriented (i.e. less able to see tasks through to completion), and had greater difficulty adjusting to routines and demands of school life" (p. 449). The differences between the groups became increasingly evident at late childhood and early adolescence on all variables measured in scales that examined individual differences (temperament, social cooperation, social responsibility, aggression, antisocial behaviour, empathy, self-control), and environmental characteristics (school adjustment, antisocial peers, peer friendship quality, quality of parent-child relationship). In general, the high-risk driving group presented with higher school adjustment difficulties, more friendships with antisocial peers, and poorer interpersonal relationships with both peers and parents. These general patterns appeared to be exacerbated for the high-risk driving group into their early adulthood.

The research of Vassallo et al. (2007) indicates that a range of factors appear to contribute to driving behaviour for the novice driver. Importantly, this research indicates that many of these factors may involve potentially socially learnt factors such as the social skills that appear to be associated with driver behaviour. As indicated in the previous section of this report, a number of different theories posit the processes involved in the acquisition of social skills such as those indicated in the social learning theory. It is therefore important that efforts to identify high risk drivers in their earlier lives are mindful of the possible

variations in social environment that can occur throughout the individual's development and the possibility that such variations could alter the type of driver one may become. Vassallo et al. (2007) suggest that social interventions may be able to alter some of the socially learnt responses that may lead to future risky driving behaviour such as "learnt patterns of responding to frustration with aggression may lead to road rage" (p. 452). As the authors highlight, "not all individuals who display these characteristics would be expected to frequently engage in risky driving" (p. 452). For these reasons, attempting to identify "whether a particular person should be driving or not" on the basis that they are "predisposed to take high risks" (Victorian Police Deputy Commissioner, Ken Lay, The Canberra Times, 21/01/2010, p. 9) is perhaps less productive than assisting young people to develop safer coping mechanisms to deal with potentially problematic frustration and anger.

Interestingly, there are few studies investigating risky driving behaviour with populations other than young adults. One exception is a study reported by Schwebel, Severson, Ball and Rizzo (2007). This research was conducted with an American population aged over 75 years. The authors found that a personality characterised by sensation seeking and an uncontrolled temperament were related to risky driving behaviour for this sample. In particular, sensation seeking was related to a history of traffic violations whereas lack of temperament control was related to more generally risky driving. What is not possible to know from this research conducted with a sample over 75 years is if the same personality characteristics would have been demonstrated in the sample's earlier years, although these results are consistent with those found in young adult samples.

Driver personality has also been examined in relation to perceived risk and mobile phone usage whilst driving. Chen (2007) found a negative relationship between perceived risk and a higher self-reported rate of accidents due to mobile phone usage whilst driving. The higher participants scored on the personality factor of "perceived risk" or the more they perceived risk in general, the less likely they were to report having had an accident due to mobile phone usage. Additionally, aggressive drivers were found to use mobile phones more whilst driving than less aggressive drivers. These results suggest that ability to perceive risk may be an important element in choosing to use a mobile phone whilst driving.

Although much research has examined the negative ways in which certain personality traits are related to dangerous driving practices, one has recently examined the contribution of personality factors to reduce aggressive driving and driver anger expression. Moor and Dahlen (2008) found that trait forgiveness, or a general disposition to forgive others' transgressions, and consideration of future consequences contributed to the prediction of driving anger and driving anger expression. Their research introduces the possibility that attention to traits that are related to risk reduction could be a fruitful avenue for road use safety research.

There has been an abundance of research directed towards isolating the personality factors associated with risky driving behaviour. However, there has also been research which has shown no relationship between driving behaviour and personality traits when mood states were also considered (Garrity & Demick, 2001). Although not defining mood states per se, they found for young adults that high scores on tension/anxiety, depression/dejection, anger/hostility and fatigue-inertia were negatively related to cautiousness while driving. In

other words, high scores on these measures were associated with lower levels of cautiousness whilst driving. Vigour/activity on the other hand was positively related to cautiousness while driving. Unfortunately, Garrity and Demick's reporting does not enable an assessment of the relationship between personality factors, driving behaviour and mood states, and it is therefore difficult to assess their claim that personality traits are not related to driving behaviour. Nonetheless, their research does point to a need for clarity between personality traits, mood states and the contributions both make to driving behaviour.

6.9 Anger and road use behaviour

Mood, or affect, refers to current state of mind or emotion. In some road use research the distinction between personality factors and mood states is not always clear. Furthermore, only the mood state of anger has been widely studied in relation to road use behaviour with little information available on the influence of other moods, or psychological conditions such as depression.

Anger and its influence on driving behaviour is one factor that is treated variously as a personality trait, as an affective or mood state, and as a behaviour. Nesbit, Conger and Conger (2007) review the different ways in which the literature treats anger in regard to driving behaviour. They point out that state anger is regarded as a mood or state and is considered to be temporary in nature. Road rage may be an example of anger as a state when one who is not generally angry is nonetheless frustrated by particular events on the road and experiences anger in response (e.g. James & Nahl, 1998). Trait anger is distinguished from state anger in that it is considered to be dispositional or experienced by

the individual over various situations at various times. Nesbit et al. (2007) also identify driving anger within a state-trait context wherein anger is demonstrated as though it were a general trait but primarily within the specific context of driving.

In their meta-analytic review, Nesbit et al. (2007) also clarify the distinction between aggressive driving and driving anger. They treat aggressive driving as a behavioural rather than affective construct. That is, the term "aggressive driving" relates specifically to driving behaviour such as "tailgating, running a red light, cutting another driver off, etc" (p. 158). Driver anger, however, is a construct of affect comprising anger-related feelings and thoughts that occur whilst driving.

In their own research, Nesbit et al. (2007) found support for the state-trait approach to anger in that both trait and state emotional experience were predictive of aggressive driving. This finding is consistent with those of a recent study by Stephens and Groeger (2009), who found that those who were higher in trait anger tended to become angry and behave aggressively in situations that did not provoke anger for others lower on trait anger. However, their results also suggested that irrespective of trait anger, drivers tend to become angry when impeded or are otherwise provoked in driving situations.

The findings of Nesbit et al. (2007) were particularly interesting in that they found a surprising low correlation (.07) between all types of anger and motor vehicle crash involvement, suggesting that there is not necessarily a link between the experience of anger and involvement in motor crashes. However, this finding seems to contradict the findings that those who report experiencing anger while driving are up to two times more likely to engage in risky driving (see Nesbit et al. and Vassallo et al., 2007, for reviews). The authors

caution that the relatively low occurrence of motor vehicle crashes in their sample may have decreased ability to identify any relationship in their data.

The relationship between anger and aggressive driving was further explored by Lajunen and Parker (2001) who concluded that variation in the relationship between affect and driving behaviour was a function of the situation. Specifically, they found that those men and women who reported themselves as being verbally aggressive seemed to be angered by other drivers' driving more than those who did not report being verbally aggressive. They further found that the more these people became angry, the more likely they were to be aggressive. However, an interesting finding of the study was the lack of a relationship between physical aggression and driver anger. That is, driver anger does not always precede or occur with aggressive driving behaviour. The authors premised that some drivers may resort to aggressive behaviour simply to achieve their own driving goals rather than as an expression of angry emotion.

6.10 Aggressive driving and mood

The work of Reason, Manstead, Stradling, Baxter, and Campbell (1990) sought to provide traffic accident investigators with a "classification of the possible varieties of human failure" (p. 1315) from which further research has examined the relationship between these "failures" and mood. From their research Reason et al. (1990) offered a three way typology of aberrant driving behaviour. These comprise: *lapses* which involve a break in attention or memory; *errors* which are the failure of planned actions to achieve the intended outcomes; and *violations* which are deliberate deviations from legally prescribed driving practices, for

example, intentionally exceeding the speed limit. In their research they also found that youth and gender, specifically being male, were strong predictors of a likelihood of committing traffic violations. The work of Reason et al. (1990) has since been developed with empirical research finding that affect can be a predictor of the most common violations which Lawton, Parker, Manstead & Stradling (1997) have identified within the three factors they refer to as fast driving, maintaining progress (includes "assertive and potentially dangerous violations relating to maintaining progress while driving, although not necessarily to speed", p. 1267) and anger/hostility which pertains to aggressive or hostile actions towards another road user. Lawton et al. (1997) found that the more positive that one felt about committing a traffic violation, the more often one engaged in such violations. In particular, they found that the most predictive mood was one of satisfaction or relief at having avoided a delay or "taught a discourteous driver some manners" (p. 1265). The most predictive of negative moods were feeling bad about one's own discourteous behaviour and feeling anxious about being involved in a crash. However, overall, positive affect was more predictive of violations than negative affect.

When investigating aggressive driving, Stradling and Parker (1997) found that of the three categories of aberrant driving behaviour, driving violations are most closely linked to aggressive driving. This is a highly relevant finding for road use safety as Parker, Reason, Manstead and Stradling (1995) found that it was "chosen" actions such as speeding rather than errors such as failing to see a vehicle that were the greatest predictors of motor vehicle crashes. These findings have been supported by other studies in the area (see Lajunen, Parker & Stradling, 1998).

6.11 Aggressive driving and situational variables

Shinar and Compton (2004) examined aggressive driving behaviour and the situation, defining aggressive driving as "any behaviour that interferes with the movement of other drivers or pedestrians" (p. 429). They observed over 2000 aggressive driving behaviour to conclude that numerous situational and demographic variables are related to aggressive driving behaviour. These factors include age, gender, the presence of passengers and the value of time. They found that men were more likely to drive aggressively than women and that those who were 45 years old or older were less likely to drive aggressively than younger drivers. They also found a weak but significant and consistent negative relationship between the presence of passengers and the number of aggressive driving behaviour. The value of time was also found to be related to aggressive driving acts in that when the value is high, such as in rush hours, the likelihood of aggressive driving acts increased relative to when time was less precious. This finding may signal an increase in aggressive driving where drivers see themselves as in a chronic state of time pressure.

6.12 Positive driving behaviour

In an interesting more recent development in the research on driving behaviour, Özkan and Lajunen (2005) explored positive driver behaviour. Positive driving behaviours are those behaviours that are directed towards consideration of the traffic environment or other road users. The definition as positive relies not so much on the outcome of the act but rather on the positive intent. Although not directly explored, it is possible that behaviour with such positive intent may be related to improving traffic safety. However, well-intended

yet unexpected road use behaviour may also contribute to traffic crashes if other road users are unable to react to such behaviour in time. For instance, a well-intentioned driver may attempt to move into the slow moving lane so as to let a faster moving vehicle progress in the outer lane, only to move into the path of the faster moving vehicle and hence result in a crash. Regardless of this possibility, Özkan and Lajunen found that considerate road use behaviours were negatively related to hostile aggression and revengeful behaviour for both "self" and "other drivers". That is, those who do try to allow the unimpeded progress of other road users are less likely to exhibit revengeful behaviour or respond negatively to the aggressive driving of others. Perhaps surprisingly however, they found that such driver behaviour have no relationship to traffic offences or crashes.

Özkan and Lajunen (2005) note that driving style includes both negative and positive behaviour however, the majority of research in road use behaviour and safety is focused on examination of negative driving behaviours. Despite the findings of no significant relationship between positive driver behaviour and traffic offences and crashes in their work they suggest that research on positive driving behaviours may provide a direction for further exploration of what is required in the promotion of a "Positive Traffic Culture" (Özkan and Lajunen, 2005, p. 366).

Some current research at the University of Canberra supports the utility of taking a positive driving approach to road use behaviour. Kleisen (2010) suggests that positive driving styles may be related to thinking styles which may be able to be learnt. Her research findings suggest that while sex was the strongest predictor of negative driving styles, some thinking styles were the best predictors of positive driving styles. Given that elements of thinking

style may learned through social processes and training, there could be a direct application of Kleisen's findings through driver training. This could be particularly applicable for novice drivers who are developing their preferred driving practices and who, through training, may develop a more positive driver style.

6.13 Summary

This chapter commenced with an examination of some of the explanatory frameworks that have been applied to road use or associated behaviour. Most prominent in the literature have been the Theory of Planned Behaviour, Social Learning Theory, and Deterrence Theory. In considering how people respond to messages regarding road safety, the frameworks of Third Person Effect, Social Identity Theory and Optimistic Bias were examined. Additionally, the chapter explored some of the ways in which personality or individual differences have been researched as relevant to road use behaviour revealing that agreement is yet to be reached as to the relevant variables to explore in this area or the ways in which those variables thus far explored contribute to road use behaviour. It is argued that little research or literature currently exists that marries the observations of those examining individual differences with those exploring road use behaviour as an outcome of broader social processes; clearly both influences are likely to play a role in road use behaviour.

7 CHAPTER 7

KEY ROAD SAFTETY INFORMANT VIEWS IN THE ACT

This chapter presents the methodological approach and results from a small-scale research study undertaken to inform this preliminary scoping report. Key informants with a major interest in ACT road safety were interviewed regarding their views on the factors affecting road safety in the ACT.

7.1 Aim

The aim of this research was to undertake a preliminary scope of the views of key informants regarding the road culture of the ACT and the factors perceived to affect it. This aim was pursued through semi-structured interviews with representatives from key road use entities in the ACT. The information obtained provides a foundation upon which to build a longer-term more in-depth investigation of the relevant factors underpinning road culture that could yield information regarding the best ways to implement and achieve a 'Vision Zero' approach in the ACT.

7.2 Participants

Given the nature of the current project as a scoping study, it was important to gain an understanding of the road safety issues germane to the ACT as assessed by the local experts. Organisations and individual participants were selected to provide access to a broad knowledge base regarding road safety issues in the ACT. Individual interviews were

undertaken rather than focus groups (as originally planned) to gain more detailed individual information from the representatives of each organisation.

A total of twelve (N = 12) interviewees were chosen from a list of relevant contacts as recommended by David Quinlan, Manager Road Safety, Roads ACT, ACT Department of Territory and Municipal Services (TAMS). TAMS is the ACT Government department responsible for "road safety policy, awareness campaigns, road safety engineering matters, driver licensing and vehicle registration programs, the processing of payments for infringement notices, and the operations of the Traffic Camera Office" (ACT Road Safety Strategy, 2007-2010, p. 25). Given this extensive role in road safety policy and implementation in the ACT, TAMS was considered to be a valuable starting point for information gathering. Other participants were selected as key stakeholders in the area of road safety in the ACT with most of the following organisations advising on the ACT Road Safety Strategy and Action Plan (ACT Road Safety Strategy, 2007-2010) and being members of stakeholder coordination groups such as the Road Safety Liaison Committee, the Road Safety Task Force and the Road User Working Group (see TAMS website: http://www.tams.act.gov.au/move/roads/road_safety/coordination_and_consultation).

It should be noted that the consultation conducted in this phase was not exhaustive or inclusive of all road safety stakeholders in the ACT. The organisations consulted for this preliminary scoping project were as follows:

- ACT Department of Territory and Municipal Services: Roads ACT, Road Safety (Manager)

- TAMS, Roads ACT, Traffic Management and Safety (Senior Manager, Traffic Engineer)
- TAMS, Transport Regulation and Planning, Road Transport Regulation (Manager)
- ACT Policing
- ACT Department of Education and Training
- Motorcycle Riders Association ACT
- Canberra Pedestrian Forum
- Pedal Power
- Australian Driver Training Association Inc (ACT) (three participants)
- An independent Road Safety Consultant registered as a Road Safety Professional with the Australian College of Road Safety

Perceptions from the representative of the ACT Department of Education and Training were not included in the reported responses as the staff member was relatively new to the role in road safety and felt unable to make a contribution to the discussion regarding road culture in the ACT beyond personal experience with a teenage novice driving son. This person's contribution to the scoping project was, however, invaluable for information on the way in which road safety information is disseminated to ACT students via the Road Ready program which is provided in Year 10 of high school throughout the ACT. Another interview which did not focus on the guiding questions was that with the independent consultant on road safety. This interview predominantly focused on the historical context of the current

road safety state in the ACT, however, the interviewee's responses are included in those reported where appropriate. The final number of interviewee responses included for analysis was eleven (n =11).

Unfortunately, a representative of the Street Machine Magazine "Summernats" festival was unavailable for interview as the latter part of the year is a period of intense activity in preparation for the annual festival in Canberra during January. The Summernats Festival is marketed as "more than a car show, it's a festival of street machine lifestyle"(Summernats website: http://www.summernats.com.au/index.php?option=com_content&view=article&id=46). As such, the Festival is an event that not only represents but also creates and promulgates street machine car and road culture in Australia and potentially internationally. The Festival is held in Canberra each year and attracts street machine enthusiasts from around Australia and internationally. In 2010, the festival drew a general attendance of nearly 84,000. Given the number of attendants and the ambit of the festival as appealing to an entire "lifestyle" of street car enthusiasts it is recommended that engagement with the organisers of this festival would be informative for future research on car culture in the ACT.

Whilst Summernats promotes the celebration of an entire auto-focused lifestyle, there are an additional 41 car, auto or motorcycle clubs listed as interest groups on the Canberra City Life website (http://www.bcl.com.au/canberra/intgroup/car-auto-clubs.htm). While it was not possible to include representatives from these numerous and varied groups in this scoping study, the existence of so many groups dedicated to automobile interests is

indicative of a vibrant interest in this area in Canberra and inclusion of such groups may be relevant for future research in this area.

7.3 Procedure

Interviews were undertaken from October, 2009 through to January, 2010. Interviewees were contacted either by telephone or email and subsequently were emailed 11 questions to guide discussion prior to interview. Discussion was not limited to these questions, rather they were used as prompts to explore interviewee's perceptions of the primary issues for road use norms and culture in the ACT. The guiding questions were:

1. *Do you think that a culture exists around the way people approach road use?*
2. *Do you think there is a specific culture for different places?*
3. *Do you think that Canberra has an identifiable road use culture?*
4. *Alan Evans has suggested that different demographics create different road cultures and that it is likely that Canberra has a unique road culture. Do you have any anecdotal evidence to support this possibility?*
5. *The chief minister has questioned if Canberrans care that, on average, 14 of our own die on our roads each year. Do you agree that we may be an uncaring population?*
6. *Are ACT drivers likely to have significantly more deviant behaviour (rather than attitudes) to those in other jurisdictions?*
7. *What groups would you recommend for focussed opinion gathering on the ACT road use culture?*

8. *What experts would you recommend we interview to gather insight into the nature of the ACT road culture?*
9. *MUARC research suggests that as we already have a high level of compliance, that we will get more efficient returns on investment if we direct funds towards other elements of the Safe System rather than directing resources towards road user behaviour. Your response?*
10. *Primary resistance to the safe roads and roadsides strategies were canvassed in community consultation in research in Western Australia with the following feedback, that: driver behaviour is the problem not the roads / roadsides; the strategy not feasible / too hard to implement; it is expensive; education is a more important area to focus on; and better policing will be more effective. Three out of these five comments focus on correcting the individual's (or community's?) poor behaviour; a strategy counter-indicative to the MUARC research findings. Are we likely to find similar / different attitudes in the ACT?*
11. *What do you think research on road user culture in the ACT should be examining?*

Interviewees were informed that their input was sought to assist the author to identify key issues for further research on road use safety in the ACT. They were also told that interviews would not be fully transcribed and that all specific responses would remain anonymous, although interviewee names and organisational affiliations would be identified in the project report. Interviews lasted an average of 1.5 – 2 hours. The majority of

interviews were conducted on a one-to-one basis with the exception of three representatives of the Australian Driver Training Association Inc. (ACT) who were interviewed together. All interviews were undertaken by the same interviewer and interviews were digitally recorded.

7.4 Results

Results are presented for each question, or a group of related questions, with an indication of the number of interviewees that responded to each question (n).

Questions 1 & 2: *Do you think that a culture exists around the way people approach road use? Do you think there is a specific culture for different places?* (n = 10)

Respondents all expressed a belief that distinct road use cultures could be identified at the national and international level. This was highlighted particularly by those who compared Australian road use style to that of some other countries such as a number of Asian and northern European countries. According to one participant, from their observations during travels, European road users have "a community awareness of safety". This same respondent suggested that in Australia, speed is a particular problem and that, in general, Australians travel much faster than those in Europe. He pointed out that in Australia, exceeding the posted speed limit seems to be socially endorsed whereas drink driving has increasingly attracted negative social sanctions.

In addition to expressing perceptions of cultural differences at the international level, distinctions were made between different driving cultures in different Australian cities. For instance, one interviewee commented that "Adelaide drivers are worse than drivers in the

ACT" while the respondent discussing speed in Europe compared to Australia contended that "it's worse in Canberra".

Question 3: *Do you think that Canberra has an identifiable road use culture?* (n = 11)

Culture of perceived entitlement: It was reported by all interviewees that Canberrans seem to view the road in a manner that suggests they have an entitlement to mobility at their own discretion; that is, they feel they should be able to decide how fast they should drive and how infrastructure and planning should be designed to enable their mobility via a car. One government interviewee used the example of a road user request for road widening on a residential street so that more traffic could be accommodated during peak hours. When it was explained that such an action would have a negative impact on the amenity of the area for the residents, the road user's response was to personally attack the credentials and professionalism of the government employees.

All interviewees commented that Canberrans have either a real or perceived need to drive given the spread-out nature of the city and a smaller public transport system than in larger cities.

Six respondents mentioned a perception of Canberra road users as having an expectation of fast travel. It was posited that this may be due primarily to the access to good roads with little congestion in the ACT in comparison with other Australian towns and cities. There was also the suggestion by one interviewee that speed on the road is an indication of the high pace of life in general for those in the ACT and elsewhere, reflected in the statement

"Time is very precious to Canberrans". One respondent suggested that in order to slow down road speeds, daily life needs to accommodate slower travel.

Eight respondents mentioned that Canberrans appear to have negative attitudes towards sharing road-use / space, with two interviewees specifying that they believe that Canberrans have a more negative view towards road safety than do those in other areas of Australia.

One respondent perceived contempt for authority, which they attributed as either uniquely Australian or unique to Canberra, stating: "*I like to think of it as the ANZAC spirit; Australians hate to be told what to do".* Moreover, this apparent contempt appears to be socially applauded and practiced as illustrated in the comment, *"It's an art form to get off a traffic fine".* This perceived approach to free mobility by this respondent was contrasted with the perceived road use culture of northern European countries in which a culture of mutual assistance was perceived to exist rather than primarily primary concern with one's own needs to the exclusion of the needs of others.

One respondent suggested that Canberra's single level of government may contribute to a culture of road use entitlement. They reasoned that as people have a relative ease of access to the relevant Ministers, this may dilute a sense of personal responsibility for action on road safety issues.

Despite overall agreement that Canberra does seem to have a culture of perceived entitlement, two respondents also commented that they thought that Canberra was no different to other jurisdictions in terms of its road use culture. For instance, one respondent commented that "*It's an impatient society everywhere, not just in the ACT".*

Question 4: *Alan Evans has suggested that different demographics create different road cultures and that it is likely that Canberra has a unique road culture. Do you have any anecdotal evidence to support this possibility?* (n = 10)

The general response to this question was to identify a variety of road use cultures or ways that different groups respond to their car and the road in Canberra rather than only one approach to road use being exercised by all Canberra citizens. Different groups were defined by occupation, area of residence, and level of interest or regard in cars (such as the high level of interest held by car enthusiasts as lovers of motor racing sport or a car centred lifestyle versus those that regard automobiles for functional mobility only). This perception of a variety of road use cultures in Canberra was mentioned by almost all the interviewees.

One interviewee observed that even among car enthusiasts there are numerous different groups with distinct subcultures. Such differences were highlighted with the comparison between general attendants to the Summernats Festival and the V8 Supercar races that were held in Canberra from 2000 to 2003. While Summernats is marketed as a celebration of an auto-focused *lifestyle,* the interviewee perceived the V8 Supercar races to be marketed as a sporting event and therefore of interest to different people compared with those that attend Summernats. Another interviewee questioned whether the perceived general "culture of entitlement" is perceived by the various subcultures as being the distinct right of "their" group. That is, the interviewee questioned if "the shared *right* of entitlement held by different groups is clashing?" This interviewee also perceived a large degree of

heterogeneity within different subcultures and suggested that there may even be faction rivalries within these subcultures which are exhibited in road use behaviour.

There was some support for this view with regard to perceived discord between the different road user groups defined as those driving motor cars, riding motor cycles, riding bicycles and pedestrians. It was suggested that those in one group can see those in another group as less "entitled" to the road, supporting less harmonious road use behaviour between the groups. This issue was raised by eight interviewees.

In a similar vein, there was a perception expressed (three interviewees) that some authority stakeholders, such as engineers and police, have little experience in understanding the unique needs or challenges faced by those in minority road user groups such as cyclists, pedestrians and motor cycle riders. A contrasting view expressed by four interviewees was a perception that minority road users can endanger themselves and motorists by sharing road space, for instance, in on-road cycle lanes.

One view expressed by three interviewees related to a perceived challenge to cyclists for their right to use the road. Each of these respondents raised the point that cyclists, as a particular minority road user group, tend to also be car drivers and hence pay for a right to use the road via their car registration.

Question 5: *The chief minister has questioned if Canberrans care that, on average, 14 of our own die on our roads each year. Do you agree that we may be an uncaring population?* (n=10)

No respondents directly agreed that Canberrans could be considered to be an uncaring population. The question of *care* for others when driving lead to more general discussions as to why it is that Canberrans do continue to speed and engage in road use behaviour that have been identified as dangerous. Almost all interviewees commented that they believe that Canberrans use the road with an absence of a sharing and courteous attitude towards road use.

An additional comment on this question from one interviewee suggested that rather than Canberrans being uncaring, the majority of the ACT population simply has no personal experience or awareness of the loss of someone close or are unable to make the connection between their own behaviour and the messages that such behaviour is unsafe. Whilst this was generally attributed to a need for awareness raising and education, one interviewee pointed out that it is difficult to get data on some behaviour to inform educators as to the worth of investigation of those behaviour, with tailgating used as one such behavioural example. In a similar vein, there were comments from three of the interviewees that suggested that the lack of awareness of Canberrans may be due to the statistically small number of enforced penalties for infringements relative to the number of times someone commits the infringement. For example, one may illegally use a mobile phone whilst driving numerous times without being detected or fined.

Discussion on reasons for the perpetuation of dangerous driving practices in the ACT also lead to comments from interviewees related to the perceived level of enforcement and education in the ACT. Interviewees were divided on their perceptions of both the current and optimum levels of enforcement and education. Three interviewees mentioned a specific

need for whole-of-life-learning/education regarding road use. One called for increased enforcement and education. Two were of the opinion that more police presence rather than enforcement are required. In a synergistic proposition, one suggested that the police could take a larger role as educators. Two interviewees commented on a need, for both the policy and judiciary, for increased access to heavier penalties for unsafe road use practices, which was suggested as likely to require legislative change. Two interviewees commented that in their opinion road use rules need to be simplified, particularly with reference to shared road use by cars, pedestrians and cyclists. One suggested that people continue to speed as they are unaware of the physics relating to speed, traffic crashes and the dissipation of kinetic energy.

Four interviewees commented on the statistic that Canberrans are just as likely to die on interstate roads as they are on ACT roads, effectively doubling the road toll for ACT citizens. Two of these people suggested one reason for the interstate road toll was that ACT road users become comfortable with driving on relatively good roads that are comparatively wide. It was suggested that decreased exposure to narrow, rural roads by ACT road users may contribute to interstate fatalities when ACT road users need to drive / ride in unfamiliar conditions. It was further suggested by one interviewee that the good roads and road space in the ACT may serve to decrease a perceived need for personal responsibility.

There were comments from four interviewees of a need for skills training to be promoted. In particular, three respondents suggested that parents seem to struggle to appreciate the value in additional driver training lessons beyond a rudimentary level. It was

suggested that more professional training of novice drivers may reduce the number and level of traffic crashes by this group of drivers.

Question 6: *Are ACT drivers likely to have significantly more deviant behaviour (rather than attitudes) to those in other jurisdictions?* (n = 8)

Interviewees were split on their response to this question. Of the eight who responded to this question, four indicated that they did not see Canberrans as more deviant road users to those in other jurisdictions. Two of these interviewees commented on a perception that was expressed in the statement that "*95% of Canberrans do the right thing most of the time*". The other four respondents focused their comments on the perceived higher level of speed of Canberra drivers, which was attributed to the wide and relatively uncongested roads of the ACT compared to other cities. There was also a suggestion of agreement with this question in interviewee comments that Canberran road users may operate with more deviant behaviour as a function of what is perceived to be a high expectation for unencumbered mobility as indicated in responses to Question 3.

Questions 7 & 8: *What groups would you recommend for focussed opinion gathering on the ACT road use culture? What experts would you recommend we interview to gather insight into the nature of the ACT road culture?* (n=12)

For Questions 7 & 8 there were few additions beyond those groups and individuals included as participants in the current project. The only recommendations received suggested the future inclusion of professionals in the Australian College of Road Safety ACT

Chapter, road safety educators, and relevant professional groups, interest groups and the general public.

Question 9: *MUARC research suggests that as we already have a high level of compliance, that we will get more efficient returns on investment if we direct funds towards other elements of the Safe System rather than directing resources towards road user behaviour. Your response?* (n =11)

All interviewees who responded to this question indicated that they believed that any road safety strategy needs to be integrated so that it incorporates road user behaviour in addition to the other measures in the Safe System approach.

Question 10: *Primary resistance to the safe roads and roadsides strategies were canvassed in community consultation in the WA research with the following feedback, that: driver behaviour is the problem not the roads / roadsides; the Strategy not feasible / too hard to implement; it is too expensive; education is a more important area to focus on; and better policing will be more effective. Three out of these five comments focus on correcting the individual's (or community's?) poor behaviour; a strategy counter-indicative to the MUARC research findings. Are we likely to find similar / different attitudes in the ACT?* (n =11)

Seven interviewees expressed an expectation for community resistance to a number of elements of the Safe System / Vision Zero type strategy implementation, in a similar way to those expressed in the WA community consultation. In particular, the likelihood of lower speed limits under such a system was thought to be likely to be met with fervent community

opposition. Interestingly, one comment relayed anecdotal evidence of such opposition being expressed broadly by those in driver education roles during a group meeting. There was a comment from four respondents that speeding behaviour is not sanctioned as anti-social in the same way that drink-driving has come to be.

In contrast to expectations of opposition to a more stringent road safety strategy, one respondent did think that *"we have won the hearts and minds of the silent majority"* as suggested by the general compliance among road users in the ACT.

Almost all respondents expressed a perceived need for the community to genuinely agree on the need for heightened safety on ACT roads. Four respondents also commented that securing this community acceptance will be difficult given that most people see themselves and others close to them as "above average drivers" and believe that the road safety problems rest with the minority who engage in high level deviant behaviour. One respondent captured this perception with a belief that the majority of road users believe that *"It's all the other idiots on the road"* that are the problem for road safety.

One interviewee suggested that there are areas in which speed compliance is greater than in other areas. In particular, it was suggested that there is general compliance with school zones because the community accepts that it is for the benefit of the children. The interviewee argued that to get that type of compliance with reduced speed zones throughout other areas will require road users to accept the restrictions as legitimate. The issue of perceived legitimacy of messages and speed zones was raised by half the interviewees who believed that compliance will not be gained unless road users can truly understand the reason for specific limitations to their mobility.

One respondent raised the issue that part of the problem with road traffic crashes is that, in their opinion, road users have become used to being highly regulated and are therefore less capable of exercising reasonable discretion on the road. This respondent emphasised the need for engendering a sense of community rather than increasing regulation.

An additional challenge for the implementation of a strategy similar to Vision Zero in the ACT was identified by four respondents. These people highlighted the significant gains that have been made on road safety particularly over the last 12 years in the ACT. This sentiment was captured by one interviewee who commented that "*all the low hanging fruit has been picked*" and new, high impact initiatives were being sought. This perspective was accompanied by conversation around much earlier significant changes that occurred in Australian road safety initiatives such as the mandatory use of seat belts, an initiative that is credited with halving the Australian road fatality toll.

Question 11: *What do you think research on road user culture in the ACT should be examining?* (n=11)

During the course of the interviews, the interviewees raised a number of issues that they believed needed to be investigated to gain better understanding of ways to improve the road culture in the ACT. These issues included:

- What is / are the most effective ways to encourage willingness to share space and sense of communal responsibility for road safety?

- How do we make it less socially acceptable to speed, use mobile phones whilst driving, drive when fatigued / distracted etc?
- What messages resonate with people? What will be received and acted upon?
- What is the most effective way to convey the dangerous realities of road use?
- Are all those with direct contact with learner drivers convinced of the dangerous realities of road use and speed?
- What is the likely impact of driver trainer attitudes on their students' road use behaviour?
- How can we encourage road users that it is OK not to be first?
- Would it be effective to promote the user's financial costs of erratic driving such as fuel and tyre costs?
- Are there differences in road use behaviour based on occupations, area of residence or primary basis for vehicle usage?
- What is the extent of Canberran road-users' sense of entitlement to use the road and define the parameters of mobility as they wish?
- Is the shared "right of entitlement" between the different subcultures clashing on ACT roads?
- Do Canberran road users have higher expectations of road use entitlement and service provision due to the relatively high socio-economic status of the ACT population?

7.5 Summary

Semi-structured face-to-face interviews were conducted with 12 experts/key stakeholders in road safety in the ACT. Key themes emerging included the perception that Canberrans seem to view the road in a manner that suggests that they feel an entitlement to mobility at their own discretion that is, they feel they should be able to decide how fast they should drive and how infrastructure and planning should be designed to enable their mobility via a car. There was a commonly expressed view that those in different road user groups often see those in the other groups as less "entitled" to the road; a view that was perceived to support less harmonious road use behaviour between the groups. This view was summed up by one interviewee who questioned if "the shared *right* of entitlement held by different groups is clashing?"

Despite perceiving an overall expectation of entitlement by drivers of the ACT, respondents also perceived a variety of road use cultures operating within the city with different road use behaviours demonstrated by different groups of drivers. These groups were perceived to exist along the lines of demographics or differing levels of motor interest.

Interviewees expressed a perception that Canberrans have either a real or perceived need to drive a car; a need believed to arise from the spread-out nature of the city and a smaller public transport system than in larger cities. There was also a perception that relatively good roads in Canberra may aid motorists to speed within the ACT and foster an expectation for similarly easy travelling outside of the ACT. It was posited that this expectation may contribute the equally high road fatality toll of ACT residents outside of the

ACT as that occurring within the ACT when ACT motorists encounter roads of a lesser quality in other jurisdictions.

There was a broadly expressed belief that the community needs to genuinely agree on the need for heightened safety on ACT roads. There is a concern that this may be difficult with a perception that ACT drivers generally view themselves as being better than average drivers and attributing the road toll to "*all the other idiots on the road"*. There was a revelation that some of those in motor vehicle and motorcycle use training may convey a view to students that avoidance of enforcement is the primary motivator for adherence to road laws rather than road user safety.

Interviewees identified a range of issues they believe should be investigated in road safety research in the ACT. In particular, there was a general concern with gaining more information on the most effective ways to convey the imperatives of safe road use to the ACT community.

8 CHAPTER 8

DISCUSSION AND RESEARCH PROPOSAL

This final chapter presents a proposed research program to further understanding of road safety issues and culture within the ACT, with a view to providing a sound foundation for implementation of a Vision Zero-type approach.

8.1 Background

It is evident that any attempt to describe or understand road use culture and the way it is promoted is a complex task. The ways we view our vehicles or means of travel, other road users, and the roads we travel on, are informed by broad social and psychological processes. Variation in the way these processes are experienced and expressed provides the foundations for a variety of road use cultures. These subcultures are evident in the numerous interest groups around vehicles, road user groups, and the different impacts of lifestyle, life stage, peer group, age and gender on road use culture. Additionally, variation exists even within these groups as interests are further refined and individual differences are expressed. These differences can affect the way we regard and behave towards all elements of the road use system.

Much research has been and is currently being undertaken on numerous behavioural elements within road use culture. For example, understanding the sometimes apparently irrational behaviour of novice drivers has been greatly extended with research considering brain development and variable ability to assess risks and resist social pressures such as peer influence (e.g. Steinberg, 2007). What is not fully understood is how and why the car and the

road becomes the stage for the exhibition of such influenced behaviour, often with tragic outcomes.

The literature reviewed in this report and the information gained from interviews with key road safety experts in the Canberra region suggest that the ability to assess risks on the road is only one factor that defines the way in which we use the road. It appears that a major determinant of road use behaviour may lie in the way in which the car or vehicle has meaning for the driver/road user and aligns that person with or distinguishes that person from others. Furthermore, one's response to road safety initiatives may be tied to these perceptions of the parts of the road use system.

Currently in the ACT, the views toward and value placed on road safety by the various societal groups are unknown. Furthermore, the ways in which the vehicle, other road users and the road is regarded by these groups is currently unknown. Moreover, insufficient demographic data are available on those involved in serious car crashes or infringements that might reveal group interests such as occupation or location of residence. In essence, little is known about the road use culture or subcultures of the ACT. Consequently, there is a paucity of information available to inform the selection and implementation of targeted interventions aimed at reducing the ACT road toll.

Drawing on the extensive literature review undertaken in this report, the following areas require further investigation, to ascertain their unique impact on ACT drivers, in order to provide an evidence-based approach to reducing the road toll in the ACT:

- *Demographic factors* – including age group (particularly distinguishing among those aged 17-25, including P-plate drivers and those in their 20's), gender, occupation, area of residence, income level;
- *Social factors* –including road interest group membership, informal auto-interests, views of own and other road-user "groups", influence of significant others on road use behaviour; perceived norms of road use behaviour; self-serving attributions related to road use;
- *Educational factors* – including evidence based and evaluated persuasive road safety messages and other interventions, influence of road safety educators such as driving instructors;
- *Individual factors* – including symbolic and affective motives, mood (including anger and depression);
- *Community factors* – including sense of community and belonging, community-related road use factors;
- *Road factors* – including attitudes towards general and specific Vision Zero-type changes;
- *Offence factors* –including speed, drink driving, drug driving, fatigue, mobile phone use.

8.2 Proposed research program

The ACT Government places a high priority on road safety and the jurisdiction has the lowest road crash fatality rate in Australia, for accidents that occur within the jurisdiction

(Australian Government Department of Infrastructure, Transport, Regional Development and Local Government, January 2010). Nevertheless, on average, one person is killed on ACT roads every 25 days. This figure reflects an average of 14.8 deaths on ACT roads per year for the past 10 years (ACT Government, Territory and Municipal Services, 2009) and a current (2009) road death rate of 3.4 per 100,000 population (Australian Government Department of Infrastructure, Transport, Regional Development and Local Government). In a committed effort to reduce the ACT road fatality and serious injury rate, the ACT Government is currently examining the most effective means to implement a Vision Zero-type road safety strategy within a road safety conscious culture.

Working to alter a road use culture to one which is safety oriented risks being misdirected without further understanding the factors of such a culture as they currently exist. What is required to implement a 'Vision Zero'-type goal is a thorough understanding of road culture in the ACT, including investigation of our roads, our cars, our drivers, and our road user groups. This requires a mixed methods approach, gathering detailed information on road use statistics and also investigating the attitudes, knowledge, norms and overarching culture of road use in the ACT. To this end, a research program is proposed with the primary aim of establishing a comprehensive description of the road use culture and subcultures of the ACT and identifying the factors that determine these cultures. It is a further aim to identify areas of community resistance to and acceptance of general and specific Safe Systems implementation measures. It is proposed that research methodology for the program utilises approaches that enhance engagement with the community and key stakeholder bodies in the Safe Systems implementation process.

This proposed scope is based on a three-year research program with minimal staffing comprising a full-time researcher and associated supports. This program would enable the basic research to be undertaken to determine how a Safe Systems or Vision Zero –type approach to road safety could be best implemented within the ACT.

8.3 Project Plan

Objective	Implementation options	Commencement Time frame	Duration
1. Establish profiles for those involved in serious motor vehicle crashes in the ACT by demographic variables (age, gender, SES) and identify sub-groups with higher risk.	Obtain and analyse ACT retrospective police or insurance claim data in the ACT to identify people and areas of higher risk. Where possible, compare data with other jurisdictions to determine commonalities with and distinctions with ACT data.	Yr 1 First half	6 months
2. Describe self-report road use patterns, associated attitudes to the car, the road, other	a. Conduct a household survey of a random sample of ACT households – to yield a sample of 1500 via a CATI (computer	Yr 1 – 2nd half	12 months

road users and road safety by demographic variables (age, gender, SES, occupation, location of residence, interest).	assisted telephone interview) phone survey. b. Analyse, write up and prepare surveys for following task implementation in Jan, Yr 2		
3. Describe self-report road use patterns, associated attitudes to the car, the road, other road users and road safety by road user interest group variables (age, gender, SES, occupation, location of residence, interest).	Survey road use relevant interest groups such as auto and motor cycle clubs (41 clubs listed in ACT), cycling groups, walking groups, and lifestyle groups - in particular the Summernats entrants.	Yr 2 – first half	6 months
4. As above	Analyse and write up survey results	Yr 2 – 2nd half	6 months
5. Develop preliminary report of findings and	Develop preliminary suggested recommendations for use in	Yr 2 – 2nd half	6 months

suggested recommendations.	subsequent Delphi study.		
6. To clarify expert response to community and expert identified barriers and facilitators to Vision Zero implementation.	Conduct Delphi study with road safety experts to identify and clarify barriers and facilitators to Vision Zero implementation.	Yr 3	3-6mths
7. Provision of a final comprehensive report detailing statistical analysis of findings with interpretation and recommendations.	Statistical analysis and documentation of findings, interpretation and recommendations.	Yr 3	6 months

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