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An investigation of mobile phone use while driving: An application of the theory of planned behavior

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An investigation of mobile phone use while driving: An application of the Theory of Planned Behavior

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Abstract

Mobile phone use while driving has been an emerging issue for road safety in recent years. The development of new technology has meant that users are more connected to their devices than ever before. This has led to use while driving despite the illegality of this behaviour. In this research, three mobile phone use behaviours were investigated: making/receiving calls; creating/sending text messages, and accessing social media. Through application of the Theory of Planned Behavior (TPB), an online survey was developed. Five hundred and fifty-nine university students including 193 young respondents (aged 17 – 25) responded to investigate attitudes, subjective norms, perceived behavioural control, and intentions towards using a mobile phone while driving. Knowledge of legislation, attitudes towards the law, penalties, and police enforcement was also explored. Chi-square tests, independent t-tests, and hierarchical multiple regression analysed the influence of the TPB components relative to demographic variables, crash, and enforcement history. Results confirm the relevance of TPB to investigate mobile phone use while driving in Western Australia. High occurrences of mobile phone use while driving were found despite respondents expressing negative attitudes, social norms (subjective norms) and low perceived control towards the behaviours as 76.16% of young respondents had used a mobile phone while driving at least once. Through hierarchical multiple regression, the TPB components predicted low intention to engage in mobile phone use while driving to make/receive calls, create/send text messages and access social media in the next week. In addition, most respondents had not suffered social (road crashes or hospitalisation from road crashes) and legal (receiving a caution or infringement) consequences as a result of using a mobile phone while driving. Road safety stakeholders and the research field will benefit from this research as it fills the gap of knowledge in a Western Australian context, particularly on the use of social media while driving.

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Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

(i) *incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;*

(ii) *contain any material previously published or written by another person except where due reference is made in the text of this thesis; or*

(iii) *contain any defamatory material;*

Signed: 

Date: 27th January 2017

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Chapter 1 Introduction

Road safety is one of the top public health and criminology concerns in Western Australia, Australia, and internationally. Persons under the age of 25 (referred to as "young adults") are particularly vulnerable road users due to their age and inexperience, as well as their propensity for engaging in risk-taking behaviours and succumbing to peer influence (Braitman, Kirley, McCartt, & Chaudhary, 2008; Buckley, Chapman, & Sheehan, 2014; Graham & White, 2007; Hatfield & Fernandes, 2009; Ivers et al., 2009; McCartt, Shabanova, & Leaf, 2003; McKnight & McKnight, 2003; Scott-Parker, Watson, King, & Hyde, 2014). The implementation of road safety campaigns (such as the promotion of wearing seatbelts, not speeding and not being under the influence of alcohol/drugs while driving), improvement in technology (such as automatic braking assistance, airbags and electronic stability control) and environmental structural changes (such as road barriers, noise lines and tree removal) have contributed to the decreases in fatality[1] and injury rates from road crashes over the past 50 years (Singh, 2015). However, human error continues to be the main cause of road crashes (Singh, 2015).

Driver distraction as human error is a growing issue as a contributor to road crashes. Driver distraction is the redirection of attention from safe driving to competing activities. In one study by Beanland, Fitzharris, Young, and Lenné (2013), a sample of 340 crashes in Australia between 2000 and 2011 found that approximately 57.6% were attributed to driver distraction. Whilst there are many causes of driver distraction, the road safety research field in Australia and internationally has recently focused on the use of mobile phones while driving due to the growing attachment between devices and users (Shuman et al., 2016). Results from driving simulator and observational behaviour studies illustrate that hand-held

[1] For the purpose of the present study, a "fatality" is defined as a death that has resulted from a road traffic incident.

use of mobile phones while driving diminishes the ability to concentrate on safe driving, increasing the driver's and passenger's risk of being involved in a road crash (Bendak, 2015; Fitch, Bartholomew, Hanowski, & Perez, 2015; He, Chaparro, Wu, Crandall, & Ellis, 2015). Despite high risks, numerous studies have found between 50% and 90% of population samples have used a mobile to make/receive calls and create/read text messages while driving. This was attributed to the lack of social (road crashes) and legal consequences (contact with enforcement) experienced by the populations (Beck & Watters, 2016; Bergmark, Gliklich, Guo, & Gliklich, 2016; Bernstein & Bernstein, 2015; Delgado, Wanner, & McDonald, 2016; Mizenko, Tefft, Arnold, & Grabowski, 2015; Terry & Terry, 2015). The Theory of Planned Behavior (TPB), a psychological model which indicates that the intention to perform a behaviour is predicted by attitudes towards the behaviour, subjective norms (the perceived pressure to engage in the behaviour), and the ability to perform the behaviour (known as perceived behavioural control), has been adopted by many authors to explain motivations to engage in mobile phone use while driving (Cazzulino, Burke, Muller, Arbogast, & Upperman, 2014; Mizenko et al., 2015; Prat, Gras, Planes, González-Iglesias, & Sullman, 2015; Rowe et al., 2016; Waddell & Wiener, 2014).

The present study investigated the three following mobile phone use behaviours while driving: making/receiving calls, creating/sending text messages and accessing social media. Much attention has focused on making/receiving calls and creating/sending text messages while driving in previous road safety literature however, given the rise in social media and its growing influence on day-to-day life on the community, particularly among young adults, limited studies are available on the prevalence of accessing social media on mobile phones while driving. Although social media is only one of the many functions a user can access on their mobile phone, its popularity and a user's growing dependency on accessing social media daily may have impacted users' ability to drive safely, if they are accessing social media

while driving. Research on the use and influence of social media while driving has been limited despite its popularity.

Other limited areas of research include general mobile phone use while driving (including accessing social media while driving) with the TPB that has been conducted in Western Australia. The social and legal consequences of using a mobile phone while driving has also not been explored recently in Western Australia, with social consequences including being at the fault of a road crash due to mobile phone use while driving, and legal consequences including being issued with a caution or infringement from using a mobile phone while driving. Furthermore, no recent research (to the best of the author's knowledge) has been conducted on the assessment of legislative knowledge relating to mobile phone use while driving; that is, whether young respondents recognise whether certain situations fit within the legal parameters of using a mobile phone while driving. All road traffic legislation follows the Australian Road Rules which are set by the National Transport Council (National Transport Commission, 2017). Legislation concerning mobile phone use while driving is therefore similar in all jurisdictions in Australia.

The present study sought to close the gap in the research, by using the TPB to explain the role of attitudes, subjective norms and perceived behavioural control in the intention to engage in making/receiving calls, creating/reading text messages, and accessing social media while driving among young respondents (aged 17 – 25 years) in Western Australia. As an intervention was not conducted in this study, future behaviour was not recorded, but past behaviour data was otherwise collected and used as a proxy or model for future behaviour which has been supported by previous TPB literature (Bentler & Speckart, 1979; Triandis, 1977). The extent to which young respondents have had social or legal consequences is also explored.

The present study used an online survey as the main research tool to collect information from university students. The survey included both quantitative and qualitative questions. Quantitative methods including Chi square tests, independent t-tests and hierarchical multiple regression are applied and thematic analysis of qualitative responses is employed. It is important to note that the sample collected is that of a bias sample, and does not represent the general driving population of Western Australia. Thus, the results presented in the present study only apply to this sample and may not translate or be applicable to these populations. Nevertheless, despite containing a bias sample, the present study makes an important contribution to the mobile phone use while driving literature and driver distraction literature, especially with its inclusion of investigating the action of accessing social media while driving and legislative knowledge and consequences relating to using a mobile phone while driving.

The study firstly presents an overview of the literature on road safety, young drivers and driver distraction in Chapter 2. The significance of mobile phones and social media in society is then presented, before providing an overview of the literature on mobile phone use while driving. The TPB is then presented in Chapter 3, examining its importance in the road safety research field, as well as discussing each component of the theory. The use of this theory to examine mobile phone use while driving is explained. Following this, the methodology of the present study is illustrated in Chapter 4. The rationale for the quantitative and qualitative methods used in the study are discussed. Subsequently, as described in the methodology chapter, the description of two pilot studies and the development of the research tool are presented in Chapter 5. The final results of the research are then shown in Chapter 6. The discussion of the meaning of the results is provided in Chapter 7, which includes the limitations of the present study and the outcomes for theory, policy and practice. The thesis

ends with a conclusion in Chapter 8, tying all components together, and summarising the present research.

This study has contributed to the TPB literature and the road safety policy and practice realm. Road safety researchers may benefit from this research as it adds to the validity of the TPB. Enforcement personnel and other policy makers within the road safety field may have a renewed understanding of the prevalence of mobile phone use while driving in Western Australia, and insights into the driving community's attitudes, subjective norms, and perceived behavioural controls relating to the behaviour. This can then be translated into road safety practice, as education and interventions may be developed to influence attitudes, subjective norm and perceived behavioural control of using a mobile phone while driving.

Chapter 2 Literature Review

Aims of this chapter

This chapter presents a critical literature review of road safety and mobile phone use while driving. It is displayed in six sections. Firstly, statistics are shown on the current fatality and injury trends which resulted from road crashes on a global, national and local scale. The statistics will illustrate that road crashes and road safety are a significant public health issue. Secondly, a critical review of the literature surrounding young novice drivers is presented, which supports the premise that young drivers are at higher risk of incurring an injury or becoming a fatality as a result of road crashes. Thirdly, a critical review of the literature on driver distraction and inattention will demonstrate that this is a serious issue in road safety. Next, the significance of mobile phones and social media is presented to show the importance of the technology in Australia and globally. A critical review of the literature surrounding mobile phone use while driving is then presented, displayed by research tool. Finally, the conclusion will summarise this chapter and illustrate the research gap that the present study aims to fill.

The following databases were accessed between January 2015 to January 2018: Science Direct, Edith Cowan University Library One Search, and SAGE Online Research Methods. A list of search terms is located in Appendix 7.

Injuries and fatalities from road traffic crashes: a significant public health issue

Worldwide

Road crashes are a considerable public health problem globally. It is estimated that there are 1.25 million deaths, 78.2 million injuries requiring hospital attention and 79.6 million healthy years of life lost due to road traffic injuries annually (The World Bank Group & University of Washington, 2014; World Health Organization, 2015). Transport-related deaths, ranked number eight in the top causes of death, comprise of 2.5% of all premature

global deaths, and is expected to be the fifth leading cause of death globally by 2030 (The World Bank Group & University of Washington, 2014; World Health Organization, 2013).

High-income countries have lower statistics of road traffic deaths. The United Kingdom, Sweden and the Netherlands have the lowest road crash fatalities per capita (below four people per 100, 000) among the Organisation for Economic Cooperation and Development nations (Australian Transport Council, 2011). This is attributed to successful road safety initiatives in the 1970s and continued road safety efforts until the present, as well as improved infrastructure, the introduction of key safety in vehicles (such as seatbelts) and evidence-based graduated license schemes (The World Bank Group & University of Washington, 2014). In contrast, Africa has the highest road crash fatality rate globally with a reported 28.3 deaths per 100, 000 when adjusted for under-reporting (Peltzer, 2011). Between 1980 and 2010, East Asia (including China) had a 77% increase from road traffic injuries with South East Asia (including India) alone having a 66% increase during this period (The World Bank Group & University of Washington, 2014). This may be attributed to the increasing affordability of vehicles in these regions, and thus the public's exposure to motor vehicles has increased, but road safety knowledge has not maintained pace with the demand for motor vehicle transport (The World Bank Group & University of Washington, 2014).

With regards to data quality, there are substantial issues in the under-reporting of injuries from road crashes in low-income countries. Sub-Saharan Africa has the highest rate of under-reporting in the world. This statistic is supported by results from household surveys and hospital documentation. They illustrate high rates of death resulting from road crashes, while official government records report less than 20% of the non-official figures (The World Bank Group & University of Washington, 2014). Accurate road crash and injury data reporting is imperative, given the tremendous economic and social impact road crashes and injuries have on the community (Giles, 2003).

While being affected by the consequences of road crashes, young people are also seen to contribute to the social and economic cost of road rashes. Road crash injuries were noted as the leading cause of death for males aged 5 – 14 years and 15 – 29 years globally in 2010 (The World Bank Group & University of Washington, 2014). For females, such injuries were ranked fifth for ages 5 – 14 years and fourth for aged 15 – 29 years (The World Bank Group & University of Washington, 2014). This has had long lasting effects on country productivity as it is estimated that road traffic injuries contribute to a 5% loss of global Gross Domestic Product (GDP) and 3% of GDP in low and middle-income countries (World Health Organization, 2015).

To combat the social and economic impacts of road crashes, the March 2010 United Nations General Assembly resolution 64/255 proclaimed the Decade of Action for road safety for 2011 – 2020 (World Health Organization, 2010, p. 3). During this decade, the United Nations member countries (including Australia) agreed to stabilise and reduce injuries from road crashes, as well as implement regular reporting (World Health Organization, 2010).

Australia

Australia has reported decreasing trends in road crash fatalities in the last forty years, but they still remain a major public health issue. Road fatalities peaked in 1970 with 3,798 fatalities, equating to 30.4 fatalities per 100, 000 people (Trewin, 2001). Since 1970 the fatality rate decreased significantly, and by 1999 the fatality rate reduced to 9.5 fatalities per 100, 000 persons (Trewin, 2001). Between 1989 and 2015, raw data from the Australian Road Death Database: Fatal Crashes produced by the Department of Infrastructure and Regional Development (2016) illustrate that there is a downward trend in fatality and fatal crash numbers as seen in Figure 1. During this period, Australia saw a 50% growth in population and a doubling of car ownership (Australian Transport Council, 2011). To

consider changes in population, Table 1 illustrates the proportion of fatalities per 100, 000 persons in each state and territory in Australia between 2010 and 2015. The Northern Territory has the highest fatality rates per 100, 000 persons, while the Australian Capital Territory has the lowest fatality rates. However, it could be argued that annual declines in fatality rates over a small amount of years (for example, five years) may not be seen as a reliable measure of road safety, as it may suggest uniform decline and may not accurately convey major reductions due to safety interventions.

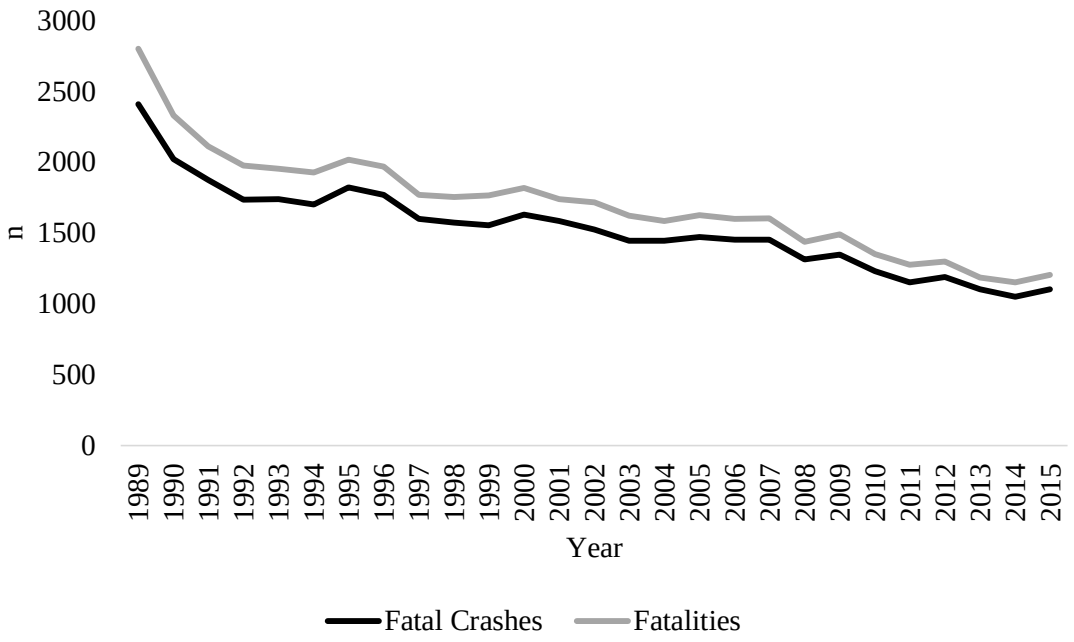

Figure 1 Fatalities and Fatal Crashes in Australia, 1989 - 2015
Source: Australia Road Death Database: Fatal Crashes August 2016 (Department of Infrastructure and Regional Development, 2016)

The estimated social cost from road traffic injuries is AUD23.34 billion (Australian Bureau of Statistics, 2016b; Risbey, Cregan, & Silva, 2010). Estimates from a sample of hospital admissions from road crashes suggest that the mean cost per admission is AUD22, 381 (Hatfield, Friswell, & Williamson, 2015). Actual costs are drawn from the community,

and include government services such as Medicare, and the direct costs of unemployment for the injured person (Hatfield et al., 2015).

The decrease in reported fatalities for Australia in the last 26 years may be attributed to road safety initiatives and strategies, including safer vehicles and road infrastructure. The current national road strategy, the Australian National Road Safety Strategy 2011 – 2020, was compiled and agreed upon by Federal, State and Territory Transport Ministers from each jurisdiction (collectively named the "Australian Transport Council"). Based on the Safe System principles (Australian Transport Council, 2011), the strategy aims to reduce the annual number of serious injuries and fatalities by 30% by 2020 (Australian Transport Council, 2011).

Table 1
Road Crash Fatality Rates per 100, 000 Population, Australian States and Territories

	Year						
State	2010	2011	2012	2013	2014	2015	Mean Rate per 100, 000
Australian Capital Territory	5.25	1.63	3.20	1.83	2.59	3.84	3.06
New South Wales	5.67	5.05	5.05	4.49	4.08	4.59	4.82
Northern Territory	21.76	19.45	20.83	15.37	15.91	20.06	18.90
Queensland	5.65	6.01	6.13	5.82	4.72	5.08	5.57
South Australia	7.25	6.29	5.68	5.87	6.35	6.00	6.24
Tasmania	5.90	4.69	6.05	7.02	6.41	6.58	6.11
Victoria	5.27	5.19	5.01	4.23	4.25	4.24	4.70
Western Australia	8.42	7.61	7.52	6.43	7.11	6.18	7.21

Source: Department of Infrastructure and Regional Development (2016)

In 2016, there were 1,925 fatalities from 1,201 road crashes in Australia and there were 35,552 road traffic injuries which required hospitalisation (Bureau of Infrastructure, 2017) . The highest number of fatalities was in the 40-64 year age group (n= 414) and among males (n= 957) (Bureau of Infrastructure, 2017). Concerning location, 34% of all fatal road crashes occurred in major cities, whilst 66% occurred in non-metropolitan areas (Bureau of

Infrastructure, 2017). These statistics are compared with those from Western Australia as reported below.

Western Australia

In 1970, Western Australia had the highest road crash fatality rate in its history with 35.40 fatalities per 100, 000 people (Office of Road Safety, 1984), mirroring Australia's peak in road crash fatalities of 30.4 fatalities per 100, 000 people (Trewin, 2001). Road crash fatalities decreased to 6.18 fatalities per 100, 000 people in 2015 (Department of Infrastructure and Regional Development, 2016). This marks a decrease of 29 fatalities per 100, 000 over 45 years or 1.8% per annum on average.

Concerning the uniqueness of Western Australia compared with other Australian jurisdictions, Western Australia has a very diverse and extensive road network and is the largest jurisdiction in Australia. Regional populations have a higher chance of being involved in a fatal or serious crash than populations in metropolitan areas (Thompson, Hill, Beidatsch, & Bramwell, 2013). In 2015, 54.03% (n= 87) of fatalities were in regional Western Australia (Western Australia Road Safety Commission, 2016a). This figure is lower than the overall Australian figure, despite Western Australia being the largest state in Australia. This may be partly due to road infrastructure on regional roads being more narrow with less architecture, and allowing higher speeds (the highest speed limit is 110km/h) (Thompson et al., 2013). Driver fatigue on country roads is a considerable issue for those driving long distances (Thompson et al., 2013). Additionally, another risk for crashes in regional areas is the delay in emergency response times and medical treatment (Australian Transport Council, 2011). In Western Australia, some road crash locations are very remote (for example, more than 12 hours' drive from the nearest town) and emergency services (such as the Police and Ambulance) are unable to reach the location in the same period if the crash had happened in the metropolitan area. This is one of the reasons why the Road Traffic Act 1974 was

amended to increase the time allocation for Police officers to take blood samples from a driver who has been involved in a serious crash (in order for the sample to be used in evidence) from four hours to twelve hours, to account for longer response times in regional areas (Government of Western Australia, 2017a).

Common contributing factors to road crashes in Western Australia in 2015 were all human errors. These included alcohol use, speed, fatigue and inattention. This again illustrates that most crashes are caused by human error (Western Australia Road Safety Commission, 2016a). Often, more than one variable is involved in a road crash (for example, a driver could be speeding as well as be under the influence of alcohol (Office of Road Safety & Western Australian Police, 2014). Speed was the most notable contributing factor, having a role in 38% (n= 62) of fatalities and 42% (n= 72) in critical injuries, while inattention was a contributing factor in 8% (n= 13) of fatalities (Western Australia Road Safety Commission, 2016a). Low figures for inattention in road crashes are common in official government reports, as it is difficult to obtain correct statistics. Other factors such as speeding and substance use are often the most obvious causes of a crash (for example, speeding can be shown by the extent of damage on the vehicle, and substance use can be determined by a person's blood alcohol/drug content). It can then happen that other factors of a crash may be disregarded.

Concerning the demographics of fatalities and critical injuries in Western Australia, the highest number of fatalities in 2015 was in the age group of 25-29 (15%, n= 24) (which is lower than the Australian statistics) and the highest number of critical injuries was in the 20-24 age group (19%, n= 32) (Western Australia Road Safety Commission, 2016a). Males are over-represented in fatalities, as they accounted for 72% (n= 121) of fatalities, following the same pattern as Australia as a whole, as well as 70% (n= 164) of critical injuries over a five-year average (Western Australia Road Safety Commission, 2016a).

The most recent estimate of the social costs of road traffic injuries and fatalities in Western Australia in 2014 was determined to be AUD519 million, with an average crash cost of AUD7,208,944 (Western Australia Road Safety Commission, 2016c). This value incorporates actual crash costs (vehicle, property, hospital and medical) as well as social factors resulting from a road crash such as pain and suffering, premature funeral costs and legal costs (Risbey et al., 2010). It is a common method to estimate social costs from road crashes, particularly in government reports.

The safe system: creating a holistic approach to decreasing injuries and fatalities from road traffic crashes

Road crash prevention theory has been previously based on placing the individual road user responsible for almost all driving errors and crashes (Larsson & Tingvall, 2013; Sabey & Taylor, 1980). This has led to strategies and initiatives to reduce human error and improve adaptation to the environment (Larsson & Tingvall, 2013). Prevention theories have since evolved. The road transport environment is understood to be too complex for the individual to have sole responsibility for all errors (Larsson & Tingvall, 2013). In recent years, road safety is viewed as a "shared responsibility", in that all stakeholders collaborate with one another to create a safe road environment which would limit or decrease fatal and other injuries from road crashes (Langford, 2009; Office of Road Safety, 2009).

This environment is known as the "Safe System" or "Vision Zero" (Larsson & Tingvall, 2013). In this system, it is firstly understood that the human body will have serious or fatal consequences if exposed to traumatic force (Langford, 2009; Larsson & Tingvall, 2013). Larsson and Tingvall (2013) recognised that in an anatomy of a crash incident, there is a brief period where no parties involved in a crash can alter its impact. Where there are other factors including high speed and impairment, for example, a road crash may occur due to non-correction by the individual or non-movement by another object or party in the crash.

Secondly, crash incidents will still happen in a "Safe System", as the individual cannot always cope with the complex road environment, and human error will always be present (Langford, 2009; Larsson & Tingvall, 2013). Despite education campaigns surrounding the dangers of impaired driving, an individual may still choose to drive impaired. Thirdly, there should be no environmental errors that would cause road crashes if there was no human error (Langford, 2009; Larsson & Tingvall, 2013). This would be made possible by altering the environment outside the human body (such as vehicles, infrastructure and non-physical environment (such as laws) to limit human error, and therefore minimise crash incidents and/or impact of a crash (Langford, 2009; Larsson & Tingvall, 2013). The final pillar of the "Safe System" is the promotion of public transport, thereby decreasing the number of drivers and thus the number of road crashes (Langford, 2009; Office of Road Safety, 2009). However, human error is still considered to be the main cause of road crash fatalities and injuries, as shown in the previous section of the influential role of human factors in road crashes in Western Australia as well as in a study by Singh (2015). Singh (2015) stated that 94% of crashes that occurred in the USA in 2015 were attributed to human error. Nevertheless, the safe system is still a fundamental part of road safety theory, and there may be a delay before human error is reduced in road crashes while technology and better infrastructure are being developed and built.

Western Australia has adopted the "Safe System" principles and has four components in its current road safety strategy, "Towards Zero". These include: safe road use, safe roads and roadsides, safe speeds and safe vehicles (Office of Road Safety, 2009). Its components are shown in Table 2. For the "Safe System" to work effectively, all stakeholders must engage and work collaboratively (Langford, 2009). The list of stakeholders involved in the safe system in Western Australia is extensive and includes various State Government departments and the private sector (Office of Road Safety, 2009).

As noted in Table 2, a core component of the safe system is safe road use, which relies on safe road users. Road users include pedestrians, motorcyclists, novice drivers, all of which are referred to as vulnerable road users as they are the least protected road users.

Table 2
"Safe System" components in Western Australia's "Toward Zero"

Area	Safe Road Use	Safe Roads and Roadsides	Safe Speeds	Safe Vehicles
All of Western Australia	Ongoing behaviour change programs Targeted behaviour programs to match geographic priorities	Black Spot and Safer Roads Programs	Enhanced enforcement	Crash avoidance and occupant protection countermeasures
Metropolitan Perth		Safe System intersection transformation	Specific speed limit adjustments to match geographic priorities	Specific crash avoidance countermeasures to match geographic priorities
Regional Western Australia Remote Western Australia		Safe System transformation on key routes		

Source: Office of Road Safety (2009, p. 27)

Road user: Young novice drivers

Novice drivers in Western Australia are people who have "held a driver's licence for up to two (2) years or periods adding up to two (2) years" (Department of Transport Western Australia, 2014). This includes those who hold learner's permits, provisional licence holders and overseas drivers (given that they have not held their licence for at least two years) (Department of Transport Western Australia, 2014). The most vulnerable group of novice drivers are young novice drivers, generally aged 25 years or younger, as it is established that road crash injuries are the leading cause of death for persons aged 15-24 (World Health Organization, 2013). In Australia, young drivers aged 17-25 years are over-represented in fatalities from road crashes, as figures are almost double the total rate of fatalities for the

remaining age groups (Department of Infrastructure and Transport, 2013, p. 15). In Western Australia, age groups 17-19 years and 20-24 years in Western Australia had more fatalities per 100, 000 persons than any other age group (Office of Road Safety & Western Australian Police, 2014).

Inexperience, engaging in risk-taking behaviours, and succumbing to peer-influence are often cited as being prominent causes of injuries and fatalities among younger drivers (Braitman et al., 2008; Graham & White, 2007; Hatfield & Fernandes, 2009; Ivers et al., 2009; McCartt et al., 2003; McKnight & McKnight, 2003). Inexperience is largely dependent on the amount of driver training that is available or required to gain licensure, commonly referred to as a graduated licence scheme. In Western Australia, there are six steps which drivers must undertake to obtain their motor vehicle (C class), moped (R-N class) and motorcycle (R-E class) licence under the Graduated Driver Training and Licensing Scheme (Department of Transport Western Australia, 2014). Firstly, they must pass a theory test that covers common road rules. Once passed, they are approved to drive a vehicle and must complete a minimum of 50 supervised hours, must always be supervised by a licenced driver, and complete at least five hours at night (defined at between sunset and sunrise). Whilst completing the supervised hours or upon completion, drivers must undergo a computerised Hazard Perception Test. The Hazard Perception Test involves a series of videos that simulate a driving experience. The driver must use a computer mouse to indicate the correct behaviour to perform as requested (for example, when to begin applying the break). Upon completion of the supervised hours, the driver then must undertake a Practical Driver Assessment, whereby an authorised person from the Western Australian government is present in the vehicle of the driver, and assesses the driver's ability to drive as well as adhere to the road legislations. If a driver has passed the Practical Driver Assessment, then they are granted a Provisional driver's licence for two years and are subject to alcohol blood content and driving time

restrictions. Once the time period has passed, drivers are then granted a full licence (termed Ordinary) (Department of Transport Western Australia, 2014). Western Australia's scheme for attaining a driving licence follows similar models that are used in other Australian jurisdictions. Concerning the efficacy and ability of drivers who have completed the graduated licence scheme to be able to drive safely, studies have published mixed results. Freydier, Berthelon, and Bastien-Toniazzo (2016) assessed the driver performance between traditionally trained novice drivers (for example, Western Australia's Graduated Licensing and Training Scheme would be considered 'traditional' given similar schemes are in place in other jurisdictions) against novice drivers that had received reformed driver training (that is, schemes that include steps and practices required by the driver which are not including in 'traditional' schemes). It was found that traditionally trained novice drivers were not able to drive as safely as those novice drivers who received reformed training, specifically in regards to regulating speed and lane deviation (Freydier et al., 2016). Therefore, this study presented a positive case for reformed driver training in France. It has been accepted that traditional forms of driver training were not based on scientific evidence and were rarely evaluated, thus providing a less rigorous training experience for young drivers to be able to drive safely (Huang & Winston, 2011). However, driver training and education must be refined and evaluated to become effective in reducing risky behaviour.

The propensity of young drivers to engage in risky driving behaviour more so than older drivers has been speculated to be caused by activation and under development in some elements of a young person's brain (Glendon, 2011). Specifically, an increased risk propensity, decreased sense of fear, and greater perception of reward from taking risks have been reported among younger drivers more so than older drivers (Glendon, 2011). Scott-Parker, King, and Watson (2015) used structural equation modelling (SEM) with a sample of 2,058 participants to show that risky driving behaviours by young drivers were predicted by

measures of anxiety, sensation seeking and behavioural rewards in Australia. A statistically significant ($p < 0.05$) link was also found between the psychosocial reasons of the motivation to drive and propensity to engage in risky behaviour, illustrating that the higher the importance and intention to drive, increased or matched the intention to participate in risky driving behaviours (Scott-Parker et al., 2015). Thus, young drivers appear to favour to perform risky driving behaviours.

Another factor in influencing young driver's decisions to engage in risky driving behaviours is peer influence and approval (Huang & Winston, 2011). Scott-Parker et al. (2014) found that young drivers' self-reported behaviour mimicked the self-reported behaviour of their peers; that is, if their peers reported engaging in risky behaviour, then they also reported engagement in risky behaviour. Parents of young drivers are also important influences in driving decisions and crash risk (Huang & Winston, 2011; Scott-Parker et al., 2014). Scott-Parker, Goode, Salmon, and Senserrick (2016) identified in their Australian sample that although young drivers are a vulnerable user group, the system to which they belong (i.e. the road safety environment) required reform to optimise its goal of promoting road safety among young drivers. An implemented and holistic safe system would enable young drivers to minimise the willingness to engage in risky behaviours.

Road user behaviour: Driver distraction and driver inattention

Two prominent risk-taking behaviours that are practised by young people and the general population are driver inattention and driver distraction. They are similar but very much distinguishable elements of unsafe driving behaviours. Regan, Hallett, and Gordon (2011) state that the relationship between driver distraction and driver inattention is unclear, and argue that they should be considered two different categories of unsafe driving. These authors define driver inattention as "insufficient, or no attention, to activities critical to safe driving" which essentially, is the diversion of attention away from driving to a competing

activity in such a way as to increase the risk of a crash (Regan et al., 2011, p. 1775). However, more recent studies have since broadened the definitive boundaries by Regan et al. (2011) of driver distraction. Chen, Donmez, Hoekstra-Atwood, and Marulanda (2016) criticised the driver distraction definition by Regan et al. (2011), as it relied solely on the interaction between competing activities and safe driving, but must result in a detrimental effect on safe driving. It does not account for those activities which do not affect safe driving. For example, if a driver is able to adjust the controls of the radio and is still able to drive safely, this would not be defined as driver distraction by Regan et al. (2011). Lee, Young, and Regan (2008, p. 34) define driver distraction to be "a diversion of attention away from activities critical for safe driving, towards a competing activity" which places driver distraction as a subset of driver inattention. The current study is adopting the definition of driver distraction from Lee et al. (2008) as it includes competing activities as a core component.

There are many competing activities that cause driver inattention and distraction that contributes to a crash, and these can be broadly divided into internal and external distractions (Beanland et al., 2013; Charlton & Starkey, 2013). Internal distractions involve the psychological state of the driver that draws attention away from driving including fatigue, stress, and day dreaming (Beanland et al., 2013; Charlton & Starkey, 2013). It also includes automaticity and inattention blindness, whereby an individual has had repeated exposure to the same traffic conditions or environment that they become less responsive to these traffic conditions, as opposed to when the individual first encountered the traffic conditions (Charlton & Starkey, 2013). Complacency and automaticity to the familiar environment have been studied extensively in psychology, however their role in driver performance has only been recently documented. Charlton and Starkey (2013) investigated automaticity and inattention blindness among 29 drivers and found that after repeated exposures to a simulated

traffic situation, all participants recorded driving without awareness and were more careless while driving. Participants self-reported to be "on auto-pilot" and "drove without thinking" (Charlton & Starkey, 2013, p. 131). These results were also found by Yanko and Spalek (2013) who had confirmed that familiarity of a particular route is detrimental to driving. Yanko and Spalek (2013) used an experimental design with two intervention groups and one control group each with 20 participants in each group, who were instructed to operate a driving simulator. Once the participants were familiarised, hazards were placed on the roads, forcing them to brake to avoid a collision (Yanko & Spalek, 2013). It was found that once participants were familiar with a particular route, their braking reaction was slower (Yanko & Spalek, 2013). Investigating automaticity in driving is important as it could be encouraging the driver to perform other non-driving related activities in the car, such as using a mobile phone.

In-vehicle distractions are those activities that are external to the driver (Regan & Hallett, 2011). This includes engaging with passengers, searching for objects, using the vehicle media player, operating a Global Positioning System and using a mobile phone (Regan & Hallett, 2011). These distractions often require the driver to divert attention away from the act of driving both physically (such as eye movement) and mentally (such as having an argument with a passenger) (Regan & Hallett, 2011). As displayed later in this chapter, the use of mobile phones while driving is becoming the most focused in-vehicle distraction in research. There is a wide breadth of research that has assessed the effect of in-vehicle distractions on driver performance, and consequently, crash risk. Strayer et al. (2015) investigated the cognitive workload of a range of driver distractions and discovered relationships between mental workload, cognitive distraction and impaired driving among participants in the United States of America (referred to as "USA"). A cognitive distraction scale was developed which stated that in-vehicle distractions, which required the participants

to only listen, had the lowest mental workload (Strayer et al., 2015). When participants conversed with a passenger and/or through a hands-free phone, the mental workload was moderate (Strayer et al., 2015). When participants were asked to operate a "Speech-to-Text" system to create an email, this was reported to have the highest mental workload (Strayer et al., 2015). Therefore, the authors concluded that speech-based mobile phone applications or hands-free mobile phone use required a higher mental workload than other common in-vehicle distractions.

Driver distraction (in its many forms) is responsible for large proportions of road crash fatalities and injuries. In the USA, driver distraction was one of the most common assigned reasons for a crash in 2015 (Singh, 2015). In Australia, driving distraction is present in an estimated 56% of crashes (Beanland et al., 2013). In 2015, 8% (n= 13) of fatalities and 7% (n= 12) of critical injuries from road traffic crashes in Western Australia had driver inattention as a contributing factor (Western Australia Road Safety Commission, 2016a). The latest road policing strategy available to the public, from the Western Australia Police, the *Road Policing Strategy, 2011 – 2014*, details that driver distraction is a key enforcement focus (Western Australian Police, 2011). It is also a "double demerit offence", meaning that at certain times of the year, specifically public holiday weekends including Easter, Australia Day, Labour Day, and the Christmas and New Year period, the demerit point penalty for using a mobile phone while driving doubles (Western Australia Road Safety Commission, 2016b). Demerit points are assigned to drivers once they breach certain road traffic regulations. In Western Australia, the maximum points any driver can accrue are 12, then drivers will lose their licence and must reapply. This is intended to increase the deterrent effect for committing an offence (Western Australia Road Safety Commission, 2016b). It is important to note that unless driver distraction results in a serious or fatal crash, minor

crashes that result in little to no injury or economic cost are not included in the road toll count and are difficult to obtain.

Significance of mobile phones and social media in society

Prior to presenting and reviewing literature on mobile phone use while driving, it is essential to understand the importance of mobile phones and social media in society, as it plays a key role in how representative samples of the Australian population have become attached to their devices in all aspects of life, resulting in their use while driving.

Mobile phone use in all populations has grown immensely in recent years, particularly among young people who are predominant users of mobile phones (Deepend, 2014). In the last decade, technological advancements have allowed mobile phones to move beyond the capabilities of the traditional functions of a phone (such dialling and receiving phone calls), and are now capable of accessing the internet on their devices (Deloitte, 2015). The new generations of mobile phones, termed "smartphones", essentially have similar functions to a computer which has created a considerable shift in the relationship between the user and their device (Deepend, 2014; Deloitte, 2015). It enables users to access information almost instantaneously and communicate with people in a short amount of time, without the need to access a computer or a home phone (Deloitte, 2015).

Smartphones are the most popular type of mobile phones on the international and domestic market. Deloitte (2015) reported that more than 80% of Australians own a smartphone and there are 15 million active smartphones in Australia. Australians also spend considerable time on their devices, averaging about 35 hours per person per month (Nielson, 2015). Smartphone activity has overtaken personal computer use, as Australians use smartphones four times more than their computer (Nielson, 2015). Australians have also preferred to receive news and information on their smartphones rather than a computer or other communication form (including television) (Nielson, 2015).

The extent of the population's reliance on devices has been documented in research as problematic worldwide. Seo, Kim, and David (2015) conducted a study that investigated multi-communicating with family and friends face-to-face while simultaneously engaging in communication with a mobile phone in South Korea. The authors found that participants who regularly multi-communicated on their phone while engaging in face-to-face interactions were found to be problematically dependent on their devices (defined as excessive mobile phone use which causes negative outcomes such as interference with other activities including driving) (Seo et al., 2015). The authors concluded that there was a general desire for social connectivity and belonging among the participants (Seo et al., 2015). Conversely, a study by Billieux et al. (2015) queried whether problematic mobile phone use should be considered to be an addictive behaviour. Although excessive mobile phone use may considered to be an everyday activity, it was not necessarily aligned with addictive behaviours, thus a relationship between a user and their device is complex (Billieux et al., 2015).

Social media, defined by the Oxford University Press (2014) as "websites and applications that enable users to create and share content or to participate in social networking", is tremendously popular globally, including in Australia. The majority of smartphone activity is spent on social media websites and applications (Nielson, 2015). Facebook, Inc. (referred to as "Facebook") is the biggest online social media website and application, reaching more than one billion active users in 2015 (Facebook, 2016). Facebook enables users to connect together and share their lives through text updates, photos and videos (Facebook, 2016). Instagram, a photo and video application, has 500 million active users globally and enables people to share photos and videos with other users (Instagram, 2016). Twitter Inc. (referred to as "Twitter") is a text-based social media website and application which limits text posts to 120 characters or less and has 313 million active

monthly users (Twitter, 2016). Snap Inc. (referred to as "Snapchat"), like Instagram, is a photo and video based social media application in which the photos and videos only last for a minimal amount of time (between two seconds and 24 hours). Reports suggest that around 60 million people use Snapchat daily in the USA and Canada (Chaykowski, 2016; Snap Inc., 2016). There is also Tinder, which is a dating application enabling users to connect and communicate with other Tinder users around them, with the company claiming that 8 billion connections (also known as "swipes") had been made (Flynn, 2015). The most recent Australian social media usage statistics in August 2016 reveal that there are 15 million users on Facebook, five million users on Instagram, 2.8 million users on Twitter and two million users each on Snapchat and Tinder (Cowling, 2016). These social media applications and websites have the most active users internationally, thus they have been highlighted in the present study. However, there are many more that are easily accessible on mobile phones and are constantly being developed, that are not mentioned in the present study, such as Tumblr, LinkedIn, Pintrest, and WhatsApp.

A survey of 800 Australians revealed that 95% of users prefer and use Facebook over other social media Sensis (2016). Almost half (49%) reported that their first task of each day begins with checking social media. Social media were mostly found to be used by age groups 18-29 years and 30-39 years. This shows that social media is ever present and a considerable influence on the Australian way of life.

Road user behaviour: Using mobile phones while driving

The critical literature reviews on distracted driving and the cultural significance of mobile phones and social media above provide a platform to present the current literature in mobile phone use while driving. Firstly, the legality of mobile phone use while driving is discussed. Secondly, a critical overview of the literature regarding the use of mobile phones

while driving is separated by methodology of the studies. Finally, the research gap which this study aims to fill is presented.

The use of a mobile phone while driving is an illegal driving behaviour, and, as reported by the World Health Organization (2013, p. 28), "142 countries…have laws prohibiting the use of hand-held phones, while 34 countries also prohibit the use of hands-free phones; 42 countries specifically prohibit text messaging". In Western Australia, hand-held use is prohibited under Regulation 265 of the *Road Traffic Code 2000* which attracts the penalty of $450 and three demerit points (Government of Western Australia, 2017c). The full regulation wording is shown in Appendix 1.

The interpretation of mobile phone laws can be a challenge due to general and vague wording, especially in Australia (Jessop, 2008). Previous wordings of the definition of the "use of a mobile phone" in New South Wales legislation was contested in the Supreme Court in New South Wales, as the Judge commented that the laws were "broad" and mobile phone use was ill-defined ("DPP v Chresta," 2005). Jessop (2008) was only one of a few articles which investigated the impact of mobile phone use while driving on the legal systems and organisations in Australia, noting that there was a lack of trust between stakeholders of the law including motorists and the Police, all of which had led to groups discussing disproportionate penalties and alternative wordings that may never be enforceable. However, this research may be considered outdated and thus may not apply to new wordings of mobile phone while driving regulations in Australian jurisdictions.

Despite the behaviour being designated as illegal, high incidence rates of texting while driving has been observed globally. Studies from the USA have estimated 50% - 90% of drivers had engaged in texting while driving (Beck & Watters, 2016; Bergmark et al., 2016; Bernstein & Bernstein, 2015; Delgado et al., 2016; Mizenko et al., 2015; Terry & Terry, 2015). In the Middle East, Ismeik, Al-Kaisy, and Al-Ansari (2015) investigated

reported engagement with mobile phones while driving by surveying citizens of Jordan (n= 423, Mean age = 30.15 years). A highly reported occurrence rate of 93% of drivers had engaged in mobile phone use while driving (Ismeik et al., 2015). In Australia, McEvoy, Stevenson, and Woodward (2006) conducted surveys with 1,347 drivers (aged 18-65 years) of New South Wales and Western Australia to understand the use of mobile phones while driving. It was reported that almost 57.3% of the sample respondents had ever used a mobile phone while driving (McEvoy et al., 2006). More Australian studies have not varied outside of this rate of occurrence (Waddell & Wiener, 2014; White, Hyde, Walsh, & Watson, 2010; Young & Lenné, 2010; Young, Rudin-Brown, & Lenné, 2010). News articles have also commented on the high occurrence of mobile phone use while driving as a factor in fatal or critical injuries from road crashes (Laschon, 2017). Although news articles are not peer reviewed, a small proportion of articles report on official Police statistics on the number of infringements or charges issued for mobile phone use while driving that were obtained through the "Freedom of Information Act", which allows members of the public to request for information from government bodies unless there is an exemption (Government of Western Australia, 2018).

Driving simulator studies

The use of driving simulators has been a common research tool to observe the effects of mobile phone use while driving. Driving simulators aim to closely match real world situations, engaging the driver's ability and skill in real time and pseudo-real circumstances (Stavrinos et al., 2015). A downside to the use of driving simulators in research is the generally higher cost and lower sample size. However, the literature also points to many advantages. The use of driver simulators as a research tool is ethical as there is little risk of injury to participants, as opposed to if the drivers were asked to perform actual driving whilst using a mobile phone (Jupp, 2006; Stavrinos et al., 2015). Nevertheless, some risk does

exist, as it is possible that participants could experience physical interruptions including nausea and vomiting, and/or physiological risks, including being triggered by recalling experience or witnessing near crashes (Jupp, 2006; Stavrinos et al., 2015). Driving simulators are methodologically valid, as the simulator has been assessed as reasonably matching real world situations and has been tested for sensitivity (that is, if the simulator is too sensitive to operations performed by the participant then this may influence the participant's belief that the simulator matches the real world environment) (Jupp, 2006; Stavrinos et al., 2015). In addition, any driving errors that participants perform as a result of mobile phone use while driving can be easily identified and quantified through data. This may not be the case for observational studies whereby researchers are far away from the vehicle, or surveys whereby participants may not recall their driving errors or may not wish to report such errors (McCartt, Hellinga, & Bratiman, 2006). However, because of the safety guarantee from driving simulators, studies have not reported whether participants may wish to perform mobile phone use while driving in their own vehicles, or may assume that using a mobile phone while driving is 'safe' (McCartt et al., 2006). Although, it is unknown if participants may be influenced by the 'research environment' of participating in a driving simulator, which would thus impact their performance (McCartt et al., 2006).

The investigation of the impact of mobile phone use on safe driving was carried out by using a driving simulator with a sample of 100 university students (Mean age = 21.8 years) (Sanbonmatsu, Strayer, Biondi, Behrends, & Moore, 2016). Participants made more driving errors using a mobile phone while driving than the control group who did not use a mobile phone while driving (Sanbonmatsu, Strayer, Biondi, et al., 2016). As well as being instructed to use a mobile phone while driving in the simulator, participants were required to report the type of driving errors they made, such as deviating out of a lane or failing to see obejcts on the simulated road. Interestingly, it was found that the driving errors reported were

unrelated to actual errors (Sanbonmatsu, Strayer, Biondi, et al., 2016). It was thus found that participants were overestimating their ability to drive safely while using a mobile phone.

Other studies reported that texting while driving specifically impairs safe driving. In the United Arab Emirates, Bendak (2015) also employed a driving simulator to investigate the changes in driving caused by texting (n= 21, Mean age= 22.3 years). The author found that texting while driving increases the likelihood of a crash by five times ($p < 0.01$) as it causes a distraction by physically removing vision from the road to their phone ($p < 0.01$) (Bendak, 2015). This result was also found by He et al. (2015) who also investigated texting while driving in a driving simulator with a smaller group of participants in the USA (n= 28, Mean age= 22.14 years). It was found that texting while driving increased lane deviation and errors ($p < 0.001$) (He et al., 2015).

Concerning the impact on safe driving of the combined effects of other human errors with mobile phone use while driving, Van Dyke and Fillmore (2015) investigated how alcohol-impaired driving is implicated in distracted driving. Fifty participants aged between 21 and 34 years with a blood alcohol concentration of 0.65g/kg were observed in a driving simulator whilst engaging their mobile phone (Van Dyke & Fillmore, 2015). It was found that both alcohol content in the participant's blood and driver distraction significantly impaired actual driving performance (measured by the standard deviation of lateral position (SDLP)) which is an index of "weaving" ($p < 0.001$) (Van Dyke & Fillmore, 2015; Verster & Roth, 2011).

The above studies involved participants from the general and younger community. Other studies had explored how safe driving in other various subsets of the population was affected by mobile phone use while driving. In Greece, a study on the effect of using a mobile phone while driving among professional drivers (n= 50, mean age= 36.8 years) was conducted by using a driving simulator (Papadakaki, Tzamalouka, Gnardellis, Lajunen, &

Chliaoutakis, 2016). Professional drivers were instructed to utilise the driving simulator whilst using a mobile phone to have a conversation, and to create and read text messages (Papadakaki et al., 2016). The following distance behind another vehicle (also known as headway) was decreased by having a conversation ($p = 0.009$), creating a text message ($p < 0.001$) and reading text messages ($p < 0.001$) (Papadakaki et al., 2016). However, reading text messages ($p < 0.001$) and having a conversation ($p < 0.001$) decreased lane variation, a different finding to the studies cited previously (Papadakaki et al., 2016). These authors speculate that drivers compensate the behaviour and therefore drive more carefully in order for talking and texting on a phone to be completed safely (Papadakaki et al., 2016).

The gap in research of instructing participants to operate a driving simulator to access social media was met when McNabb and Gray (2016) assessed the effects in 18 university students of three different mobile phone activities on driving: reading a Facebook post, communicating via Snapchat, and viewing updates on Instagram (Mean age= 20.4 years). Breaking reaction times were significantly longer for tasks requiring interactions with words (Facebook) and shorter for image based interactions (Snapchat and Instagram) ($p < 0.001$) (McNabb & Gray, 2016). The findings conclude that text-based interactions on a mobile phone were more likely to cause driving errors and unsafe driving than image-based interactions on a mobile phone (McNabb & Gray, 2016).

There are some restrictions to using a driving simulator as the research tool. Driving simulators in all studies were limited to specific scenarios and researchers reported difficulty having a wider range of scenarios that mimicked real-life driving situations (Bendak, 2015; Stavrinos et al., 2015). Simulators may also be resource intensive, and it is more time consuming for participants to engage in the research; for example, attending the simulator laboratory, in comparison to other research tools, such as self-reported surveys that are

conducted online. It is thus common for studies which use a driver simulator to have smaller sample sizes compared to studies which use surveys (Bendak, 2015; Stavrinos et al., 2015).

Observed Behaviour Studies

Observed behaviour studies have been used to investigate mobile phone use while driving. Studies have observed that mobile phone use occur in certain conditions of a transport journey, and is often seen in combination with other unsafe behaviours. For instance, Bernstein and Bernstein (2015) investigated mobile phone usage while vehicles were either temporarily stopped at traffic lights (n= 2, 000) or in motion (n= 1, 000) in the USA. These authors reported that mobile phone usage was higher in temporarily stopped vehicles (14.5% of drivers were texting, 6.3% were talking) than those vehicles in motion (3% of drivers were texting, 5% were talking) (Bernstein & Bernstein, 2015). A possible explanation for the difference put forward by the authors is a lower perceived risk assessed by participants to be able to text while their vehicle was temporarily stopped, as opposed to texting while they drive (Bernstein & Bernstein, 2015). High mobile phone usage was also found to be associated with non-seatbelt use ($p<0.01$), indicating that reckless behaviour and low usage was associated with the absence of a front seat passenger ($p < 0.001$) (Bernstein & Bernstein, 2015). Mahfoud et al. (2015) conducted an observational study in Doha, Qatar to investigate seat belt and mobile phone use while driving, and reported similar findings. Among the 2,011 drivers observed, 7.4% (n = 150) of drivers were using their mobile phone while driving (Mahfoud et al., 2015). Non-seat belt use and mobile phone use were observed in unison ($p < 0.001$) (Mahfoud et al., 2015). This was also confirmed by Farmer, Klauer, McClafferty, and Guo (2015b) who specifically investigated secondary behaviours of drivers that primarily used a mobile phone while driving, through a naturalistic observation study. This was done by video monitoring the participants day-to-day driving over one year (n= 105, age range = 18 – 68 years). It was found that 42% of drivers who engaged in a

secondary activity were mostly younger drivers (younger than 21 years) (Farmer et al., 2015b). Of these drivers, 33% engaged in a further activity, sometimes in conjunction with mobile phone use (Farmer et al., 2015b). This included interacting with a passenger and physically engaging with another object (Farmer et al., 2015b). Motorcyclists have also been observed using mobile phones while riding. Truong, Nguyen, and De Gruyter (2016) conducted a cross-sectional observation study in Ha Noi, Vietnam to investigate mobile phone use among motorcyclists (n= 24,759) and electric bike users (n= 1,601). It was found that mobile phone usage among motorcyclists was 8.66% and 4.43% among electric bike users (Truong et al., 2016). Other observations included more males than females engaging in the behaviour, and usage declining significantly during wet weather ($p < 0.001$) and in police presence ($p < 0.001$) (Truong et al., 2016).

Similar to the studies which used driving simulators as a research tool, a naturalistic study conducted by Fitch et al. (2015) confirmed that mobile phone use while driving is indeed a distraction. In their study of handheld and hands free mobile phone use while driving among 204 drivers (mean age = 41 years), the authors recorded their day to day activities and found that hand-held mobile phone use while driving, such as texting and calling, diverted the largest amount of attention away from the forward visual view ($p < 0.01$) (Fitch et al., 2015). Operating the same tasks on a hands-free device was time-consuming, and therefore required a large mental workload for drivers ($p < 0.01$) (Fitch et al., 2015).

Despite above studies which have correlated the use of mobile phones while driving to crash risk, contrary results have been found in other studies. In their observational study of investigating mobile phone use and crash risk, Farmer, Klauer, McClafferty, and Guo (2015a) recorded 105 participants for a period of one year and did not find a dose-response relationship between rates of driver phone use and crash/near crash risk, despite high levels of observed phone use while driving. The authors suspect that the drivers had integrated

phone use while driving by adapting other parts of their driving experience to accommodate the task (Farmer et al., 2015a). For instance, those who had used their phone while driving were also seen to reduce their speed and appeared to be more cautious while driving (Farmer et al., 2015a).

Observational studies are a useful way of observing behaviours in real-life situations. However, limitations do exist as the researchers often only observe certain situations or times during the day (Fitch et al., 2015). This has been combated in studies such as Farmer et al. (2015a) who recorded participants driving over a full year. However, recording participants is more involved, as it is resource intensive, and requires more commitment from participants than other research methods, such as single use surveys (Farmer et al., 2015a).

Experimental Modelling

Other studies had analysed other sourced data to contribute to the mobile phone use while driving research field. Recent studies have specifically studied the impact of legislation and interventions on the prevalence of mobile phone use while driving. Rocco and Sampaio (2015, 9) applied a "county-level fixed effects model" which assessed outcomes pre and post-primary and secondary hand-held use and texting bans in the USA, and whether it had impacted motor vehicle fatalities. Primary bans enforcement allows police officers to stop a vehicle without requiring suspicion of another offence being committed, whereas a secondary bans enforcement requires suspicion of another offence being committed for police officers to perform a vehicle stop (Rocco & Sampaio, 2015). Using linear regression and controlling for jurisdictional characteristics (such as population size), it was found that primary bans enforcement reduced fatalities ($p < 0.001$) and secondary enforcement bans had a minimal effect ($p < 0.05$) (Rocco & Sampaio, 2015). However, the impact of primary texting bans on fatalities were three times smaller than primary hand-held bans (Rocco & Sampaio, 2015). The findings support that complete mobile phone bans while driving would be sufficient to

decrease fatalities (Rocco & Sampaio, 2015). Conversely, a study conducted by Abouk and Adams (2013), who had also investigated the impact of texting while driving legislative bans on fatal road crashes in the USA, used a differences-in-difference model, and reported that decreases in fatal crashes that were caused by texting while driving only occurred within the first three months of a texting while driving ban. The authors speculated that drivers initially react to enforcement on the texting bans then develop ways not to be detected by enforcement (Abouk & Adams, 2013). This mirrors findings from other studies that suggested that unsafe/illegal driving behaviours return to normal levels after three months (Carpenter & Nguyen, 2015; Delgado et al., 2016). Abouk and Adams (2013) conclude that legislation bans on mobile phone use while driving require prolonged and greater enforcement instead of relying on the population to abide by the ban.

Another study by Rudisill (2016) also analysed the impact of enforcement through the use of experimental modelling, by investigating the types of mobile phone infringements that were issued in 15 jurisdictions in the USA between 2007 and 2013. The cross sectional descriptive study found that hand-held use infringements were issued more than texting while driving (Rudisill, 2016). The authors noted that this could be due to a number of enforcement barriers, such as holding a phone to make or take a call being more observable than texting while driving. In addition, certain jurisdictions maintain an age requirement to receive an infringement. An officer may not have been comfortable apprehending a member of the public if they could not easily identify their age (Rudisill, 2016). It was also reported that younger drivers (aged 18 – 24 years) were generally issued more infringements for texting while driving than older drivers, while older drivers (aged 25 – 64 years) were issued more infringements for hand-held mobile phone use than younger drivers (Rudisill, 2016).

Creating mobile phone applications to limit engagement on the phone while driving, and its impact on mobile phone use while driving, has also been explored through

experimental modelling. Creaser, Edwards, Morris, and Donath (2015) explored how the use of mobile phone blocking applications would influence reported levels of using a mobile phone while driving in the USA. Three groups of young novice drivers (n = 274, mean age= 16.03 years) were provided with a smartphone application with varied functions: Group One's application blocked cell phone usage while driving, Group Two's application blocked cell phone use while driving and also sent text messages to parents if the driver was engaging in unsafe driving behaviours (such as speeding), and finally Group Three had no phone blocking enabled (Creaser et al., 2015). Results from the study indicated that mobile phone use while driving successfully decreased across Groups One and Two (Creaser et al., 2015). However, participants attempted (and occasionally succeeded) to bypass the application to use a phone while driving, or reported to use another mobile phone (Creaser et al., 2015). This study involved participants who were novice drivers, and the authors suggested that, as novice drivers gain more driving experience, they may feel more confident in their ability to be able to use their mobile phone while driving (Creaser et al., 2015).

Surveys

Another common research method to investigate mobile phone use while driving was through the development and dissemination of surveys. The most recent studies conducted surveys online, with a few utilising telephone and face-to-face delivery methods. As well as measuring the frequencies of engagement in mobile phone use while driving, studies had also investigated factors which influenced the driver's decision to use a mobile phone while driving, which were conflated with other unsafe driving behaviours such as speeding and driving under the influence of alcohol, and also factors which acted as deterrents to engage in the behaviour. Tucker, Pek, Morrish, and Ruf (2015) conducted online surveys in two studies in Canada which investigated the relationship of drivers who text and engage in phone calls while driving, speeding and being passengers with drivers who engage in these behaviours. In

their first study (n = 6,133, mean age= 17.44 years), these authors found that frequencies of participants reported to be a passenger with a driver who engaged in texting while driving were higher than participants self-reporting this behaviour (Tucker et al., 2015). In their second study (n = 4,450, mean age= 15.98 years), Tucker et al. (2015) investigated the explanations of participants of why they would reduce their engagement in texting while driving, and reported that the perceived risk of the behaviour, enforcement of texting bans while driving by Police, experiencing near-crash incidents as a result of texting while driving, and learned crash incidents from texting while driving from others were deterrents to reduce texting while driving. However, no time periods since a near-crash incident occurring and non-use of a mobile phone while driving were specified. In addition, males significantly ($p < 0.05$) reported to engage in texting while driving more so than females. Across both studies, texting while driving was strongly associated with speeding and talking on the phone while driving ($p< 0.001$), suggesting that these behaviours happen concurrently (Tucker et al., 2015). Although, these associations could have been found due to generalised risk taking leading to each of the three behaviours rather than the proposed concurrent behaviours. A similar study with a smaller and older sample size was conducted by Gupta, Burns, and Boyd (2016) where the authors conducted a survey with a smaller group of university students (n = 334, mean age = 26 years) in Ohio, USA with the aim of investigating mobile phone use while driving. The authors found positive correlations between the number of text messages sent or received in a typical week while driving (a measure of the levels of engagement in texting while driving), and other risky driving behaviours such as breaches of traffic and non-traffic legal regulations, addictive tendencies (i.e. problematic mobile phone use), as well as affirmative attitudes towards texting while driving ($p < 0.05$) (Gupta et al., 2016). Participants who reported high levels of engagement in texting while driving were also likely to report low levels of risk propensity; that is, these participants may think there is little risk

being involved in texting while driving, leading to a possibility that risk assessment is a key factor in choosing to engage in texting while driving. High levels of engagement were also correlated to low estimations of self-control to carry out the behaviour. Participants who believed that they did not have the self-discipline to not engage in texting while driving were more likely to engage in this behaviour. Participants who also believed that they were not a responsible driver had reported high levels of engagement in texting while driving. (Gupta et al., 2016).

Statistically significant correlations between psychological predictors, the state of mind, crash incidents and mobile phone use while driving have been found in recent studies that had used surveys as the research tool. Terry and Terry (2015) conducted a survey among college students (n = 385, mean age = 19.0 years) in the USA to assess psychological predictors in near-crashes resulting from mobile phone use while driving. More than half (63%) of participants experienced one or more near crashes and 3.2% experienced actual crashes (Terry & Terry, 2015). Participants reported higher incidents of near crashes resulting from texting while driving rather than phone call use (Terry & Terry, 2015). This may be due to participants whom, while also having experienced daily intrusions in engaging with their device (for example, if a notification sound is heard on their device, they instantly required to check their device despite engaging in another activity), also reported experiencing near crashes as a result of texting while driving. However, participants who engaged regularly in mindfulness (defined by the authors as "acting with awareness and non-judging of inner experience" (Terry & Terry, 2015, p. 677) were less likely to report near-crash or crash incidents relating to texting while driving (Terry & Terry, 2015). Participants who engaged in mindfulness were more likely to report paying more attention to their surroundings and were more aware and accepting with the risks associated with texting while driving (Terry & Terry, 2015).

In a similar study with a larger sample size and younger age, Shuman et al. (2016) surveyed 14,221 high school students (mean age = 15.12 years) in 32 schools in China to investigate psychological predictors and unintended injuries resulting from problematic mobile phone use. The authors stated that 4.9% of participants reported road traffic collisions caused by engaging in mobile phone use while driving. A further 9.4% of participants who noted having had experiences of depression and anxiety, had reported road traffic collisions that were specifically caused by engaging in mobile phone use while driving ($p< 0.001$) (Shuman et al., 2016). It is unclear whether the persons in the study had a driver's licence as it was not specified in the study. In another study by Hayashi, Russo, and Wirth (2015), the authors hypothesised that texting while driving is an impulsive decision. Behavioural economics was used as a basis for a survey to assess text messaging while driving among university students (n = 38, mean age=19 years) in the USA (Hayashi et al., 2015). Two groups of participants were used, one with a high level of behaviour engagement, and a matched control group (Hayashi et al., 2015). Both groups were given a survey containing delay discounting questions (that is, hypothetical scenarios with the choice of receiving monetary rewards immediately or receiving higher monetary rewards after a delay; for example, the option to receive $80 immediately or $100 in one week) together with questions pertaining to the levels of engagement in texting while driving (Hayashi et al., 2015). It was found that students who had high levels of behaviour engagement had elevated levels of delay discounting, which may have supported the authors hypothesis that texting while driving is an impulsive behaviour (Hayashi et al., 2015).

Other studies that had used surveys as a research tool had specifically investigated relationships between experiencing crash incidents and mobile phone use while driving. In Laos, one such study investigated mobile phone use while riding motorcycles (n = 883, mean age= 17.1 years). It was reported that 53% of motorcycle riders engaged in using a mobile

phone while riding, with talking on the phone whilst riding being the most commonly practiced behaviour (38%) (Phommachanh, Ichikawa, Nakahara, Mayxay, & Kimura, 2016). Mobile phone use while riding also appeared to be a contributing factor in crashes, as 8% of respondents reported it to be a factor in a recent crash (Phommachanh et al., 2016). Another study by Farmer, Braitman, and Lund (2010), by using survey data (n = 1,219), levels of mobile phone use and time spent talking on the phone while driving were investigated, to estimate the number of crashes that could have been avoided (ages between 18 and 60 years). This was assessed by computing risk probabilities and comparing the results of the survey data with annual crash statistics. It was estimated that 19% of fatal crashes could have been avoided, followed by 23% of injury crashes, and 22% of those crashes with only property damage. Overall, it was determined that 22% of crashes could have been avoided (Farmer et al., 2010). However, as stated previously, there are many factors that contribute towards a crash and the driver. Despite the fact that most errors in driving are a result of the driver, these are not the only elements in a crash. This study fails to account for other factors such as environmental factors (i.e. weather and road conditions) and other driver behaviours, thus it would not be possible to accurately and confidently estimate the number of crashes which could have been avoided. Another study conducted by Bergmark et al. (2016) found a direct correlation between crashes and mobile phone use while driving. The authors tested and evaluated the effectiveness of the Distracted Driving Survey with 228 young drivers (mean age = 21.1 years) (Bergmark et al., 2016). Behaviours including texting, accessing email and social media and navigating GPS were included in the survey (Bergmark et al., 2016). Results from the survey illustrated the validity of the survey ($p < 0.001$), and a high correlation was found between reported engagement in distracted behaviours and reported crash involvement in the previous 12 months ($p = 0.001$) (Bergmark et al., 2016).

Rudisill and Zhu (2015) paired distracted driving survey data with driving legislation in 24 USA states to investigate which type of legislation was the most effective in decreasing engagement in mobile phone use while driving. The survey was completed by high school students (n = 6,216, mean age= 16.5 years). Using a multivariate approach, it was found that texting bans for the whole population, regardless of separate bans for young people, appear to be the most efficient in reducing texting while driving among high school students (Rudisill & Zhu, 2015). On the other hand, an overview of studies on legal bans and other prevention strategies were considered to have a limited prolonged effect on adolescents engaging in mobile phone use while driving (Delgado et al., 2016). Another unintended effect of legislative bans was reported by Carpenter and Nguyen (2015) using Canadian Community Health Surveys data. These authors found that after a three-month education campaign informing the public of an impending handheld mobile phone ban while driving in Ontario, Canada, the ban reduced hand-held mobile phone use ($p< 0.01$), but also increased hands-free mobile phone use ($p< 0.01$). These findings demonstrated that drivers were offsetting the ban with an alternate phone use behaviour (Carpenter & Nguyen, 2015). This was predicted by McCartt et al. (2006), who discussed in their review of the use of mobile phones while driving literature, that if hand-held mobile phone use while driving was completely eliminated, people would move onto hands-free use of mobile phones while driving, which still has an elevated crash risk versus not engaging in the activity altogether.

Although surveys have the ability to collect a wealth amount of data and can produce significant results, the use of surveys does have limitations. Delgado et al. (2016) noted that respondents are likely to underreport or underestimate their actual behaviour use and called for more observed behaviour studies. Many studies report non-random sample bias to be an issue, as participants are usually targeted and are not representative of a population of interest

(Berk, 1983). To conduct surveys with a representative sample of a population requires a large amount of resources which may not be available to all authors (Berk, 1983).

It should be noted that there are discrepancies in the reporting of data of all studies discussed in this literature review. Not all studies are representative samples of their populations, thus these findings cannot be justified. However, similar samples may be compared with each other and all research articles are peer reviewed, thus providing confidence that all analyses on data are correct.

The gap in the research: Non-traditional uses of mobile phones while driving and knowledge and effectiveness of current legislation in Western Australia

Despite the current knowledge of mobile phone use while driving studies which has been displayed in this chapter, little known research has been conducted in Australia regarding mobile phone use while driving, especially in Western Australia. There is no recent research in Western Australia on the prevalence of mobile phone use while driving and the behavioural choices of drivers as to why they wish to engage in mobile phone use while driving, despite legislative restrictions, and increased attention and enforcement from the Western Australian Police. The most recent study that investigated mobile phone use in Western Australia was conducted through surveys in 2006 by McEvoy et al. (2006). Since this study has been published, technology has changed rapidly, and so has the influence of mobile phones in society. Australians are more digitally connected than ever before. Recent research investigating the prevalence of using social media while driving has also not been widely explored internationally, or academically within a Western Australian context. The study by McNabb and Gray (2016) on the influence of social media on driving, through the use of a driving simulator, may be one of the first studies who had investigated this issue. The knowledge of the motivations behind the behaviours to use a mobile phone while driving, to create or send text messages, make or receive a call and access social media, and whether

there are differences in age, locality (metropolitan and regional areas), driving experience and gender, are also missing, and requires exploration in Western Australia. Furthermore, there is no current available research that explores enforcement related to mobile phone use and the extent of knowledge on existing mobile phone legislation in Western Australia. Despite the limitations of the use of surveys as a research tool, this study uses a survey to gather this information. Results from this study will provide a basis for future studies to conduct more research into the driving behaviours of Western Australians.

Conclusion

Road crashes are a problematic public health issue internationally and in Australia. Drivers who are distracted from safe driving have become an emerging issue, especially because of using mobile phones while driving. Recent studies encompassing a variety of methodologies have confirmed high activity of mobile phone use while driving internationally, particularly among young people. Drivers appear to engage in this behaviour regardless of interventions, known increased crash risk and legislative restrictions, and there have been mixed results that have detailed the effectiveness of these three factors. Road safety academia has not kept up to date with the popularity of social media and its use while driving, Also absent is research pertaining to using a mobile phone while driving that is inclusive of drivers' knowledge of legislation, and enforcement experience in Western Australia. The present study aims to fulfil this research gap, using the TPB as the conceptual framework which will be discussed in the next chapter.

Chapter 3 Theoretical framework: The Theory of Planned Behaviour

Aims of this chapter

This chapter presents the theoretical framework for this study, the Theory of Planned Behaviour. Firstly, a brief history of the theory is presented. Next, each component of the theory is examined, followed by a presentation of the theory's strengths and weaknesses. Finally, evidence of the theory's use in road safety literature and its suitability for being the underpinning theoretical framework for this study is presented.

History of the Theory of Planned Behaviour

The Theory of Reasoned Action is described by Ajzen and Fishbein (1980) as an individual's intention to carry out a voluntary action (or behaviour), which is based on a relationship between that person's attitudes, and subjective norm towards that action. Although this theory alone has strong overall evidence which supports the connection between these variables, the model cannot be applied if the person in question lacks the required information and resources (Sheppard, Hartwick, & Warshaw, 1988). Other studies have also concluded that the Theory of Reasoned Action assumed the action/behaviour to be volitional; that is, a person was assumed to have complete control over the behaviour (Auzoult, 2015; Braddock & Dillard, 2016; Godin, Conner, & Sheeran, 2005; Kraus, 1995). Thus, the theory was reformed into the Theory of Planned Behaviour (TPB), which includes an added component and perceived behavioural control (PBC). This is visualised in Figure 2 (Ajzen, 1991). Generally speaking, the stronger (or more positive) the attitudes, subjective norms, and perceived attitudes are towards a behaviour, the stronger the intention is to carry out the behaviour (Ajzen, 1991). The interaction, significance and importance among the controlling factors (attitudes, subjective norm, and perceived behavioural control) differentiate according to the behaviour and its context. However, as demonstrated in Figure 2, the intention to perform the action is the central component of the theory (Ajzen, 1991).

TPB was originally applied to explain health-related behaviours but has since been employed to explain intentions and behaviours in many other research fields including (but not limited to) human resources (Askew et al., 2014; Y.-j. Lee, Won, & Bang, 2014), finance (Croy, Gerrans, & Speelman, 2012), education (Cheon, Lee, Crooks, & Song, 2012), and criminology (Li, Frieze, & Tang, 2010; Rhodes, Brown, & McIntyre, 2006). A review of the application of the theory in road safety is presented later in this chapter.

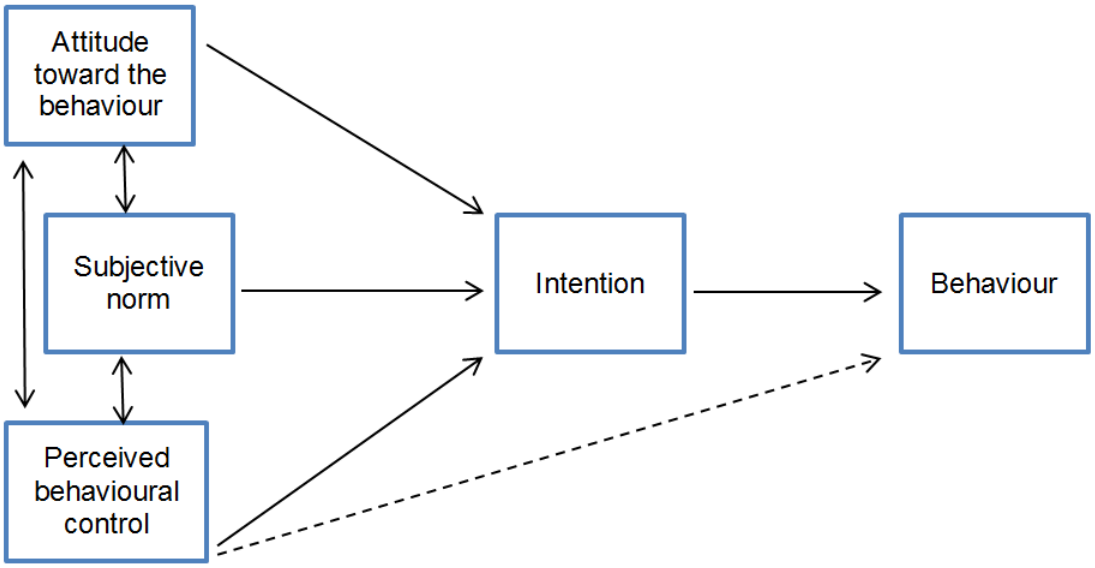

Figure 2 Theory of Planned Behaviour (adapted from (Ajzen, 1991, p. 182))

Influence of attitude on intention and behaviour

Attitude, defined as the "degree to which a person has a favourable or unfavourable evaluation or appraisal of the behavior" (Ajzen, 1991, p. 188), is one aspect in TPB. The formation of attitudes towards a behaviour is based on the underlying beliefs that that behaviour has attributes (Ajzen & Fishbein, 2000). For example, a person may believe that exercise will reduce the risk of obesity (Ajzen & Fishbein, 2000). In this example, exercise is identified as the behaviour, the reduction in obesity is the attribute and the combination is an underlying belief which contributes to the intention to exercise (Ajzen & Fishbein, 2000).

Individuals are more likely to favour behaviours that have underlying beliefs that the behaviour results in positive outcomes (Ajzen, 1991).

Researchers have mostly agreed that there are specific conditions in which attitudes are more likely to predict behaviours. Attitudes that are readily available, held with certainty, stable over time and associated with past behaviour are more likely to strongly influence behaviour (Glasman & Albarracín, 2006; Kraus, 1995). In their meta-analysis of the attitude-behaviour literature, Glasman and Albarracín (2006) concluded that the mean correlation between attitude and behaviour was 0.52. This high correlation is due to further conditions placed on attitudes towards a behaviour, including a person's belief that their behaviour and their attitudes are correct (Glasman & Albarracín, 2006).

Influence of subjective norm on intention and behaviour

Subjective norm is the "perceived social pressure to perform or not perform the behavior" (Ajzen, 1991, p. 188), which is another component of TPB. Normative beliefs, which are the perception of the likelihood that social support networks would agree or disagree with the behaviour, forms subjective norms. When multiplied by the motivation to comply with the behaviour, this in turn influences intention to perform the behaviour (Ajzen, 1991). There are four types of norms which a person may or may not apply in forming an intention to carry out a behaviour: moral, descriptive, injunctive, and representative. Moral norms concern whether the behaviour is perceived to be morally correct (Godin et al., 2005). Descriptive norms are based on factual evidence and are a reflection of the social environment in which the behaviour may or may not be performed (Lavrakas, 2008b).

However, Rivis and Sheeran (2003) suggest that descriptive norms are the actual opinions of the individual's social support network concerning the behaviour, rather than being based on actual evidence. Injunctive norms perceive how the particular behaviour aligns with the descriptive norm, and the individuals consider whether that behaviour has a

place in the environment, and its potential consequences, often referred to as behaviours that the individual believes others think 'should' be undertaken (Lavrakas, 2008b). Representative norms refer to the degree to which the behaviour would be accepted in a cultural context, similar to the injunctive norm, however still being constructed and perceived by the individual (Lavrakas, 2008b).

A meta-analysis which assessed the impact of injunctive and descriptive norms on behaviour revealed that descriptive norms have a greater impact of the two (Manning, 2009). This finding is supported by other studies which assessed the impact of descriptive norms upon behaviour (Murphy, Vernon, Diamond, & Tiro, 2014; Park, Klein, Smith, & Martell, 2009; Rahman, Osmangani, Daud, & Fadi Abdel Muniem, 2016). However, contradictory findings have found that subjective norm is the weakest predictor of intention with poor measurement as a significant factor (Armitage & Conner, 2001). Therefore, if the measurement is valid, of all the different types of norms, descriptive and subjective norms may have the largest influence on intention and behaviour.

Influence of perceived behavioural control on intention and behaviour

Perceived behavioural control is the "perceived ease or difficulty of performing the behavior" (Ajzen, 1991, p. 188), and is another component of the TPB. As noted previously, the addition of this element differentiates the TPB from the Theory of Reasoned Action. Control beliefs form both the perception and actual ability to perform a behaviour (Ajzen, 1991). Figure 2 depicts the link between perceived behavioural control and attitude. This link exists due to two components having the ability to directly influence intention without subjective norms (Ajzen, 1991). Perceived behavioural control may also have the ability to bypass intention and affect the ability to influence behaviour, as shown by the dotted link between perceived behavioural control and behaviour (Ajzen, 1991).

There are two components in perceived behavioural control which directly relate to the behaviour of a driver, which are perceived capacity and autonomy (Castanier, Deroche, & Woodman, 2013). These two components have previously predicted the intention to drive under the influence of alcohol and other unsafe road behaviours (Castanier et al., 2013). Automaticity, formed by behaviour repetition in other research contexts, has also been noted as a significant influence over perceived behavioural control, and thus on intention and behaviour (Bruijn, Gardner, Osch, & Sniehotta, 2014).

Strengths and weaknesses of the Theory of Planned Behaviour

TPB has and will continue to make a significant contribution to the understanding of human behaviour in psychological studies. The influences of attitude, subjective norm, perceived behavioural control on intentions, and the important role that intentions play in behaviour has been reported in many studies since the theory was formalised by Ajzen and others (Ajzen, 2002, 2007; Ajzen & Fishbein, 1980, 2000; Askew et al., 2014; Auzoult, 2015; Bagozzi, 1992; Braddock & Dillard, 2016; Cheon et al., 2012; Glasman & Albarracín, 2006; Kraus, 1995; Y.-j. Lee et al., 2014; Mizenko et al., 2015; Murphy et al., 2014; Park et al., 2009; Rahman et al., 2016).

However, in this time, the theory has also been less successful or did not apply in certain contexts. Low intention and behaviour prediction power have been found in previous studies (Ajzen, 2011; Sniehotta, Presseau, & Araújo-Soares, 2014). Because of the significant influence and credibility of the TPB, those studies that did not find statistically significant links between the theory's components often did not question the theory's validity. They instead questioned the study's methodology (Ogden, 2003). Validity issues have plagued the theory, as results of other studies have shown that other determinants have had a stronger influence on behaviour than the TPB's components. These determinants include beliefs, physical environment, age and socio-economic status (Sniehotta et al., 2013; Sniehotta et al.,

2014). There are also concerns that the theory's relevance to academic discourse is fading, as Sniehotta et al. (2014, p. 4) wrote: "the TPB is no longer a plausible theory of behaviour or behaviour change and should be allowed to enjoy its well-deserved retirement." This sentiment has also been heard and repeated by other academics (Rhodes, 2015).

Despite these contentions by Rhodes (2015) and Sniehotta et al. (2014), the variables of the TPB underpin a new model for the prediction and understanding of behaviour. The Integrated Behaviour Model is also a behaviour prediction model, and TPB variables are present in the model in its entirety. Although, unlike the TPB, the Integrated Behaviour Model identifies factors other than intention which contribute to performing a behaviour (Montaño & Kasprzyk, 2002). These factors are as follows; knowledge and skills to complete the behaviour; the importance of the behaviour; environmental constraints; and habit (Montaño & Kasprzyk, 2002). The Integrated Behaviour Model has been used in place of the TPB, specifically in public health research, as it allows closer examination of other significant factors other than intention, thus allowing public health researchers to target crucial areas in health interventions (Glanz, Rimer, & Lewis, 2002; Montaño & Kasprzyk, 2002). As Sniehotta et al. (2014) suggested, new models such as the Integrated Behaviour Model, are emerging models which allow for the alternatives from the TPB, giving researchers choice in choosing models which best fits their research. This has proven to have given way to outcomes which better inform behaviour change interventions. Another theory which also incorporates components of the TPB is the Heath Action Process Approach by Schwarzer (1992). The Health Process Action Approach uses components from the Theory of Reasoned Action (as stated previously, this was the predecessor of the TPB) and the Health Belief Model (Schwarzer, 1992). Like the TPB, the intention (termed motivational stage) to perform a behaviour (termed action stage) is the main focal point in the model (Schwarzer, 1992). The influences on the motivation are self-efficacy (the ability of the individual to

perform the behaviour, similar to perceived behavioural control), outcome expectancies (the expected outcome of the behaviour), and perceived threat of any consequences (Schwarzer, 1992). The self-efficacy is an integral part of the Health Action Process Approach, and expands on the perceived behavioural component of the TPB by allowing the individual to assess their capability to perform the behaviour. This is said to foster motivations to change behaviour (Murgraff, McDermott, & Walsh, 2003; Schwarzer, 1992). Like the Integrated Behaviour Model, the Health Action Process Approach has been used in place of the TPB for its inclusion of self-efficacy in a wide range of health behaviours, including alcohol consumption, breastfeeding and physical activity (Hattar, Pal, & Hagger, 2016; Martinez-Brockman, Shebl, Harari, & Pérez-Escamilla, 2017; Murgraff et al., 2003). However, its use has not been widely adopted in road safety, and present research uses the Health Action Process Approach to assess motivations to amend driver behaviour after road safety interventions (Dale, Scott, & Ozakinci, 2017)

The TPB does however allow for variability. In addition to attitudes, subjective norms, and perceived behavioural control to predict intention, other specified variables have been added to TPB that improved predictions and correlations for intention, including past behaviour (Ajzen, 1991). Past behaviour has been added as a variable in TPB in other studies and research disciplines such as education (Kovac, Cameron, & Høigaard, 2016), public health nutrition (Norman & Conner, 2006; Wong & Mullan, 2009) and tourism (Bamberg, Ajzen, & Schmidt, 2003; Hsieh, Park, & McNally, 2016), and has produced significant predictions with intention.

Issues have been identified between intention and future behaviour, as associations have been found to be less significant than prescribed by Ajzen, mostly due to other factors presented to the individual when forming an intention to engage in a behaviour, such as unexpected external environmental reasons (Ajzen, Brown, & Carvajal, 2004; Sheeran,

Orbell, & Trafimow, 1999). As past behaviour had shown strong associations with the intention to perform a behaviour, researchers have used past behaviour as a determinant for future behaviour (Bentler & Speckart, 1979; Triandis, 1977) . This has also been the case in studies where resources are limited and follow-up with participants is unable to be conducted; or there was no intervention to be able to influence the intention to perform the behaviour, which is the case for the current study (Conner & Armitage, 1998). The TPB is a strong and valid theory that has been the theoretical background for many studies across disciplines, including road safety, as discussed in the next section.

Theory of Planned Behaviour in Mobile Phone Use while Driving Research

The TPB has been used to explain and predict unsafe road behaviours such as speeding and driving under the influence of alcohol (Baum, 2000; Chan, Wu, & Hung, 2010; Iversen, 2004; Lheureux, Auzoult, Charlois, Hardy-Massard, & Minary, 2016; Paris & Broucke, 2008; Scott-Parker, Hyde, Watson, & King, 2013). As mobile phone use while driving has become a topical research issue, the theory has also been applied to assess correlations between the theory's components, and intention to text and call while driving. The most recent research reveals that positive attitudes which cater towards mobile phone use while driving have predicted the intention to use, as well as actual behavioural use of a mobile phone while driving, particularly among young people (Cazzulino et al., 2014; Mizenko et al., 2015; Prat et al., 2015; Rowe et al., 2016; Waddell & Wiener, 2014). Specific tasks and communications on the mobile phone that were deemed task orientated were cited as the main reason to engage in the behaviour (Atchley, Atwood, & Boulton, 2011). In one study, attitude was found to be the largest social-psychological factor on predicting engagement in technology-based distractions while driving (holding phone conversations, manually manipulating a phone and adjusting settings of in-vehicle technology (such as Global Positioning Systems) (Chen & Donmez, 2016). It appears that some intervention

campaigns are unable to change attitudes towards risky driving behaviours, as Glendon, McNally, Jarvis, Chalmers, and Salisbury (2014) found. They evaluated high school students' behaviours before and after a road safety intervention campaign in Australia, and found no significant differences in attitudes towards risky driving behaviours. These attitudes did not improve post-intervention (Glendon et al., 2014).

Subjective norm has been found to influence the intention to use a mobile phone while driving, again, particularly among young people, as they hold normative beliefs that their closest social networks of family and friends regard using a mobile phone while driving as a positive behaviour (Prat et al., 2015; Rowe et al., 2016; Terry & Terry, 2016; Waddell & Wiener, 2014; White et al., 2010). Young people have been found to form their own social norms, involving the over-estimation of their peers and parents' use of a mobile phone while driving (Bingham, Zakrajsek, Almani, Shope, & Sayer, 2015). Young people have also been found to use a mobile phone while driving statistically significantly more so than their peers and parents ($p < 0.001$) (Bingham et al., 2015). It has also been found that using a mobile phone while driving is seen as more socially acceptable than driving under the influence of alcohol (Terry & Terry, 2016). Studies have noted that perceived social pressure may push the participants to respond to communications on a mobile phone while driving, despite the risks involved (Atchley et al., 2011). Therefore, social norms and the feeling to connect is substantially relevant to young people and appears it can override perception of risks (Atchley et al., 2011). In another study, younger drivers (under the age of 30) appeared to be more influenced by injunctive and descriptive norms than older drivers in predicting engagement in technology-based distractions (Chen & Donmez, 2016).

Perceived risk as part of perceived behavioural control was also widely discussed as an influencing factor on both the intention and behaviour of using a mobile phone while driving (Atchley et al., 2011; Ismeik et al., 2015; McEvoy et al., 2006; Prat et al., 2015;

Rowe et al., 2016; Sanbonmatsu, Strayer, Behrends, Ward, & Watson, 2016; Sanbonmatsu, Strayer, Biondi, et al., 2016; Terry & Terry, 2016; Waddell & Wiener, 2014; White et al., 2010). In a study assessing young drivers who text, it was reported that they expressed they felt they were "immune" to the possibility of receiving a penalty for mobile phone use while driving ($p < 0.01$), and, subsequently, being involved in a road crash (Beck & Watters, 2016). Another study with 746 university students in the USA found that the study participants were also acutely aware of the risks involved when using a mobile phone while driving and used risk-reducing strategies, or adapted to the driving environment, allowing them to use a mobile phone while driving with the reduced risk of being involved in a road crash or receiving a penalty, such as texting while stopped but not parked (for example, at the traffic lights), or only between short distances (Terry & Terry, 2016). Participants were also found to overestimate their own abilities of multitasking while driving, and believed that other drivers who use their mobile phone while driving and other unsafe road behaviours have a higher risk of being involved in a road crash, than themselves who are also engaging in the behaviour (Cazzulino et al., 2014; Sanbonmatsu, Strayer, Behrends, et al., 2016; Sanbonmatsu, Strayer, Biondi, et al., 2016). Due to the high perceived risks of others using a mobile phone while driving, there has been strong support for legislative bans on using a mobile phone while driving (Sanbonmatsu, Strayer, Behrends, et al., 2016). Contradictions in research are present however, as high correlations exist between perceived risk of being involved in a crash and enforcement, and with high intention to use a mobile phone while driving (Prat et al., 2015). Another study by Ismeik et al. (2015) with 423 drivers in Jordan reported that drivers also acknowledged the high risk of using a mobile phone while driving and being involved in a crash, even though 93.1% of the sample regularly use their mobile phone while driving. A high correlation existed between intention and past behaviour of using a mobile phone while driving to create/send text messages, intention and attitude

towards texting while driving, and intention and perceived behavioural control of texting while driving (Prat et al., 2015). It was speculated that the drivers might have had a close call with a risk and believe they will be able to compensate if they carry out the behaviour again (Prat et al., 2015).

Suitability justification for the use of the Theory of Planned Behaviour in the present study

The TPB is well suited to the theoretical backing for this study, given its established credibility and extensive use in the road safety research field and in similar studies. This study explores factors that influence intention (attitudes, subjective norms and perceived behavioural control) and the intention to use a mobile phone while driving. Past behaviours will also be assessed, as past behaviour has been cited as a suitable indicator for future behaviour (Ouellette & Wood, 1998). This study differs from previously published studies, as the research explores the legal environment (that is, the mobile phone use while driving legislation, the penalty and the enforcement of the legislation by the Western Australian Police) regarding mobile phone use while driving, and its impact on drivers in Western Australia. The exploration of the legal environment is integral to the present study, as it is the first of its kind in Western Australia.

Summary

The TPB is a well-established theory, which centres on the intention to perform a behaviour, and the influences on the intention, including attitudes, subjective norms and perceived behavioural control towards performing the behaviour. The TPB has been used in many research fields and has an established setting in road safety literature, inclusive of mobile phone use while driving literature. Previous research has found that positive attitudes towards using a mobile phone while driving, accepting social norms around using a mobile phone while driving, and a high level of perceived behavioural control to use a mobile phone while

driving, has predicted the intention and behaviour to participate in mobile phone usage. Newer models such as the Integrated Behaviour Model and the Health Action Process Approach which expand on the TPB have provided alternatives to the TPB, which has recently been under speculation that the TPB is becoming outdated. However, the TPB does allow for variability and is suitable for the present study as it centres on the attitudes, subjective norms and perceived behavioural controls on how it predicts intention and behaviour (using past behaviour).

Chapter 4 Methodology

Aims of this chapter

This chapter provides the reader with the methodology for this study. Firstly, the research questions are presented. Secondly, the procedures and steps that were taken for data collection are recorded. The chapter closes with details and justification for the analysis.

Aim of the study and research questions

The aim of the present study was to fill the existing research gap in the research investigating traditional (calls and text messages) and non-traditional (social media) use of mobile phones while driving, and apply it to the Western Australian context. The term "mobile phone use" refers to making or receiving calls, creating or reading text messages and using social media, and "region" refers to the Perth metropolitan and non-metropolitan areas of Western Australia. "Region" had been included as a variable, given that non-metropolitan areas of Western Australia report higher number of road crashes than the metropolitan areas of Western Australia, as shown in Chapter 2. The aim of the present study was achieved by answering the main research question for this study, which was: "How well do the standard TPB predictors together with the socio-demographic variables, knowledge of the legislation, and past mobile phone use behaviour predict intention to use the mobile phone while driving?" The specific research questions for this study are detailed below.

(1) What are the social and legal consequences of mobile phone use while driving experienced by younger respondents, and do these differ by gender, driving experience and region?

(2) What is the past prevalence of mobile phone use while driving of the younger respondents and do these differ by gender, driving experience and region?

(3) What are the attitudes, subjective norms and perceived behavioural controls to use a mobile phone while driving of younger respondents and does this differ by gender, driving experience and region?

(4) What is the intention to use a mobile phone while driving of younger respondents and do these differ by gender, driving experience and region?

(5) What is the ability of the younger respondents to be able to recall their knowledge of current mobile phone legislation and what are the younger respondents' enforcement experiences, and do these differ by gender, driving experience and region?

The driving experience is comprised of the licensing stage (Provisional and Ordinary) and kilometres travelled per week. The data analyses that provide answers to the research questions are described later in the chapter. The next section provides information on the methodology for data collection.

Study design

This study is predominantly a quantitative study, with minor qualitative elements. The decision to employ this study design was firstly due to the existing research in the academic area. As shown in Chapter 2, all cited studies in the research field were quantitative and utilised a variety of research tools such as driving simulators, observational studies, and surveys. Secondly, to the researcher's knowledge, this is the first type of study of its kind in Western Australia. It was therefore thought appropriate to gain quantitative data to gauge the size of the issue. Minor qualitative elements, opinions on the mobile phone use while driving legislation (the law and its penalty) and attitudes towards police enforcement, have also been included.

Materials

The research tool for this study was an online survey. The development and testing of the research tool are explained in detail in Chapter 5.

Survey design

Table 3 illustrates how the research questions will be answered. The survey excluded anyone who did not have a driver's license. Respondents were anonymous, and the identifying information was restricted to the date of birth, gender, and postcode. Most questions have a direct measure of each component via a Likert scale with the exception of questions related to the research question (5). The survey was developed as recommended by Francis et al. (2004). Generally, most studies that had used the TPB as their theoretical basis had used surveys as their main research tool and had contained seven-point Likert scales which rated respondent's agreement (Ajzen, 1991). Recent research has found this to be an effective means of measurement (Atchley et al., 2011; Ismeik et al., 2015; McEvoy et al., 2006; Prat et al., 2015; Rowe et al., 2016; Sanbonmatsu, Strayer, Behrends, et al., 2016; Sanbonmatsu, Strayer, Biondi, et al., 2016; Terry & Terry, 2016; Waddell & Wiener, 2014; White et al., 2010).

To assess reliability and consistency of the survey content where scales were used, the Cronbach's α (alpha) test was performed for each of the grouped content: past behaviour, attitude, subjective norm, perceived behavioural control, and intention. The Cronbach's α has been used widely in research where surveys were the research tool, and assesses the internal reliability and consistency in survey items to ensure questions can be answered in the same manner when distributed to a sample (Lavrakas, 2008a; Lewis-Beck, Bryman, & Liao, 2004; Vogt, 2005d). The α values are between 0 and 1, with the higher the α, the higher the reliability, with 0.70 being an accepted benchmark of a suitable reliability (Lavrakas, 2008a; Lewis-Beck et al., 2004; Vogt, 2005d). In addition to reliability, convergent validity was assessed by performing the average variance extracted (AVE) test. Convergent validity is the extent of constructs measuring the intended theoretical construct (Cramer, 2004a; Mathison, 2005; Vogt, 2005a). For example, convergent validity assesses the extent to which the

attitude questions reflect an attitude towards the behaviour. The AVE test assesses the "amount of common variance within a construct" (Carter, 2016, p. 734). Using the example above, the AVE test will measure the amount of variance between the attitude questions. The AVE test will assess the same measurements as the Cronbach α tests. The Cronbach α tests have been criticised previously for not providing a holistic analysis of reliability and validity of scales. Researchers have suggested that a confirmatory factor analysis is conducted in conjunction with the Cronbach α tests (Carter, 2016). The generally accepted AVE value is 0.5, that is, convergent validity exists when AVE is 0.5 or greater (Hair, 2006).Validity was also assessed by conducting two pilot studies, as detailed in Chapter 5. Regarding the limitations of a survey as a research tool, it is noted that previous studies have mentioned that driver distraction data that is collected via surveys may be subject to difficulties in the ability to recall information and social desirability issues of respondents (Tivesten & Wiberg, 2013). This is combated in the present study by limiting the period of recalling past behaviour to the last week and by collecting anonymous responses.

Information sheet and consent

An information sheet was provided at the beginning of the survey that the respondents were required to read and understand (see Appendix 5). The background of the study, its requests from the respondent, the incentive to participate in the survey and counselling information were included in the information sheet. As the information sheet was a requirement from the Edith Cowan University's Human Research Ethics Committee, counselling contact details were provided, given that the respondents were asked to recall details about a traffic crash that may have caused respondents some stress. Their subsequent participation in the online survey was taken to signify consent.

Table 3 *Survey content and answer forms related to the study's research questions*

Research Question	Survey Question Content	Answer Form
(1) What are the social and legal consequences of mobile phone use while driving and does this differ by age, gender, driving experience and region?	Has the respondent ever been issued a caution and/or an infringement under Regulation 265 of the Road Traffic Code 2000?	Yes/No/Unsure
	Has the respondent ever been in a crash where they were at fault and used a mobile phone while driving?	Yes/No/Unsure
	If the respondent had answered "Yes" to the above, did anyone go to the hospital as a result of the crash? And what was the mobile phone use behaviour?	Yes/No/Unsure Mobile Phone Use Behaviour choices are: physically holding a mobile phone while driving, using a Bluetooth option and a combination of both.
(2) What is the past prevalence of mobile phone use while driving of the respondents and does this differ by age, gender, driving experience and region?	Respondent's experiences of how often they engaged in mobile phone use while driving in the last week.	7 point Likert scale from "Never" to "Every Time."
(3) What are the attitudes, subjective norms and perceived behavioural controls to use a mobile phone while driving and does this differ by age, gender, driving experience and region?	To measure attitude, the respondent rates their agreement on positive and negative attitude statements on using a mobile phone while driving.	7 point Likert scale from strongly disagree to agree strongly
	To measure subjective norms, respondents rate their agreement on positive and negative statements on opinions of their family and friends on using a mobile phone while driving.	7 point Likert scale from strongly disagree to agree strongly
	To measure attitude, the respondent rates their agreement on positive and negative statements which assess their self-efficacy to use a mobile phone while driving.	7 point Likert scale from strongly disagree to agree strongly
(4) What is the intention to use a mobile phone while driving and does this differ by age, gender, driving experience and region?	To measure intention, respondents rate their agreement with statements which state their intention to use a mobile phone while driving in the next week.	7 point Likert scale from strongly disagree to agree strongly
(5) To what extent is the knowledge of current mobile phone legislation and what are respondents' enforcement experiences and do these differ by age, gender, driving experience and region?	Five scenarios were presented to respondents, and they decided if the situation is legal or illegal.	Legal/illegal/unsure
	Respondents expressed their thoughts and opinions on the existing legislation including its penalty as well as current enforcement strategies and can suggest strategies.	Free text

Respondents

A power analysis of the independent variables illustrated that a minimum of 138 respondents is required for this study to have appropriate statistical power. The formula for

the power analysis is 50 + 8*x* where "*x*" is the number of independent variables (Tabachnick & Fidell, 2014, p. 159). The independent variables for this study are demographic variables, TPB components and past behaviour. The demographic variables are present in the research questions, which are: gender, driving experience (licence stage and kilometres travelled per week) and region. TPB components which act as the independent variables in this study are: attitude, subjective norm and perceived behavioural control relating to each respective mobile phone use behaviour (make/receiving calls, read/create text messages and accessing social media). A combination of these independent variables predicts intention to engage in each respected behaviour. Therefore, the power analysis formula for this study is 50 + 8(11). The respondent pool for this study was a convenience sample, as most respondents require to be enrolled at Edith Cowan University to access the student intranet to which the online survey was posted. This is an advantage as the university has 24,000 enrolled students, 84% of who are domestic students, 11% are international students, and 5% are students living abroad. The study will thus benefit from such diversity and a large number of potential respondents who would potentially be younger drivers(Edith Cowan University, 2016).

When collating data, the study aimed to investigate any discrepancies between young and older drivers. While the study did not limit the age of respondents, it was deemed likely that this study would gain responses predominantly from young people. The term "young people" and "young drivers" in this study will be combining the definitions of a "young adult" by the Australian Bureau of Statistics (2013), and "young people" by the Australian Institute of Health and Welfare (AIHW, 2011). These will include people aged between 17, and 25 years inclusive. For this study, the minimum age of the Australian Bureau of Statistics definition is amended from 18 to 17 years to include those who have participated in the graduated licencing system at the earliest age of 16, and have enrolled at university directly after completing secondary schooling (Department of Transport Western Australia, 2014).

The maximum age from the Australian Bureau of Statistics definition was also amended from 34 to 25 years to better reflect the young cohort of most undergraduate students. The term "older drivers" will be individuals who complete the survey who are 26 years or older. All analysis had been conducted with younger drivers as described in Chapter 6. Results of all aged respondents are shown in Appendix 6.

Procedure

The survey was made available online on the university's student intranet page in October 2016. The intranet page requires student credentials to log in and can be accessed internally and externally to campus. As well as containing links to important aspects of the student's academic life, such as course materials, a news feed is also displayed containing relevant and general information. A notice was placed on the news feed, which reached all students enrolled at Edith Cowan University. The survey was hosted by Qualtrics (2015) and was customised to be viewable on both personal computers, and portable devices such as smartphones and tablets. Online surveys are more convenient for both the researcher and the respondent, as the survey can be conducted at any time and at any venue between the open survey dates, and questions can be forced to be answered in order to collect information. Also, Qualtrics (2015) provides a spreadsheet-style of respondent responses which can be readily uploaded into statistical analysis software.

Ethics

The research had approval from the Edith Cowan University Human Research Committee (project number 12464). The present study posed a low risk to students. Two questions in the survey may have caused discomfort to respondents, particularly those questions pertaining to crash or near-crash involvement and hospitalisation. All survey data were kept securely on a personal password protected computer. Concerning the identity of respondents, the only identifying information on the survey collected was the year of birth,

gender, postcode, and email address or phone number. Contact details were asked if the respondent wished to be involved in the draw to win one of three $50 fuel vouchers, for Pilot Survey 2 and the main survey. Email addresses and telephone numbers were retained separately from the survey data. Although younger respondents were the main focus for the present study, the research tool did not specify an age range for collection to avoid discrimination thus the present study gained responses from persons over 25 years.

Data analysis

Once the survey data were obtained and downloaded, it was cleaned to remove obsolete information, such as invalid and incomplete responses, and coded appropriately in Microsoft Excel (Microsoft Corporation, 2010) before being uploaded into SPSS version 23 (IBM Corp., Released 2014.) for analysis. The types of analyses that were performed on the data are described below.

Quantitative analysis

Quantitative analysis was performed to answer all research questions for all aged respondents, with the results displayed for younger drivers only in Chapter 6, and results for all aged respondents illustrated in Appendix 6. Table 5 illustrates the types of analyses that were performed to answer each research question as well as the variables involved. The analyses involved comparing differences across the independent variables which were collapsed into two categories each, as seen in Table 4. The median category of kilometres travelled per week was 200 – 300 kilometres, therefore distance driven per week was coded as either <200kilometres driven per week or > 200 kilometres driven per week.

Table 4 *Collapsed categories within the independent variables*

		Collapsed categories within independent variable	
Independent variables		Category 0	Category 1
Gender		Male	Female
Driving experience	License stage/type	Ordinary licenses (manual and automatic)	Provisional licenses (both stage 1 and 2)
	Kilometres driven per week	<200	>200
Region		Metropolitan Western Australia	Outside of Metropolitan Western Australia

Chi-square tests (X^2) enable the identification of statistically significant differences by comparing observed and expected counts in a sample (Moore, 2000). It has been used across mobile phone use while driving studies and will be a useful measure in answering the associated research questions (Bernstein & Bernstein, 2015; Carpenter & Nguyen, 2015; Chen & Donmez, 2016). An example of chi-square test in this study is "ever receiving an infringement" *X* Age (17 – 25, 26 and over). The chi-square formula is shown below:

$$X^2 = \sum \frac{(observed\ count - expected\ count)^2}{expected\ count}$$

The significance of X^2 is denoted by the *p* value of significance (Moore, 2000). If *p* values are below or equal to 0.05, 0.01 or 0.001, then there is a statistically significant difference of the counts across categories in a sample (Moore, 2000). In order for the test to be valid, expected counts must exceed five and there must be an independence of observations (Moore, 2000).

Independent samples *t*-tests were used to compare groups where the dependent variables are scale variables, such as past behaviour scores of engaging in mobile phone use while driving between age groups (Cramer, 2004b). Independent groups *t*-tests were also

used across mobile phone use while driving studies (Bernstein & Bernstein, 2015; Delgado et al., 2016). The formula for the independent-samples *t*-tests is shown below.

$$t = \frac{A_1\bar{x} - A_2\bar{x}}{SD}$$

In this formula, t is the test statistic, A_1 and A_2 denote the compared groups, $\bar{x}$ is the sample mean of the combined groups and SD is the standard deviation. In order for the test to be valid, the distribution of observations must be characterised by an independence of observations of independence, homogeneity and normality (Moore, 2000). The observations of independence were met in every test that was performed as the sociodemographic variables were coded into two groups, therefore respondents could only be in one group or the other. The assumption of homogeneity was assessed in every analysis by using the Levene's test (Vogt, 2005c). If Levene's test value was above 0.05 then equal variances were not assumed (Vogt, 2005c). If Levene's test value was below 0.05 then equal variances were assumed (Vogt, 2005c). It is important to note that the assumption of normality was commonly violated in these tests however the literature suggests that it is not a significant issue if there is a large sample size (n > 30) (Salkind, 2010).

Hierarchical multiple regression assesses the degree of relationship between one dependent variable and multiple independent variables which are placed in different stages or steps (Tabachnick & Fidell, 2014). Hierarchical multiple regression has been used widely in road safety research, including driving while fatigued, and the relationship between alcohol and driving (Jiang, Ling, Feng, Wang, & Shao, 2017; C. J. Lee, Geiger-Brown, & Beck, 2016; Moan & Rise, 2011). Its effectiveness in mobile phone use while driving research, and the relationships within the TPB to predict intention, has also been well documented, thus it is an appropriate choice for the present study (Forward, 2009; Gauld, Lewis, White, Fleiter,

& Watson, 2017; Nemme & White, 2010; Waddell & Wiener, 2014; Walsh, White, Hyde, & Watson, 2008; Zhou, Rau, Zhang, & Zhuang, 2012). Although other forms of analyses, such as Structural Equational Modelling and Logistical Modelling, had also been used in TPB and mobile phone use while driving research (for example, the study by Atchley et al. (2011) in their research of risk assessment of texting while driving among younger drivers), its use in the present study is not justified as the complex nature of the models does not require investigation.

Hierarchical multiple regression requires certain assumptions to be met. These are normality, linearity, homoscedasticity of residuals and no evidence of multicollinearity (Tabachnick & Fidell, 2014). Normality, linearity and homoscedasticity of residuals are assessed by visual inspections of both the partial regression plots, and a plot of studentized residuals against predicted values (Aiken & West, 1993). No evidence of multicollinearity can be found if tolerance values are greater than 0.1 (Aiken & West, 1993).

One hierarchical multiple regression analysis was performed for each mobile phone use activity (making/receiving calls, creating/sending text messages and accessing social media) with three steps to predict each intention to perform those behaviours in the next week. The first step included all the TPB variables (attitude, subjective norm and perceived behavioural control) and were inputted as independent variables. Theoretical variables are entered first because the theory proponents Ajzen and Fishbein (1980) indicated that these variables accounted for demographic variables in relation to their scores. Therefore, for example, the attitude of an individual was the result of their age, gender, socio-economic status and other aspects of their life. For making/receiving calls in the first step, the TPB formula is as below:

$$IntCalls = A + \beta_1 AttCalls + \beta_2 SubNormCalls + \beta_3 PBCCalls$$

Where $IntCalls$ is the dependent variable, the intention to make/receive calls while driving in the next week, A is the $IntCalls$ intercept, beta's (β) are the unstandardized coefficients, $AttCalls$ is attitude towards making/receiving calls while driving, $SubNormCalls$ is the subjective norm relating to making/receiving calls while driving and $PBCCalls$ is the perceived behavioral control relating to making/receiving calls while driving. This formula is repeated for texting and accessing social media. The hierarchical multiple regression formula to predict the intention to creating/reading text messages in the next week, which illustrates the first step, is shown below:

$$IntTxt = A + \beta_1 AttTxt + \beta_2 SubNormTxt + \beta_3 PBCTxt$$

Where Txt denotes creating/sending text messages while driving. The hierarchical multiple regression formula to predict the intention to access social media while driving in the next week which illustrates the first step is:

$$IntSocMed = A + \beta_1 AttSocMed + \beta_2 SubNormSocMed + \beta_3 PBCSocMed$$

Where $SocMed$ denotes accessing social media while driving.

In the second step, the socio-demographics were added as independent variables, alongside the TPB components, to predict the intention to use a mobile phone while driving. These were gender, licence stage, kilometres driven per week, and region. The hierarchical multiple regression for making/receiving calls which incorporates the second step is shown below:

$$IntCalls = A + \beta_1 AttCalls + \beta_2 SubNormCalls + \beta_3 PBCCalls + \beta_5 Gender + \beta_6 LicStage + \beta_7 KPW + \beta_8 Region$$

Where $Gender$, $LicStage$, KPW, and $Region$ indicate the gender, licence stage, kilometres travelled per week and region of residence of the respondent, and A is the $IntCalls$ intercept. The formula is repeated for creating/reading text messages while driving and accessing social media while driving, as shown below:

$$IntTxt = A + \beta_1 AttTxt + \beta_2 SubNormTxt + \beta_3 PBCTxt + \beta_5 Gender + \beta_6 LicStage + \beta_7 KPW + \beta_8 Region$$

$$IntSocMed = A + \beta_1 AtSocMed + \beta_2 SubNormSocMed + \beta_3 PBCSocMed + \beta_5 Gender + \beta_6 LicStage + \beta_7 KPW + \beta_8 Region$$

In the third and final step, past behaviour engaging in each mobile phone use behaviour in the past week was included as an independent variable, alongside the TPB components, to predict the intention of performing each behaviour in the following week. This was due to it being an acceptable form for a proxy for future behaviour, as explained in Chapter 3 The hierarchical multiple regression for predicting the intention to make/receive calls while driving, incorporating the third step, is shown below:

$$IntCalls = A + \beta_1 AtCalls + \beta_2 SubNormCalls + \beta_3 PBCCalls + \beta_5 Gender + \beta_6 LicStage + \beta_7 KPW + \beta_8 Region + \beta_4 PBCalls$$

Where $PBCalls$ denotes the past behaviour scores of making/receiving calls while driving. This formula is repeated for creating/reading text messages while driving and accessing social media while driving as seen below:

$$IntTxt = A + \beta_1 AtTxt + \beta_2 SubNormTxt + \beta_3 PBCTxt + \beta_5 Gender + \beta_6 LicStage + \beta_7 KPW + \beta_8 Region + \beta_4 PBTxt$$

$$IntSocMed = A + \beta_1 AtSocMed + \beta_2 SubNormSocMed + \beta_3 PBCSocMed + \beta_5 Gender + \beta_6 LicStage + \beta_7 KPW + \beta_8 Region + \beta_4 PBSocMed$$

Other tests performed were tests of association and correlation, such as Pearson's Product-Movement Correlation and Spearman's Correlation. Pearson's product-movement correlation is the most commonly used to test for linear association and requires a normal distribution of scores (Salkind, 2010b; Vogt, 2005b). It is denoted by *r* and indicates the degree of the linear relationship between two variables, which can be negative or positive and can range between -1.0 and +1.0 (Salkind, 2010b). The closer the *r* is to either point (-1.0 or +1.0), the stronger the linear relationship (Salkind, 2010b). The formula for obtaining a raw *r* score is shown below:

$$r_{xy} = \frac{n \sum XY - \sum X \sum Y}{\sqrt{\left(n \sum X^2 - (\sum X)^2\right)\left(n \sum Y^2 - (\sum Y)^2\right.}}$$

where *X* and *Y* denote the correlation measures. In this study, Pearson's Product-Movement Correlation was performed against the past behaviour scores of each mobile phone use behaviour, as well as against the intention scores, to engage in the specific behaviour in the following week. This was to assess whether past behaviour could be used as a proxy for future behaviour. In addition, Pearson's Product-Movement Correlation was also performed to assess the associations between each legislative scenario score and the intention to make/receive calls while driving, creating/reading text messages while driving and accessing social media while driving.

Concerning the coding (or scoring) of items in the quantitative part of the survey, higher numeric codes were assigned to the respondent selecting their choice on seven-point Likert scales (Strongly Agree, Agree, Somewhat Agree, Neither Agree nor Disagree, Somewhat Disagree, Disagree, and Strongly Disagree) that illustrate a more favourable mindset for using a mobile phone while driving, such as positive attitudes, subjective norms, perceived behavioural control and intention. Therefore, the higher the score the respondent obtains, the more positive the TPB components are towards using a mobile phone while driving. This was also applied to usage scores as they were also on a Likert scale (1= Never, 2= Rarely, 3= Occasionally, 4= Sometimes, 5=Frequently, 6= Usually and 7= Every time). Reverse scoring apparent for question 2.54 was made in error, however all analyses have been amended to reflect the true scoring. An additional question was displayed if the respondent answered any selection on the scale except "Never", which asked how the type of action was performed. The types of actions that were asked consisted of physically holding the mobile phone, using a Bluetooth option and a combination of both. A higher coding value was given to the option of performing a combination of both handheld and Bluetooth options, as it requires more physical actions and therefore more distraction away from safe driving. The second highest coding value was provided to physically holding the mobile phone while driving, and the lowest was given to using a Bluetooth option. The usage scores were coded so that higher scores would indicate higher usage of the specific behaviour, with the range of scores for making/receiving calls, creating/reading text messages and accessing social media range from 1 to 10.

The third and fourth research questions required independent sample t-tests to be performed using the TPB variables against the independent variables, which required the mean TPB scores to be recalculated as composite scores for each theoretical construct. In the survey, there were two attitude questions, four subjective norm questions, seven perceived

behavioural control questions and one intention question for each mobile phone use behaviour. Scores were combined for each TPB component and placed on a scale. A mean score was calculated for the combined items and then divided by the number of questions of each component in the survey, therefore calculating a mean score for each component question.

The mean score for attitude for each mobile phone use behaviour was calculated using the following formula:

$$A_1 + A_2 = A_s$$

$$\frac{A_s}{2} = A_x$$

Where 1 and 2 denote the attitude questions in the survey, "S" is the total score and "x" is the mean of the attitude questions. This type of syntax was used in the formulas for the mean subjective norm and perceived behavioural control. The subjective norm means score was calculated using the following formula:

$$s_1 + s_2 + s_3 + s_4 = s_s$$

$$\frac{s_s}{4} = s_x$$

The perceived behavioural control mean score was calculated using the following formula:

$$P_1 + P_2 + P_3 + P_4 + P_5 + P_6 + P_7 = Ps$$

$$\frac{P_s}{7} = P_x$$

Finally, there was no calculation required for the intention variable, as it was a stand-alone question in each category. Therefore, the mean intention score was calculated across each independent variable. The distribution of scores (i.e. higher scores indicate positive theory components towards the behaviour) is thus still retained.

Regarding possible statistical power issues of multiple comparisons in the present study, no corrections have been made. Gelman, Hill, and Yajima (2012) made the argument

that corrections for such issues are not required in social science research and is alleviated by multi-level modelling. The present study falls in the scope of social science research and has used hierarchical multiple regression, thus no corrections have been made.

Table 5
Quantitative analysis performed to answer research questions

Research question	**Variables**	**Analysis Type**
What are the social and economic consequences of mobile phone use while driving and does this differ by age, gender, driving experience and region?	Ever holding a mobile phone while driving, Enforcement history (calculated score of ever receiving a caution and/or infringement), age, gender, licence stage, kilometres travelled per week, region.	Chi-square test
What is the past prevalence of mobile phone use while driving of the respondents and does this differ by age, gender, driving experience and region?	Using a mobile phone to make/receive calls, text messages and use social media in certain traffic situations in the past week, age, gender, licence stage, kilometres travelled per week, region.	Frequencies, Chi-square tests and independent samples *t*-tests
What are the attitudes, subjective norms and perceived behavioural controls to use a mobile phone while driving and does this differ by age, gender, driving experience and region?	Attitudes towards calls, subjective norm towards calls, perceived behavioural control towards calls, attitudes towards texts, subjective norm towards texts, perceived behavioural control towards texts, attitudes towards social media use, subjective norm towards social media use and perceived behavioural control towards social media use, age, gender, licence stage, kilometres travelled per week, region.	Independent samples *t*-tests, Pearson's Product Movement Correlation and Hierarchical multiple regressions
What is the intention to use a mobile phone while driving and does this differ by age, gender, driving experience and region?	Attitudes towards calls, subjective norm towards calls, perceived behavioural control towards calls, attitudes towards texts, subjective norm towards texts, perceived behavioural control towards texts, attitudes towards social media use, subjective norm towards social media use and perceived behavioural control towards social media use, age, gender, licence stage, kilometres travelled per week, region.	Independent samples *t*-tests, Pearson's Product Movement Correlation and multiple regressions
To what extent is the knowledge of current mobile phone legislation and what are respondents' enforcement experiences and does this differ by age, gender, driving experience and region?	Answers to scenario questions, enforcement history, age, gender, licence stage, kilometres travelled per week, region.	Frequencies and Pearson's Product Movement Correlation

Qualitative analysis

The respondents were given the opportunity to express their opinions on the mobile phone while driving legislation, and penalties for and police enforcement of the behaviour. After formatting and validating the dataset, thematic analysis was applied to identify overall themes and issues that have been raised. Thematic analysis is a common method to decode qualitative data and has been widely applied in the research field (Schwandt, 2007). Coding each response requires the researcher to identify themes and patterns, and compare responses to ensure each response is coded appropriately (Mills, 2010). The analysis is useful as it groups responses together into singular themes which are points of interest for the study (Mills, 2010). Common themes are presented in the study, as well as selected quotes from the younger respondents. The results from the thematic analysis will supplement the quantitative analysis in answering the fifth research question.

Summary

This chapter presented the methodology for the present study. The present study is a mostly quantitative study with some qualitative elements, and used a survey as the main research tool. Recruitment for participation in the survey was conducted online through the Edith Cowan University internal web portal for staff and students. Although all aged respondents were targeted, the main analyses was conducted with younger respondents (between the ages of 17 – 25) with results of all analyses of all aged respondents are in Appendix 6. There were five research questions which are answered by the results of chi-square tests, independent samples t-tests, Pearson's Product Movement Correlation and Hierarchical Multiple Regression. Thematic analyses were applied to analyse the qualitative responses. Results of these analyses are shown in Chapter 6. The following Chapter describes the Pilot Studies that were conducted to support the development of the survey instrument.

Chapter 5 Pilot Studies

Aims of this chapter

This chapter presents a significant preliminary stage in the study: a pilot study. The chapter illustrates the processes and outcomes of this pilot study. Please note that this chapter will refer to the people who completed the pilot surveys as "participants". People who complete the final survey will be referred to as “respondents”.

Introduction and justifications for a pilot study

Preliminary studies locate potential errors and difficulties that may arise which, if not resolved, may cost resources in the main study (Persaud, 2010). Researchers may find that connections between core variables were not as predicted or that there was no actual ground for the wider study (Persaud, 2010). Furthermore, pilot studies provide a structured platform to make changes to the research tool and the broader study (Michael Bloor, 2006).

Two pilot studies were conducted for this research. The aim of Pilot Study 1 was to test the “user-friendly” component of the research tool, the survey. Survey results were not collected or analysed, as the aim of Pilot Study 1 only sought to receive feedback from individuals concerning the “face value” of the research tool. Results from the feedback resulted in amendments to the research tool, which was tested in Pilot Study 2 on a small number of participants. The aim of Pilot Study 2 was to investigate whether the transformed survey tool was coherent and logical. Association tests were conducted to analyse correlations and are reported below. Chambers and Swanson (2006) practised this approach of a survey tool in their pilot study designed to assess associations of sociodemographic characteristics with obesity.

Pilot Study 1: Qualitative data on the appearance, mechanics and logistics of the research tool

Cognitive interviewing

The structure for this qualitative research in Pilot Study 1 draws components from cognitive psychology. Tourangeau (1984) developed the Question and Answer process as shown in Figure 3. In this process, there are four main cognitive stages. Firstly, the participant seeks to understand the question in its entirety. Secondly, the participant retrieves relevant facts. After this step, the participant makes a judgement as to which fact is chosen to be the response to the particular question. In the final step, the participant communicates the response to the researcher or in the survey tool.

However, this question-answer model is not always followed in logical order and is more complex when different types of questions are asked, such as open-ended questions (Collins, 2015; Tourangeau, 1984). Other variations include the participant refusing to answer a question, and thus not choosing to retrieve the relevant facts, or may already have opted for the relevant fact before the researcher has completed the questions (Collins, 2015; Tourangeau, 1984). Hence there are diverse pathways between each of the four steps in Figure 3, which highlight the complexity and variability of the question and answer process.

In addition, there may be errors in the participant's comprehension of the question. Misinterpretation, forgetfulness and/or misjudgement of facts, and misreporting are noted as common errors (Tourangeau, 1984, pp. 73-74). Misreporting answers by respondents is reported widely in studies (Dew, 2008). It is also a significant error in sensitive topics, such as law enforcement related studies, whereby the main research tool is a self-reported survey tool (Dew, 2008). In these instances, researchers may not always obtain the correct answers, and this may create errors in the validity of results (Dew, 2008).

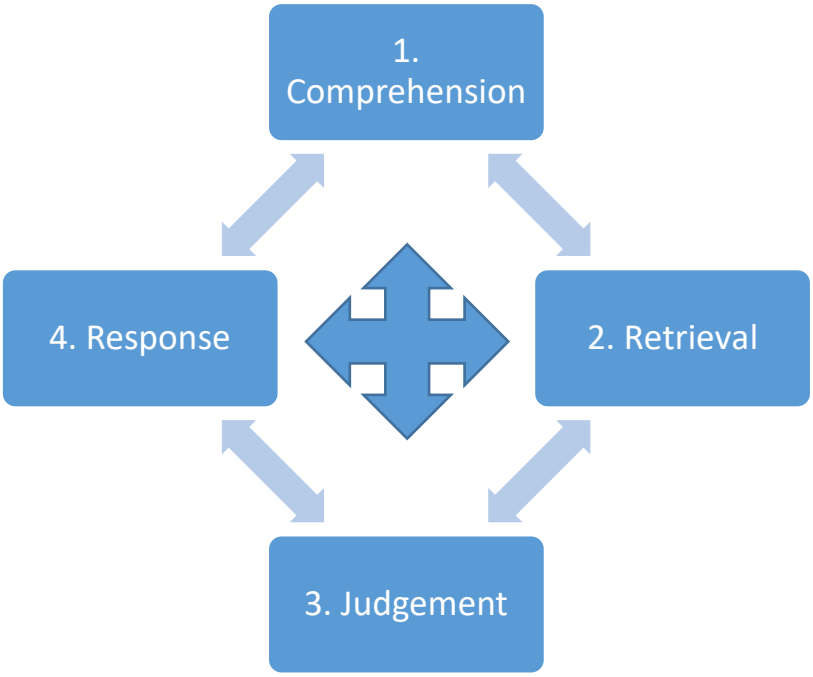

Figure 3 Question and Answer Process (adapted from Tourangeau (1984))

Pilot Survey 1 aimed to minimise the possibility of respondents misunderstanding any questions in the survey tool. The researcher sought to understand how participants comprehended the questions and the survey format, and how they would navigate through the question and answer process. This approach was applied in other studies such as Crits-Christoph, Gibbons, Ring-Kurtz, Gallop, and Present (2009). Crits-Christoph et al. (2009) conducted a small pilot study followed by a larger pilot study in their development of a community-friendly training draft manual for therapists treating individuals addicted to cocaine. The authors presented the manual to community therapists to investigate their reactions to the new manual, and their potential ability to understand the content for implementation (Crits-Christoph et al., 2009). It was noted that presenting the manuals to the target group was beneficial to both parties. The researchers were able to obtain valuable feedback, while the community clinicians were able to learn new treatment techniques with

support from the researchers that they may not have otherwise obtained outside the study (Crits-Christoph et al., 2009).

Method

Ten (n=10) individuals were approached to participate in Pilot Study 1. The researcher and researcher's supervisors approached people in their networks to complete the survey and assess whether the survey was "user-friendly", thus the participants were a convenience sample and not representative of the Edith Cowan University population, or the general driving population of Western Australia. The researcher asked the participants of their personal opinions on the physical layout and content. Participants were informed that these opinions were the only collected data. This section refers to the participants by their gender and age. For example, Male, 65 refers to the male participant aged 65 years.

There were three (n=3) males and seven (n=7) females. The mean age of the participants was 34.7 years old (n=10) and 31.3 years old excluding Male 65. It is acknowledged that this median age would be older than that of the intended sample because young novice drivers (drivers aged between 17 and 24) are the intended focus of this study, as explained in the methodology of this study in Chapter 4.

In regard to the type of participation, Male 65 did not complete the survey; however, he was present when the researcher was conducting the pilot survey with two other participants, and he provided extensive feedback to the researcher. Two female participants completed the pilot survey without the presence of the researchers, hence their feedback was recorded as answers to the additional questions at the end of the survey. A total of 70% (n=7) of surveys were completed in the presence of the researcher.

All participants had access to the survey for Pilot Study 1 via an electronic form in the online survey and questionnaire software, Qualtrics. Development of the survey content is explained in Chapter 4. For participants that were in the presence of the researcher, hard

copies were printed out in addition to the online survey, and provided for note taking and discussion points. Additional questions were added to the end of the survey which requested the participants' thoughts of the survey, time of completion, feelings towards the survey, whether it was interesting to complete, and how relevant it was to the subject of using a mobile phone while driving. The survey for Pilot Study 1 is included in Appendix 2.

All of Pilot Survey 1 participants completed the pilot survey on their personal computers and commented on the survey as they progressed. The researcher recorded the responses and went through the feedback once the survey was complete. Feedback was gained from the additional questions at the end of the survey from the two individuals who had no contact with the researcher.

Results

The feedback received was extensive and varied. Important feedback is reported in this Chapter, and the full tabulated feedback is shown in Appendix 3. The feedback has been categorised into the following: format; language, grammar and question construction issues; and suggestions.

Format

Most participants stated that survey questions seemed repetitive and they wondered whether they would be motivated to complete any further questions. However, as they proceeded through the survey, they stated that it was clear that questions were placed in a specific manner. The repetitiveness would be aided by placing clear statements at the beginning of each major section to ensure that the respondent would be aware that there are different sections. Female 29 suggested to ask a single question at the beginning, concerning whether the respondent uses a mobile phone for calls, text messages and/or social media while driving and then the rest of the survey would only display the relevant information regarding their stated behaviour. For example, if a respondent answered that they only use a

mobile phone while driving for social media, only the social media questions would be shown in the next section. This suggestion has merit, as it may prevent respondent fatigue. However, it was not implemented as the risk of complicating the data analysis was high. By providing all the questions for the three mobile phone use behaviours to all respondents, behaviour patterns would become apparent in the analysis without omitting parts of the survey.

The format of the Likert scale-based responses gained a negative response from all participants. Participants voiced that they preferred to have static Likert responses rather than changing answer options and scales. As a result of this almost unanimous opinion, the Likert question response scales were amended to be the same throughout the survey except for responses to statements that measure TPB components. These remain unchanged to prevent respondent fatigue and automatic answers.

Other suggestions concerning the format were directed towards the order of the questions (particularly the demographic questions) and some answer options to make the survey easier to navigate and understand (particularly the scenario questions and some demographic questions). Also, there were comments on the relevance of question 63, which was an open-ended question asking respondents why they use a mobile phone while driving. The majority of participants commented on this question, stating that it would be irrelevant, as previous questions appeared to have already asked this question. This question was subsequently removed.

Grammar

Participants reported significant feedback on the grammar in the pilot survey, particularly the language and question-response construction. Firstly, concerning the

language (and question construction) of the survey, the following statement had the most feedback:

I do not believe that using my mobile phone to make calls while driving is beneficial

This statement is repeated two additional times in the survey with the mobile phone action changed. Participants reported that the statement was convoluted and confusing. They indicated that the statement contained a double negative and they did not understand the intent. Most individuals who commented on the statement had an array of suggestions for amendments. The researcher took account all suggestions and reconstructed the statement to the below:

I believe making calls while driving can be beneficial for me

As seen above, the statement was transformed to be a positive declaration. The addition of "for me" at the conclusion of the statement was a suggestion from Male, 65.. Other changes to the language of the survey content were amended for clarity. For instance, amendments were made to follow up questions which were displayed if the participants confirmed the use of any mobile phone function while driving. These were amended to include the mobile phone function when asking if the action was performed while holding a phone or with a Bluetooth option. For example, the answer scale to question is shown below is: "Never", "Rarely", "Occasionally", "Sometimes", "Frequently", "Usually" and "Everytime".

In the past week, how often did you use your mobile phone to make and/or receive calls while driving?

If the participant answered “Rarely” to the above, then the question would display as below:

Were you physically holding the phone or using a hands-free kit?

This question was amended to include “When you used your phone to make and/or receive calls while driving” at the beginning, to tie in the leading question with the follow-up question. The term “hands-free kit” was changed to a “Bluetooth option” as suggested by Male, 65 to keep the technical terminology current. Also included was the term “or a combination of both” to capture all possibilities, and is reflected in the answer options. The revised question is shown below:

When you used your phone to make and/or receive calls while driving, were you physically holding your phone while driving, or using a Bluetooth option, or a combination of both?

The answer options are: “Physically holding a phone”, “Using a Bluetooth option” and “Combination of both”. The sentence construction of most statements and questions gave way too much feedback. Most statements and questions had to be amended for clarity and flow as suggested by Pilot Study 1 participants.

Suggestions

All participants had suggestions on how to improve the survey. They ranged from minor changes such as question order, to major changes such as eliminating significant parts of the survey. The most common suggestion was to have clear sections separating questions and statements concerning making/receiving phone calls, sending/receiving text messages and using social media. This suggestion was mainly bought up due to comments that the

survey was repetitive. Therefore, the following statements are at the beginning of each distinct section of the survey:

The following are a series of statements concern using your mobile phone ***to make calls while driving***

The following are a series of statements concern using your mobile phone ***to access social media while driving***

The following are a series of statements concern using your mobile phone ***to send text messages while driving***

The above headings were intended to decrease respondent fatigue. There were also suggestions to amend the information and consent sheet. Male, 50 suggested removing questions which asked if the individual had a valid license and a mobile phone, and instead place it as a requirement to participate in the body of the survey. The following sentence was thus added: "To be eligible to complete this survey, you must **possess a mobile phone** AND **have a valid driver's license**." Having this requirement presented on the consent page will indicate what qualifications the participants require to complete the survey.

Summary

Pilot Study 1 was conducted with ten participants from the researcher's and supervisor's social networks. The aim of Pilot Study 1 was to investigate the "user-friendly" ability of the research tool, the survey, through guiding the participants to complete the survey and provide feedback. Survey question responses from the participants were not collected, and a vast array of feedback was gained. Therefore, there were many amendments made to the survey questions and format. It is acknowledged that the researcher will not be present with respondents in the main study. However, these Pilot Study 1 participants were

able to interact with the researcher, and thus gain more insight into the survey and the overall study to be able to provide appropriate feedback. Those who completed the survey and were not in the presence of the researcher replicated the research environment for the wider survey.

Pilot Study 2

The aim of Pilot Study 2 was to test the revised survey instrument on participants who had no contact with the researcher, as well as to investigate whether the research tool would be able to answer the research questions. This study design has been used in studies outside of the road safety research discipline such as obesity research (Chambers & Swanson, 2006). Pilot Study 2 also sought to investigate the potential for data analyses and can be found in Appendix 4.

Method

The reconstructed survey was placed on the online survey software, Qualtrics and was disseminated to a small convenience sample for Pilot Study 2. After a period of six weeks, the survey was closed, and the data were exported for analysis into Statistical Package for the Social Sciences Version 23 (SPSS) (IBM Corp., Released 2014.) The online survey collected 44 responses. Responses that were incomplete were eliminated (n=14), resulting in 30 useable responses. Participants who completed the survey were invited to be included in a draw to win one of three $50 fuel vouchers. Three winners were randomly generated and notified for collection.

Results

Demographics

Dominant characteristics of the participants are shown in Table 6. Participants comprised of 53.3% (n= 16) females and 46.7% (n= 14) males. It is anticipated that similar gender

demographics are hoped to be achieved in the wider survey, as this would be a more accurate representation in this field of road safety research. Concerning the current age of the participants, the current mean age was 29.2 years as seen in Table 6. The mean age for when driving licensure was first obtained was 19.34 years, with a modal age of 17 years. Therefore, the mean years of driving experience for these participants were 9.86 years, without factoring in possible breaks in driving experience, such as disqualification. As seen in Table 6, the participant's age appears to be slightly skewed to younger ages and have high kurtosis. This is expected as it is a small convenience sample. Concerning driver licence type, one-third of participants had a current Ordinary (Manual) drivers licence (33.3%, n= 10) followed by the Secondary Provisional stage (green "P" plates) (30%, n= 9).

Table 6
Dominant characteristics of Pilot Survey 2 participants

Characteristic	Mean ($\bar{x}$) or Proportion (%)	Standard Deviation
Age	29.2	16.996
Female	15.3%	-
Age of when license was first obtained	19.34	7.153
University students who attended campus	96.66%	-
Ordinary (Manual) license type	33.3%	-
No Bluetooth connectivity in vehicles	53.3%	-
Possessed an "Apple" mobile phone brand	73.3%	-

Joondalup campus (53.3%, n= 16) was the most commonly attended campus, followed by Mount Lawley (23.3%, n= 7) and Bunbury (20.0%, n= 6). A map is shown illustrating where these campuses are located in Western Australia in Figure 4. As shown in the map, both the Joondalup and Mount Lawley campuses are located in the metropolitan area, while Bunbury is located in the regional area (below Mandurah).

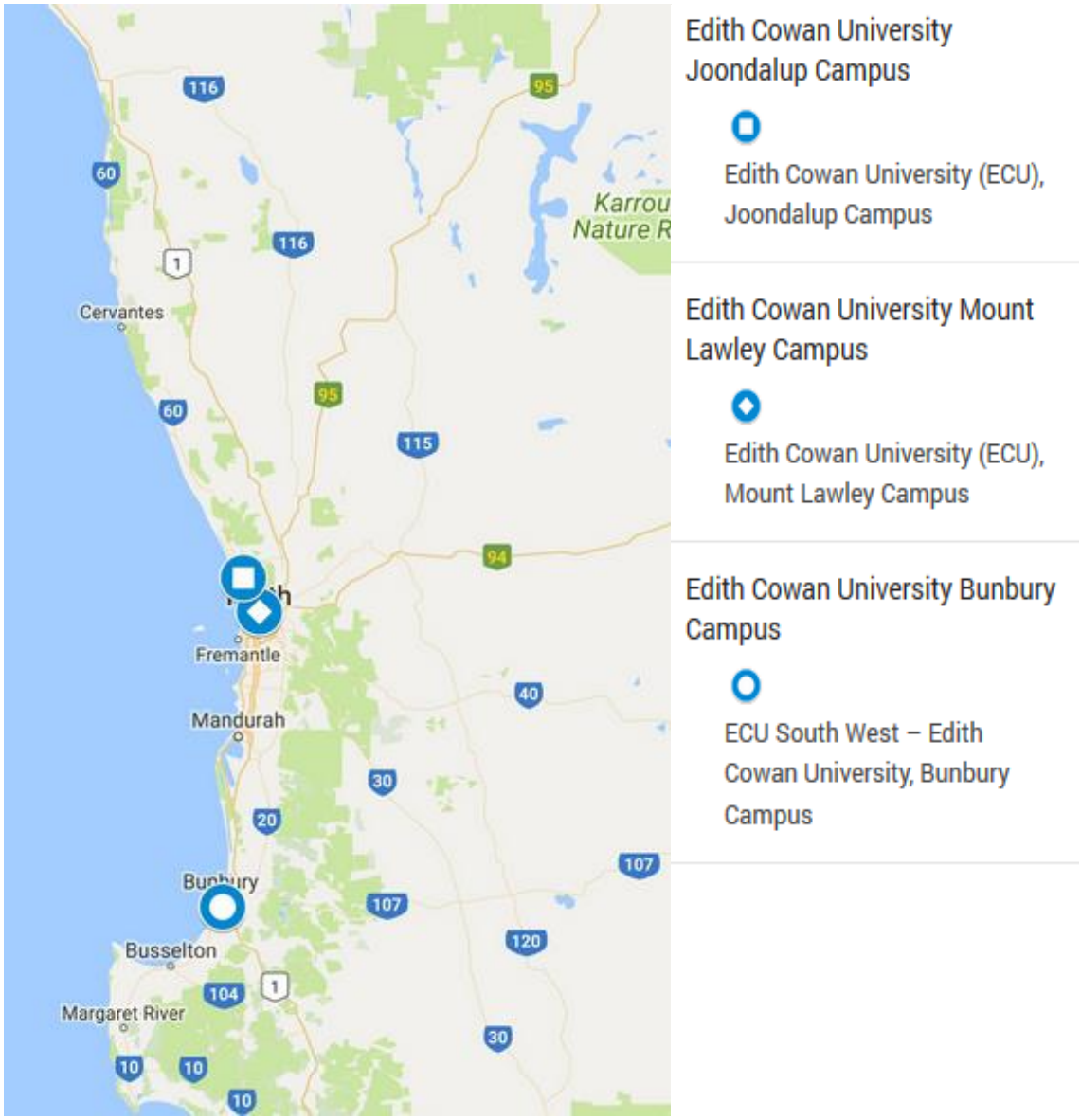

Figure 4 Map of all Edith Cowan University campuses in Western Australia

Source: My Maps: Google Maps (Google Inc., 2018)

There was one participant who did not attend the university (3.3%). Comparing the campus variable with the postcode of residence, it showed that the most common postcode was 6065 (10.0%, n= 3), which covers the areas of Ashby, Darch, Hocking, Kingsway, Landsdale, Madeley, Pearsall, Singara, Tapping, Wangara and Wanneroo (Australia Post, 2016). There were many unique postcodes that were reported. Although the sample size for Pilot Study 2 was small, the variety of unique postcodes had no real use for study, except for

providing where the respondents lived, which may not be needed in the wider study. This question has been revised as the below question:

Please identify the area you reside in

The answer options for the above question are: "Metropolitan Western Australia (between Yanchep and Mandurah)", "Outside the Metropolitan Area (Regional Western Australia)" and "Outside of Western Australia". Metropolitan boundaries were adapted from Australian Bureau of Statistics (2016a). The reformed place of residence question and answer options enable simpler data analysis. Table 7 illustrates the identified areas the participants resided in. Most respondents (73.3%, n=22) resided in the metropolitan area.

Table 7
Place of residence of the participants

Post code range	Frequency (n)	Percentage (%)	Area
6000 - 6169	22	73.3	Metropolitan Western Australia (between Yanchep and Mandurah)
6230 - 6237	6	20.0	Outside the Metropolitan Area (Regional WA)
Invalid	2	6.7	N/A
Total	30	100.0	N/A

Source: (Australia Post, 2016; Australian Bureau of Statistics, 2016a)

The modal occupation was "Student" (36.6%, n= 11). As the answer field of the occupation relied on the participant to manually answer, many varieties of the same occupation and different occupations were provided. The purpose of this question was to add to the demographics of the participants. Upon reflection, this question was removed and replaced with "What is your current employment status?" as shown in Table 10. The occupations that have been reported in Pilot Study 2 have been broadly grouped together as shown in Table 8.

Table 8
Occupations of the participants

Occupation Category	n	%
Administration	3	10.0
Combined Student	2	6.7
Education (Not Student)	1	3.3
Home Duties	1	3.3
Hospitality	2	6.7
Retail	3	10.0
Specialised	3	10.0
Student	11	36.7
Trade	2	6.7
Invalid	2	6.7
Total	30	100.0

In an additional question concerning vehicle use, participants were asked how many kilometres per week would they usually drive with the results shown in Table 9. Modal categories of 0 – 50km and 101 – 200km per week. Just over half (53.3%, n= 16) drive under 100km per week while 46.7% (n= 14) exceed this distance.

Table 9
Kilometres driven in a typical week

Kilometres travelled	Frequency	Percentage (%)
0-50	9	30.0
51-100	7	23.3
101-200	9	30.0
201-300	3	10.0
Over 301	2	6.70
Total	30	100.0

All participants had smartphones with the most popular brand being Apple (73.3%, n= 22), followed by Samsung (10.0%, n= 3) and HTC (6.7%, n= 2). The mobile phone ownership possession statistics mean that the drivers touch a screen, rather than pressing many buttons, which is a key behavioural aspect in the act of using a mobile phone while driving. Concerning the connectivity capability of the participant's vehicle, the majority of respondents did not have a Bluetooth option in their vehicle to connect their smartphone (53.3%, n= 16), in contrast to the 40.0% (n= 12) who do and 6.7% (n= 2) of participants who were unsure.

Implications for the research tool

Minimal changes have been made to the research tool, as shown in table 10. All of the changes have been made in the demographic questions, as there were no major problems identified with the rest of the survey content. The remaining questions required a combination of Likert scales and multiple choice questions which were able to be coded correctly for analysis. As the sample size for Pilot Study 2 is small, no analysis was conducted. In retrospect, Pilot Study 2 could have validated the scale anchors in the survey. This is an unanticipated shortcoming of the research design.

Table 10
Amendments to the research tool as a result of Pilot Study 2

Survey question	Status	Action
Please enter your postcode	Replaced	Question replaced with: Please identify which area you reside in: - Metropolitan Western Australia (Between Yanchep and Rockingham) - Regional Western Australia - Not in Western Australia
What is your usual occupation?	Replaced	Question replaced with: What is your employment status? - Full time - Part time - Casual - Not working

Conclusion

Both Pilot Study 1 and 2 were a major and significant step in the research process. In Pilot Study 1, the researcher gained valuable feedback, and in turn amended the research tool, so that it may be more "user-friendly" to the wider sample group. In Pilot Study 2, the modified survey tool was tested on a small convenience sample. Results indicated that the research tool required few further amendments that have now become the final research tool. This tool was then used for data collection in the wider study.

Chapter 6 Results

Aims of this chapter

This chapter presents the results of the data analysis that was conducted on the survey data for young aged respondents (17 – 25) (n = 193). As illustrated in Chapter 2, young people are over-represented in road crash statistics and this demographic is the largest portion of the population to engage in their mobile phones. As stated in Chapter 4, to prevent discrimination against persons over 25 years, respondents of all ages were included. Findings for the full sample (n = 559) are found in Appendix 6. Each research question is answered through various types of analysis, including chi-square tests, independent t-tests, Pearson's correlation multiple regression. Finally, thematic analysis from the qualitative components of the survey is summarised. The discussion of the results will appear in Chapter 6 and the final survey instrument that was used is found in Appendix 5.

Reliability and validity analysis

Cronbach's α was assessed for the following grouped content to assess for internal reliability and consistency (benchmark $\alpha > 0.70$): past behaviour ($\alpha = 0.845$, attitude ($\alpha = 0.721$), subjective norm ($\alpha = 0.774$), perceived behavioural control ($\alpha = 0.949$) and intention ($\alpha = 0.620$). Average variances extracted (AVE) tests were performed to assess convergent validity for all respondents (benchmark value > 0.5) for past behaviour (0.650), attitude (0.572), subjective norm (0.632), perceived behavioural control (0.743) and intention (0.618) and values for all constructs exceeded 0.5. Although the Cronbach's α value was lower than 0.70 for intention, the AVE tests for survey data with all respondents illustrated that construct validity is present.

Descriptive statistics

Five hundred and fifty-nine respondents completed the survey. Of these, 193 were of the cohort of interest, aged 17 – 25 with a mean age of 21.17 years. Having 193 younger

respondents thus exceeds the power analysis minimum of 138 therefore the results from this study have sufficient statistical power. Descriptive analysis of the younger respondents is shown in Table 11 with descriptive analyses for all respondents is shown in Table A6.1 in Appendix 6. More females than males participated in the survey (n =132, 68.40%) and most respondents resided in metropolitan Western Australia (between the northern and southern suburbs of Perth) (n = 162, 83.90%).

The majority of respondents attended the Edith Cowan University campuses (n = 187, 96.89%), while the remaining were identified as external students who do not go to campus (n= 6, 3.10%). More than half of the respondents (n = 130, 67.40%) were engaged in part-time employment. The age when a driving license was first obtained was a free text entry field and was non-compulsory to complete, which was a limitation of the survey tool. Therefore there was one missing answer. However, the modal age of the respondents first obtaining their driving license was 17.00 years, with a mean of 17.77 years.

The majority of respondents had full licenses; that is, they had graduated the licensing scheme with the license type "Ordinary (Manual)" (n= 86, 44.60%). The second most common licence type or stage was "Provisional 2 (Green Plates)" (n= 47, 24.40%). This was followed by "Ordinary (Automatic)" (n= 44, 22.80%) and "Provisional 1 (Red Plates)" (n= 47, 24.40%). As this analysis is focused on the younger respondents, a large proportion of the respondents still being a part of the Graduated Licence Scheme is not surprising.

Table 11
Descriptive statistics of young respondents

Characteristic	Mean or Proportion (%)	Standard Deviation	Median	Mode	Minimum/ Maximum	Quartiles
Age	21.17	1.839	21.00	21	18.00/24.00	25: 20.00 50: 21.00 75: 23.00
Female	68.4%	-	-	-	-	-
Age of when license was first obtained	17.77	1.11	18.00	17.77	15.00/22.00	25: 17.00 50: 18.00 75: 18.00
Metropolitan Western Australia	83.9%	-	-	-	-	-
University students who attended campus	96.89%	-	-	-	-	-
Part-time employment	67.40%	-	-	-	-	-
Ordinary (Manual) license type	44.60%	-	-	-	-	-
51 to 100 kilometres driven per week	32.60%	-	-	-	-	-
No Bluetooth connectivity in vehicles	50.3%	-	-	-	-	-
Possessed an “Apple” mobile phone brand	70.5%	-	-	-	-	-

The majority of respondents (n=63, 32.60%) reported driving between 51 to 100 kilometres per week. This was followed by 50 (25.90%) respondents who estimated driving between 100 and 200 kilometres per week. A small proportion of respondents reported driving less than 50 kilometres per week (n= 36, 18.70%) while 13.00% (n= 25) drove over 301 kilometres per week. Regarding Bluetooth connectivity in vehicles, just over half of respondents had expressed that their vehicles do not have the capability (n= 97, 50.30%) while 47.70% (n= 92.00%) state that they had Bluetooth capability. A small percentage (= 4, 2.10%) were unsure of their Bluetooth connectivity status in their vehicles. However, mobile phone brand ownership results illustrated that most respondents possessed smartphones and

therefore had Bluetooth capability. The most commonly owned mobile phone brand was Apple (n = 136, 70.50%) followed by an Android model (n = 57, 29.50%).

In summary, the average young respondent in the main study was most likely female, around 21.17 years of age, and who had already graduated the licence scheme when they obtained full licensure at around 17.77 years of age. They drive a moderate amount each week, which may include driving to and from university, their part time employment and their residence within the Metropolitan area of Western Australia. While they are in their vehicle, they may or may not have Bluetooth connectivity; however, they will most likely have an Apple iPhone, which does have Bluetooth capability. In this summary, it is likely that this study collected a bias sample, as it is not representative of the general driving population. Therefore, all results are specific to this population only and may not reflect other populations.

Independent variables

As noted in Chapter 4, the independent variables for three of the four research questions in this study are the demographic variables of gender, driving experience (comprised of license stage/type and kilometres travelled per week) and region. The theoretical independent variables are attitude, subjective norm, perceived behavioural control, and past behaviour with intention as the dependent variable in the theory test. The fourth and fifth research questions testing the use of the TPB were analysed using hierarchical multiple regression. All hierarchical models entered the TPB variables of the respective behaviour in the first stage, then the sociodemographic variables in the second stage, and past behaviour of the respective behaviour in the third and final stage. The dependent variable was the intention to perform the respective behaviour.

Research Question 1

What are the social and legal consequences of mobile phone use while driving of younger respondents and does this differ by gender, driving experience and region?

In research question 1, social consequences comprise whether the younger respondents had ever been involved in a crash, where they as the driver were using a mobile phone while driving, and whether anyone in the vehicles involved in the crash was required to go to a hospital. Legal consequences comprise whether the younger responses had ever received a caution or infringement as a result of using their mobile phone while driving. To answer the question, chi-square tests were performed on cross-tabulations of dependent and independent variables with younger drivers. Results with the social consequences are shown in Table 12, and the results with the legal consequences are given in Table 13. Tables A6.2 and A6.3 for chi-square results for the full sample are found in Appendix 6.

Social consequences experienced by younger respondents yielded little results when measured against the independent variables. Only 4 (2.1%) of the younger respondents reported that they had been involved in a crash as a result of using a mobile phone while driving, and the younger respondents reported that no hospital attendance was required. Therefore all "Yes" cell frequencies for being involved in a crash, and "No" frequencies for attending hospital did not exceed five for all independent variables (a requirement of chi-square tests reported by Moore (2000)). Thus results from the chi-square tests are not reported. Concerning the four younger respondents who had been involved in a crash, 75.00% (n= 3) of them were female, 75.00% (n = 3) had an Ordinary licence, 100.00% (n= 4) drove under 200km a week, 50.00% (n = 2) resided in the Metropolitan area and 50.00% (n= 2) resided outside the Metropolitan area. The research tool also asked respondents of the manner of which they were using their mobile phone while driving and 75.00% (n=3) were using their Bluetooth option while 25.00% used a combination of a Bluetooth option and

physically holding their mobile phone while driving. The frequencies from the chi-square tests reveal that most younger respondents had never suffered a social consequence from using a mobile phone while driving; that is, have never been involved in a crash or have suffered physical injuries. Table A6.2 illustrates the frequencies and percentages of all aged respondents being involved in a crash in Appendix 6.

Legal consequences experienced by younger respondents as a result of mobile phone use while driving were assessed for differences in terms of the independent variables through chi-square tests are shown in Table 13. Table A6.3 illustrates these results for all aged respondents. In all tests, all independent variables had cell frequencies that were less than five, thus no chi-square tests figures are reported. However, through assessing the frequencies, it appears that the majority of younger respondents in this study had never been issued a caution or an infringement for using a mobile phone while driving, thus they never reported having suffered a legal consequence because of mobile phone use while driving. The impact of this finding is discussed in Chapter 7.

Table 12 Chi-square test results of the social consequences of using a mobile phone while driving by independent variable of young respondents

		Ever been involved in a crash		
		Yes (n)	No (n)	
Gender	Male	1	60	
	% within Gender	1.60%	98.40%	
	% within Ever been involved in a crash/in hospital	25.00%	31.70%	(a)
	Female	3	129	
	% within Gender	2.30%	97.70%	
	% within Ever been involved in a crash/in hospital	75.0%	68.30%	
License stage	Ordinary	3	127	
	% within License Stage	2.30%	97.70%	
	% within Ever been involved in a crash/in hospital	75.0%	67.20%	(a)
	Provisional	1	62	
	% within License Stage	1.60%	98.40%	
	% within Ever been involved in a crash/in hospital	25.00%	32.80%	
Kilometres travelled per week	<200km	4	145	
	% within Kilometres travelled per week	2.70%	97.30%	
	% within Ever been involved in a crash/in hospital	100.00%	76.70%	(a)
	>200km	0	44	
	% within Kilometres travelled per week	0.00%	100.00%	
	% within Ever been involved in a crash/in hospital	0.00%	23.30%	
Region	Metropolitan WA	2	160	
	% within Region	1.20%	98.80%	
	% within Ever been involved in a crash/in hospital	50.00%	84.70%	(a)
	Non-Metropolitan WA	2	29	
	% within Region	6.50%	93.50%	
	% within Ever been involved in a crash/in hospital	50.00%	15.30%	

Note. "Crash" means the younger respondent was at fault for the crash due to using a mobile phone while driving, (a) Chi-square tests not reported.

Table 13 *Chi-square test results of the legal consequences of using a mobile phone while driving by independent variable of younger respondents*

		Ever been issued a caution			Ever been issued an infringement		
		Yes (n)	No (n)		Yes (n)	No (n)	
Gender	Male	4	57		1	60	
	% within Gender	6.60%	93.40%		98.40%	1.60%	
	% within Ever been issued a caution/infringement	40.00%	31.10%	(a)	32.40%	12.50%	(a)
	Female	6	126		7	125	
	% within Gender	4.50%	95.50%		5.30%	94.70%	
	% within Ever been issued a caution/infringement	60.00%	68.90%		87.50%	67.60%	
License stage	Ordinary	8	122		6	124	
	% within License Stage	6.20%	93.80%		4.60%	95.40%	
	% within Ever been issued a caution/infringement	80.00%	66.70%	(a)	75.00%	67.0%	(a)
	Provisional	2	61		2	61	
	% within License Stage	3.20%	96.80%		3.20%	96.80%	
	% within Ever been issued a caution/infringement	20.00%	33.30%		25.00%	33.00%	
Kilometres travelled per week	<200km	9	140		7	142	
	% within Kilometres travelled per week	6.00%	94.00%		4.70%	95.30%	
	% within Ever been issued a caution/infringement	90.00%	76.50%	(a)	87.50%	76.80%	(a)
	>200km	1	43		1	43	
	% within Kilometres travelled per week	2.30%	97.70%		2.30%	97.70%	
	% within Ever been issued a caution/infringement	10.00%	23.50%		12.50%	23.20%	
Region	Metropolitan WA	7	155		7	155	
	% within Region	4.30%	95.70%		4.30%	95.70%	
	% within Ever been issued a caution/infringement	70.00%	84.70%	(a)	87.50%	83.80%	(a)
	Non-Metropolitan WA	3	28		1	30	
	% within Region	9.70%	90.30%		3.20%	96.80%	

	% within Ever been issued a caution/infringement	30.00%	15.30%	12.50%	16.20%

Note. (a) Chi-square tests not reported.

Research Question 2

What is the past prevalence of mobile phone use while driving of the younger respondents and does this differ by gender, driving experience and region?

Firstly, past prevalence of mobile phone use while driving by younger respondents was assessed against the independent variables by chi-square tests of ever holding and using a mobile phone. Table 14 illustrates the frequencies for ever holding and using a mobile phone while driving and Table A6.4 illustrates the frequencies of all aged respondents in Appendix 6. Secondly, four independent-samples t-tests were conducted to assess differences between the usage of mobile phones to make/receive a phone call, create/send text messages, accessing social media while driving, and usage of a mobile phone in traffic situations in the past week against the independent variables. For the chi-square tests, all expected cell frequencies exceeded five. By observing the frequencies, the majority of younger respondents had previously used a mobile phone while driving (n= 147, 76.16%). A statistically significant association was found only between Ordinary and Provisional licence holders (X^2 = 15.663, p = 0.000). This may be a finding of interest as the more experienced younger respondents (Ordinary licence holders) reported to use their mobile phone while driving more so than less experienced younger respondents (Provisional licence holders). The implications of this finding is discussed in Chapter 7.

Secondly, usage scores were assessed against the independent variables. All independent-samples t-tests met the requirement of having an independence of observations as the respondents were coded with the independent variables as shown in Table 4 in Chapter 4. Thus respondents were either in one of two categories of each independent variable. The assumption of homogeneity (the assumption of the equality of variances) was assessed in each individual test. As noted in Chapter 4, the assumption of normality was violated in these

tests however the literature suggests that it is not a significant issue if there is a large sample size (n > 30) (Salkind, 2010a).

Table 14
Chi-square test results of ever holding and using a mobile phone while driving among independent variables of young respondents

		Ever held and used a mobile phone while driving		X^2	*p*
		Yes	No		
Gender	Male	47	14	0.038	0.845
	% within Gender	77.00%	23.00%		
	% within Ever Held	32.00%	30.40%		
	Female	100	32		
	% within Gender	75.80%	24.20%		
	% within Ever Held	68.00%	69.90%		
License stage	Ordinary	110	20	15.663	0.000
	% within License stage	84.60%	15.40%		
	% within Ever Held	74.80%	43.50%		
	Provisional	37	26		
	% within License stage	58.70%	41.30%		
	% within Ever Held	25.20%	56.50%		
Kilometres travelled per week	<200km	109	40	3.265	0.071
	% within Kilometres travelled per week	73.20%	26.80%		
	% within Ever Held	74.10%	87.00%		
	>200	38	6		
	% within Kilometres travelled per week	86.40%	13.60%		
	% within Ever Held	25.90%	13.00%		
Region	Metropolitan WA	122	40	0.408	0.523
	% within Region	75.30%	24.70%		
	% within Ever Held	83.00%	87.00%		
	Non-Metropolitan WA	25	6		
	% within Region	80.60%	19.40%		
	% within Ever Held	17.00%	13.00%		

Usage of mobile phones to make/receive calls in the past week and independent variables

Table 15 illustrates the results for the independent t-tests against mobile phone usage to make/receive call scores against the independent variables with Table A6.5 illustrating these results for all respondents in Appendix 6. Scores of using a mobile phone to make/receive calls while driving in the past week were not normally distributed against all of

the independent variables, as assessed by Shapiro-Wilk's test ($p < .05$). Equal variances were assumed for every independent variable except for license stage, as assessed by Levene's Test ($p > 0.05$). There was a statistically significant difference between the scores of younger respondents who held Ordinary licences and younger respondents who held Provisional licences, as younger respondents who held Ordinary licences had a higher frequency of making/receiving calls while driving in the past week ($p < 0.05$). Younger respondents who also reported driving longer distances (> 200km per week) had statistically significantly higher scores (that is, reported a higher frequency of making/receiving calls while driving) than younger drivers who drive less (<200km per week) ($p < 0.05$). When comparing the mean scores across the independent variables, the scores appeared to express low usage of making/receiving calls in the past week. Less experienced younger respondents (Provisional license holders) had the lowest mean score (mean = 2.67, SD = 2.06) compared to younger respondents who reported travelling > 200 kilometres per week (mean = 4.41, SD = 2.53). Younger respondents mean scores reveal that they appeared to have used their mobile phones to make/receive calls "rarely" to "sometimes" in the past week.

Table 15
Independent t-test samples results for usage of mobile phones while driving to make/receive calls in the last week scores against the independent variables of younger respondents

Independent variables		Usage of mobile phones to make/receive calls in the past week scores			
		$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	3.66	2.44	1.11(191.00)	0.267
	Female	3.25	2.13		
License stage	Ordinary	3.72	2.42	-3.15(142.43)	0.002
	Provisional	2.67	2.06		
Kilometres travelled per week	<200km	3.07	2.22	-3.39(191.00)	0.001
	>200km	4.41	2.53		
Region	Metropolitan WA	3.32	2.35	-0.77(191.00)	0.442
	Non-Metropolitan WA	3.68	2.40		

Note. mean= mean, SD = standard deviation

Usage of mobile phones to create/read text messages in the past week and independent variables

Table 16 illustrates the results from independent t-tests conducted on mobile phone usage scores to create/read text messages while driving against the independent variables among younger respondents. Table A6.6 in Appendix 6 illustrates this data for all respondents in the survey. The scores of using a mobile phone to create/read text messages while driving in the past week were not normally distributed for all of the independent variables, as assessed by Shapiro-Wilk's test ($p < .05$). All independent variables had equal variances assumed (Levene's test ($p > 0.05$)) except for licence stage. Significant differences were found in mean scores and standard deviations when younger respondents were divided by licence stage, kilometres travelled per week and region in which they reside. Similar to the results from the independent t-tests of making/receiving calls while driving, experienced younger respondents (Ordinary licence holders) reported a statistically significantly higher mean score than less experienced younger respondents (Provisional licence holders) ($p < 0.05$). Younger respondents who also reported driving for longer distances weekly (>200km a week) reported statistically significantly higher scores than those younger drivers who reported driving <200km weekly ($p < 0.05$). In addition, younger respondents who lived outside the metropolitan areas reported statistically significantly higher mean scores than those living in the metropolitan area ($p < 0.05$). Therefore, these results reveal that younger respondents who are more experienced (Ordinary licence holders), drive longer distances (>200km a week) and reside outside the metropolitan area report a higher frequency of creating/sending text messages on their mobile phone while driving.

However, overall texting means usage scores were fairly low, with less experienced younger respondents (Provisional licence holders) reporting the lowest mean score (that is, reported the lowest level of texting while driving in the past week) (mean= 2.65, SD = 2.36).

Younger respondents who spent more time driving reported the highest mean score (the highest level of texting while driving in the past week) (mean = 4.14, SD = 2.51). Younger respondents mean scores reveal that the appeared to have used their mobile phones to create/read text messages "occasionally" to "sometimes" in the past week.

Table 16
Independent t-test samples results for usage of mobile phones while driving to create/read text messages in the last week scores against the independent variables of younger respondents

Independent variables		Usage of mobile phones to create/send text messages in the past week scores			
		$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	3.18	2.60	-	0.982
	Female	3.19	2.51	0.02(191.00)	
License stage	Ordinary	3.45	2.58	-	0.040
	Provisional	2.65	2.36	2.06(191.00)	
Kilometres travelled per week	0 – 200	2.91	2.48	-	0.004
	Over 201	4.14	2.51	2.89(191.00)	
Region	Metropolitan WA	3.02	2.51	-	0.042
	Non-Metropolitan WA	4.03	2.54	2.05(191.00)	

Note. mean= mean, SD = standard deviation

Usage of mobile phones to access social media in the past week and independent variables

The results from the independent t-tests on the usage of mobile phones to access social media by younger respondents in the last week against the independent variables are summarised in Table 17 and Table A6.7 illustrates this data for all aged respondents in Appendix 6. The data were not normally distributed across the independent variables, as assessed by Shapiro-Wilk's test ($p < .05$). Region was the only independent variable where equal variances were assumed, as assessed by Levene's test ($p > 0.05$). Statistical significant differences were found in mean scores among gender, licence stage and kilometres travelled per week among younger respondents. Younger male respondents were found to have a statistically significantly higher mean reported usage score than younger female respondents ($p < 0.05$). This is an interesting finding, given the underrepresentation of younger males in this study. More experienced younger respondents (Ordinary licence holders) also had

reported statistically significantly higher mean usage scores than less experienced younger respondents (Provisional licence holders) ($p < 0.05$). Lastly, younger respondents who drive more longer distances each week (>200km) reported statistically significantly higher mean usage scores than younger divers who drive for shorter distances each week (<200km) ($p < 0.05$). Overall, mean usage scores of accessing social media while driving in the past week were low, lower than reported past usage of making/receiving calls and creating/sending text messages while driving in the past week. Following previous patterns, less experienced younger respondents (Provisional licence holders) reported the lowest mean usage score (mean = 1.29, SD = 0.89) and younger respondents who reported driving for longer distances each week (>200km a week) reported the highest mean usage score (mean = 1.86, SD = 1.39). Younger respondents' mean scores reveal that they appeared to have used their mobile phones to access social media while driving "never" to "rarely" in the past week.

Table 17
Independent t-test samples results for usage of mobile phones while driving to access social media in the last week scores against the independent variables among younger respondents

Independent variables		Usage of mobile phones to access social media in the past week scores			
		$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	1.75	1.27	1.93(91.90)	0.057
	Female	1.40	0.948		
License stage	Ordinary	1.62	1.14	-2.27(156.58)	0.024
	Provisional	1.29	0.89		
Kilometres travelled per week	0 – 200	1.41	0.937	-2.03(55.02)	0.047
	Over 201	1.86	1.39		
Region	Metropolitan WA	1.48	1.05	-1.117(191.00)	0.265
	Non-Metropolitan WA	1.71	1.19		

Note. mean= mean, SD = standard deviation

Usage of mobile phones in various traffic situations in the past week and independent variables

In the survey, younger respondents were given five traffic placements (suburban street, traffic light, major road, high-speed road and none of the choices) and were directed to select which ones resembled their use of a mobile phone while driving in the past week. They were able to choose more than one placement that applied. The frequencies are shown in Table 18 and Table A6.8 in Appendix 6 illustrates this data for all aged respondents. As the respondents were able to choose more than one option, the total of all responses is not equal to the number of respondents. However, as respondents were prompted to complete an answer for all choice options, all individual traffic scenario responses are equal to the number of younger respondents. A final score was calculated for each younger respondent as each confirmed traffic placement was given a score of 1. Therefore, individual younger driver scores could range from zero to five. Table 19 illustrates the results from the independent t-tests conducted on the scores of usage of mobile phones in various traffic situations in the past week against the independent variables, and Table A6.9 illustrates this data for all aged respondents in Appendix 6. The data were not normally distributed across the independent variables, as assessed by Shapiro-Wilk's test ($p < .05$). Equal variances were assumed for all independent variables (Levene's test ($p > 0.05$)) except gender.

By observing the frequencies of the usage of mobile phones in certain traffic situations, a large proportion (64.80%) of younger respondents used their mobile phones while at a traffic light in the last week. This was followed by mobile phone use while driving while on a suburban street (30.10%). Most younger respondents stated that they did not use their mobile phone while driving on a major road (85.00%). However, slightly lower in the survey, they stated that they did not use their mobile phone on a high speed road (83.90%). This may be due to police detection fears, which may trump road safety fears. About a third of younger respondents (31.10%) stated that they had not used their mobile phone while driving in any of the traffic situations listed, and presumably never in the past week.

Statistically significant differences were found between genders, driving experience and driving distances driven each week among younger respondents. Males had significantly higher mean traffic situation scores than females, meaning they used their mobile phones while driving in more traffic situations than females ($p < 0.05$). More experienced younger drivers (Ordinary licence holders) also reported using their mobile phones while driving in more traffic situations than less experienced drivers (Provisional licence holders), as their scores were significantly higher ($p < 0.05$). With regards to distances travelled each week, younger respondents who reported driving longer distances (>200km) reported using their mobile phones while driving in more traffic situations than drivers who drive <200km a week ($p < 0.05$). Overall, the mean scores across the independent variables indicate that younger respondents used their mobile phones in one to two traffic placements in the past week. Younger respondents who have less driving experience (Provisional licence) had the lowest mean score (mean = 1.00, SD = 1.16) and younger respondents who reported travelling long distances each week (>200km) had the highest average score (mean = 1.66, SD = 1.29).

Table 18
Frequencies of mobile phone usage at traffic placements in the past week for younger respondents

Traffic Placement	Number of selected responses (n)	
	Yes (%)	No (%)
Traffic light	125(64.80%)	68(35.20%)
Suburban street	58(30.10%)	135(69.90%)
Major Road	29(15.00%)	164(85.00%)
High speed road	31(16.10%)	162(83.90%)
None of the above	60(31.10%)	133(68.90%)

Table 19
Independent t-test samples results for usage of mobile phones while driving in certain traffic situations scores against the independent variables for younger respondents

Independent variables		Usage of mobile phones in certain traffic situations in the past week scores			
		$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	1.46	1.40	1.44(96.53)	0.0154
	Female	1.17	1.11		
License stage	Ordinary	1.38	1.22	-2.08(191.00)	0.039
	Provisional	1.00	1.16		
Kilometres travelled per week	0 – 200	1.14	1.17	-2.52(191.00)	0.012
	Over 201	1.66	1.29		

Region	Metropolitan WA	1.23	1.22		
	Non-Metropolitan WA	1.42	1.15	-0.80(191.00)	0.424

Note. mean= mean, SD = standard deviation,

Research Question 3

What are the attitudes, subjective norms and perceived behavioural controls to use a mobile phone while driving of younger respondents and does this differ by gender, driving experience and region?

The third research question was answered by firstly performing independent-samples t-tests on the TPB components (attitude, subjective norms, perceived behavioural control) of each mobile phone use behaviour (making/receiving calls, creating/reading text messages and accessing social media), across the independent variables using recalculated mean (composite mean of construct) scores, as discussed in Chapter 4. The recalculated mean (composite mean of construct) scores for each of the TPB constructs are in Tables 20, 21, 22 and 23 alongside the results of the independent-samples t-tests with Tables A6.10, A6.11 A6.12, A6.13 in Appendix 6 illustrating these results for all aged respondents.

Attitude scores regarding using a mobile phone use while driving against the independent variables

Independent-samples t-tests results of attitude scores concerning making/receiving calls, creating/reading text messages and accessing social media while driving against the independent variables are shown in Table 20. Table A6.10 in Appendix 6 illustrates this data for all aged respondents. Attitude scores were not normally distributed for all mobile phone use behaviours as assessed by the Shaprio-Wilk test ($p < 0.05$). Regarding the assumption of the equality of variances for the attitude mean scores, concerning making/receiving calls while driving, region and kilometres driven per week, had met the assumption as assessed by Levene's test ($p > 0.05$). Gender and licence stage had not met this assumption. Regarding

the assumption of the equality of variances for the attitude norm, mean scores concerning creating/sending text messages while driving, all independent variables had met the assumption as assessed by Levene's test ($p > 0.05$). Regarding the assumption of the equality of variances for the attitude mean concerning accessing social media while driving, kilometres driven per week and region had met the assumption as assessed by Levene's test ($p > 0.05$) while gender and licence stage had not met this assumption.

Concerning the attitude mean scores towards using a mobile phone to make/receive calls while driving, statistically significant differences were found among gender ($p < 0.05$), licence stage ($p < 0.001$) and kilometres driven per week ($p < 0.001$). Males, Ordinary licence holders and younger respondents who drove >200km per week had statistically significantly higher attitude scores relating to using a mobile phone while driving, in terms of making/receiving calls, than their counterparts. This reveals that these subsections of the younger respondents hold positive attitudes for making/creating calls while driving. Younger respondents who >200km a week had the highest attitude score mean (mean = 2.77, SD = 1.37) while Provisional licence holders had the lowest attitude score mean (mean = 1.77, SD = 0.89). Overall the mean scores reveal that younger respondents "Strongly disagreed" to "Disagreed" with positive attitude statements concerning using a mobile phone while driving to make/receive calls.

Regarding the attitude mean scores towards using a mobile phone to create/send text messages while driving, statistically significant differences were found among gender ($p < 0.05$) and kilometres driven per week ($p < 0.05$). Males and younger respondents who drive over 200km a week reported statistically significantly higher attitude mean scores of creating/sending text messages while driving than their counterparts, revealing that these subsections of the sample have favourable attitudes towards creating/sending text messages while driving. Younger respondents who drive over 200km a week also reported to have the

highest attitude mean score of creating/sending text messages while driving (mean = 3.17, SD = 1.62) while younger drivers with provisional licences had the lowest attitude mean score (mean = 2.33, SD = 1.40). Overall, younger respondents "disagreed" to "somewhat disagreed" to positive statements which had expressed positive attitudes towards creating/sending text messages while driving.

With respect to the attitude mean scores towards using a mobile phone to access social media while driving, no statistically significant differences were found among the independent variables. Therefore, no remarkable differences were found with respect to attitudes towards accessing social media while driving. Younger respondents who drive over 200km a week had the highest attitude mean score of accessing social media while driving (mean= 1.86, SD = 1.22) while younger drivers with provisional licences had the lowest attitude mean score towards accessing social media while driving (mean= 1.43, SD = 0.98). Overall, younger respondents "strongly disagreed" to "disagreed" with positive attitude statements towards accessing social media while driving.

Table 20
Independent t-test samples results of attitude scores concerning using a mobile phone while driving to make/receive calls, create/read text messages and access social media while driving across the independent variables for younger drivers

		Attitude Scores											
Independent variables		Making/receiving calls				Create/read text messages				Access social media			
		R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	2.55	1.41	2.43(98.67)	0.017	2.99	1.60	2.75(191.00)	0.006	1.72	1.26	0.97(97.88)	0.333
	Female	2.04	1.16			2.38	1.36			1.54	1.02		
License stage	Ordinary	2.41	1.36		0.000	2.69	1.48		0.102	1.68	1.15		0.117

	Provisional	1.77	0.89	-3.94(174.17)		2.33	1.40	-1.64(191.00)		1.43	0.98	-1.58(142.08)	
Kilometres travelled per week	<200km	2.04	1.18	-3.49(191.00)	0.001	2.40	1.37	-3.16(191.00)	0.002	1.52	1.06	-1.82(191.00)	0.070
	>200km	2.77	1.37			3.17	1.62			1.86	1.22		
Region	Metropolitan WA	2.19	1.28	-0.33(191.00)	0.739	2.54	1.48	-0.70(191.00)	0.483	1.56	1.09	-1.06(191.00)	0.293
	Non-Metropolitan WA	2.27	1.21			2.74	1.37			1.79	1.19		

Note. Rmean= Recalculated mean (composite mean of construct), SD = Standard Deviation

Subjective norm scores regarding using a mobile phone while driving against the independent variables

Independent-samples t-tests results of subjective norm scores regarding making/receiving calls, creating/reading text messages and accessing social media while driving against the independent variables, are shown in Table 21, with Table A6.11 illustrating these results for all aged respondents in Appendix 6. Subjective norm scores for all mobile phone behaviours were not normally distributed, as assessed by the Shaprio-Wilk test ($p < 0.05$). Regarding the assumption of the equality of variances for the subjective norm mean scores concerning making/receiving calls while driving, all independent variables had met the assumption as assessed by Levene's test ($p > 0.05$). Regarding the assumption of the equality of variances for the subjective norm mean scores concerning creating/sending text messages while driving, gender, licence stage and region had met the assumption as assessed by Levene's test ($p > 0.05$). Kilometres driven per week had not met this assumption. Regarding the assumption of the equality of variances for the subjective norm mean concerning accessing social media while driving, licence stage, kilometres driven per week and region had met the assumption as assessed by Levene's test ($p > 0.05$). Gender had not met this assumption.

Concerning the subjective norm mean scores for making/receiving calls while driving, statistically significant differences were found between licence stages of younger drivers ($p < 0.05$). Ordinary licence holders had significantly higher subjective norm mean scores towards making/receiving calls while driving than Provisional licence holders; that is, younger drivers with Ordinary licences have a more positive subjective norm and a more accommodating social environment to making/receiving calls while driving than Provisional licence holders. Younger respondents who resided outside the metropolitan area had the highest subjective norm mean score towards making/receiving calls while driving (mean= 2.94, SD = 1.23),

while Provisional licence holders had the lowest subjective mean score (mean= 2.17, SD = 1.08). Overall, younger respondents “disagreed” to “somewhat disagreed” with positive statements on subjective norms towards making/receiving calls while driving.

Regarding the subjective norm mean scores for creating/sending text messages while driving, statistically significant differences were found among gender ($p < 0.001$) and kilometres driven each week ($p < 0.05$). Males and younger respondents who drive >200km a week had significantly higher subjective mean scores relating to creating/sending text messages while driving than their counterparts; that is, males and younger respondents who drive >200km a week have more positive and accommodating social beliefs to create/send text messages while driving than their counterparts. Younger respondents who drive >200km a week had the highest subjective norm mean score relating to creating/sending text messages while driving (mean= 2.93, SD = 1.34) while females had the lowest subjective norm mean score (mean= 2.29, SD = 1.12). Overall, younger respondents “disagreed” to “somewhat disagreed” with positive statements on subjective norm towards creating/sending text messages while driving.

With respect to the subjective norm mean scores for accessing social media while driving, statistically significant differences were found in the region where younger respondents reside ($p < 0.05$). Younger respondents who reside outside the metropolitan area had higher subjective norm mean scores relating to using social media while driving than younger respondents who live in the metropolitan area. Subsequently, younger respondents from outside the metropolitan area had more positive subjective norms and catering social environments for accessing social media while driving. Younger respondents who reside outside the metropolitan area also had the highest subjective norm mean score relating to accessing social media while driving (mean= 2.34, SD = 1.06), while younger drivers with Provisional licences had the lowest subjective norm mean score (mean= 1.86, SD = 0.91).

Overall, Overall, younger respondents “strongly disagreed” to “somewhat disagreed” with positive statements on subjective norm towards accessing social media while driving.

Table 21

Independent t-test samples results of subjective norm scores concerning using a mobile phone while driving to make/receive calls, create/read text messages and access social media while driving across the independent variables for younger drivers

Independent variables		Subjective Norm Scores											
		Making/receiving calls				Create/read text messages				Access social media			
		R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	2.79	1.18	1.76(191.00)	0.080	2.87	1.16	3.32(191.00)	0.001	2.16	1.08	1.89(95.73)	0.061
	Female	2.46	1.18			2.29	1.12			1.87	0.85		
License stage	Ordinary	2.76	1.20	-3.26(191.00)	0.001	2.54	1.19	-1.21(191.00)	0.230	2.01	0.95	-1.06(191.00)	0.291
	Provisional	2.17	1.08			2.33	1.19			1.86	0.91		
Kilometres travelled per week	<200km	2.50	1.16	-1.53(191.00)	0.127	2.34	1.07	-2.70(60.39)	0.009	1.93	0.91	-0.92(191.00)	0.361
	>200km	2.80	1.27			2.93	1.34			2.07	1.02		
Region	Metropolitan WA	2.50	1.17	-1.90(191.00)	0.059	2.40	1.13	-1.96(191.00)	0.051	1.89	0.90	-2.48(191.00)	0.014
	Non-Metropolitan WA	2.94	1.23			2.85	1.27			2.34	1.06		

Note. Rmean= Recalculated mean (composite mean of construct) (composite mean of construct), SD = Standard Deviation

Perceived behavioural control scores regarding using a mobile phone while driving against the independent variables

Independent-samples t-tests results of perceived behavioural control scores regarding making/receiving calls, creating/reading text messages and accessing social media while driving against the independent variables are shown in Table 22, with Table A6.12 in Appendix 6 illustrating these results for all aged respondents. Perceived behavioural control scores for making/receiving calls while driving were normally distributed, as assessed by the Shaprio-Wilk test ($p > 0.05$). Creating/sending text messages while driving and accessing social media while driving perceived behavioural control scores were not normally distributed as assessed by the Shaprio-Wilk test ($p < 0.05$). Regarding the assumption of the equality of variances for the perceived behavioural control scores concerning making/receiving calls while driving, all independent variables had met the assumption as assessed by Levene's test ($p > 0.05$). Regarding the assumption of the equality of variances for the perceived behavioural control scores concerning creating/sending text messages while driving, region had met the assumption as assessed by Levene's test ($p > 0.05$). Gender, licence stage and kilometres driven per week had not met this assumption. Regarding the assumption of the equality of variances for the perceived behavioural control scores concerning accessing social media while driving, all independent variables had met the assumption as assessed by Levene's test ($p > 0.05$).

Concerning the perceived behavioural control mean scores for making/receiving calls while driving, statistically significant differences were found in licence stage ($p < 0.05$) and kilometres driven per week ($p < 0.05$). Males and younger respondents who drive >200km a week had significantly higher perceived behavioural control mean scores than their counterparts. That is, males and younger respondents who drive >200km a week believed they were able to drive more safely and use their mobile phones while driving to

make/receive calls than their counterparts. Younger respondents who drive >200km a week also reported the highest perceived behavioural control mean score relating to making/receiving calls while driving (mean= 3.87, SD = 1.67) while younger drivers with Provisional licences had the lowest perceived behavioural control mean score (mean= 3.05, SD = 1.39). Overall, younger respondents "somewhat disagree" to "neither agree nor disagree" with positive statements and self-assessments on perceived behavioural control relating to making/receiving calls while driving.

Regarding the perceived behavioural control mean scores for creating/sending text messages while driving, statistically significant differences were found for gender ($p < 0.05$), licence stage ($p < 0.05$) and kilometres driven per week ($p < 0.05$). Males, younger respondents with Ordinary licences and younger respondents who drive >200km a week had higher perceived behavioural control mean scores than their counterparts. That is, these subgroups of the sample believed that they were able to drive more safely and use their mobile phones to create/send text messages while driving than their counterparts. Younger respondents who drive >200km a week had the highest perceived behavioural control mean score relating to creating/sending text messages while driving (mean= 3.26, SD = 1.65) while younger respondents with Provisional licence holders had the lowest score (mean= 2.49, SD = 1.19). Overall, younger respondents "disagree" to "somewhat disagree" with positive statements and self-assessments on perceived behavioural control relating to creating/sending text messages while driving.

With respect to the perceived behavioural control mean scores for accessing social media while driving, statistically significant differences were found in gender ($p < 0.05$). Males had significantly higher perceived behavioural scores relating to accessing social media while driving than females. This may indicate that younger males believed that they were able to access social media on their mobile phone whilst driving more safely than

females. Younger respondents who drive >200km a week had the highest perceived behavioural control mean score (mean= 2.74, SD = 1.50) while younger drivers with Provisional licences had the lowest mean score (mean= 2.26, SD = 1.17). Overall, younger respondents “disagree” to “somewhat disagree” with positive statements and self-assessments on perceived behavioural control relating to accessing social media while driving.

Table 22

Independent t-test samples results of perceived behavioural control scores concerning using a mobile phone while driving to make/receive calls, create/read text messages and access social media while driving across the independent variables for younger respondents

Independent variables		Perceived Behavioural Control Scores											
		Making/receiving calls				Create/read text messages				Access social media			
		R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	3.64	1.63	1.18(191.00)	0.238	3.19	1.59	2.73(96.55)	0.008	2.73	1.44	2.07(191.00)	0.040
	Female	3.36	1.52			2.56	1.27			2.31	1.24		
License stage	Ordinary	3.64	1.61	-2.47(191.00)	0.014	2.89	1.48	-2.03(149.05)	0.044	2.53	1.38	-1.34(191.00)	0.183
	Provisional	3.05	1.39			2.49	1.19			2.26	1.17		
Kilometres travelled per week	<200km	3.32	1.51	-2.05(191.00)	0.042	2.61	1.29	-2.41(59.40)	0.019	2.36	1.25	-1.70(191.00)	0.091
	>200km	3.87	1.67			3.26	1.65			2.74	1.50		
Region	Metropolitan WA	3.37	1.58	-1.51(191.00)	0.132	2.70	1.40	-1.19(191.00)	0.235	2.40	1.31	-1.05(191.00)	0.294
	Non-Metropolitan WA	3.83	1.39			3.03	1.40			2.67	1.35		

Note. Rmean= Recalculated mean (composite mean of construct), SD = Standard Deviation

Research Question 4

What is the intention to use a mobile phone while driving of younger respondents and do these differ by gender, driving experience and region?

Intention scores regarding mobile phone use while driving against the independent variables

Independent-samples t-tests results of intention scores regarding making/receiving calls, creating/reading text messages and accessing social media while driving against the independent variables are shown in Table 23 with Table A6.13 in Appendix 6 showing the results for all aged respondents. Intention scores for all behaviours (calling, texting and accessing social media) were not normally distributed, as assessed by the Shaprio-Wilk test ($p < 0.05$). Regarding the assumption of the equality of variances, firstly, for the independent variables tests against the intention to make/receive calls, only kilometres travelled per week and region, met the assumption of the equality of variances. Secondly, for the independent variables, tests against the intention to create/send text messages, gender, kilometres travelled and region met the assumption. Finally, for the independent variables against the intention to access social media, gender, licence stage and kilometres travelled met the assumption of the equality of variances.

Regarding the intention to make/receive calls while driving in the next week, statistically significant differences were found between the mean scores of younger experienced respondents (Ordinary licence holders) and younger less experienced respondents (Provisional licence holders). Younger experienced respondents (Ordinary licence stage) had higher mean scores ($p < 0.05$) thus indicating more intention to use their mobile phone to use make/receive calls in the next week. Younger respondents who resided outside the metropolitan area expressed the strongest intention to use a mobile phone to make/receive calls in the next week as they reported the highest mean score (mean= 3.10, SD

= 2.12) while younger less experienced respondents (Provisional licence holders) had expressed the lowest intention level (mean= 2.10, SD = 1.69). Overall, the mean scores reveal that younger respondents had "disagreed" and "somewhat disagreed" with the statement "In the next week I intend to use my mobile phone while driving to make/receive calls".

Concerning the intention to create/send text messages while driving in the next week, statistically significant differences were found between licence stages and kilometres travelled each week among younger respondents. More experienced younger respondents (Ordinary licence holders) had statistically significant higher mean intention scores than less experienced younger respondents (Provisional licence holders) ($p < 0.05$). Younger respondents who reported driving longer distances (>200km per week) had statistically significant higher mean scores than younger respondents who drive shorter distances (<200km per week) ($p < 0.05$). Therefore, the more experienced younger respondents who drive for larger distances each week had a higher intention level of using their mobile phone to create/read text messages in the next week. Less experienced younger respondents had the lowest intention mean score (mean= 2.21, SD = 1.64) while younger respondents who drive for longer distances weekly (>200km) had the highest intention mean score (mean= 3.25, SD = 1.88). Overall, the mean scores reveal that younger respondents had "disagreed" and "somewhat disagreed" with the statement "In the next week I intend to use my mobile phone while driving to create/send text messages".

With respect to the intention to use a mobile phone to access social media in the next week, there were no statistically significant differences in the intention mean scores across the independent variables. Less experienced younger respondents (Provisional licence holders) had the lowest intention level (mean= 1.62, SD = 1.21) while younger respondents who reported driving longer distances in a week (>200km) had the highest intention level (mean= 2.20, SD = 1.59). Overall, the younger respondents had expressed the lowest

intention level out of all the mobile phone use behaviours to access social media while driving as respondents had “strongly disagreed” and “disagreed” with the statement “In the next week I intend to use my mobile phone while driving to access social media”.

Table 23

Independent t-test samples results of intention scores concerning using a mobile phone while driving to make/receive calls, create/read text messages and access social media while driving across the independent variables of younger respondents

Independent variables		Intention Scores											
		Making/receiving calls				Create/read text messages				Access social media			
		$\bar{x}$	SD	*t*(df)	*p*	$\bar{x}$	SD	*t*(df)	*p*	$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	2.82	2.09	1.04(101.89)	0.303	2.80	1.93	0.88(191.00)	0.379	1.98	1.49	1.14(191.00)	0.225
	Female	2.50	1.78			2.55	1.87			1.73	1.37		
License stage	Ordinary	2.85	1.93	-2.76(138.21)	0.007	2.83	1.97	-2.32(145.08)	0.022	1.91	1.49	-1.33(191.00)	0.183
	Provisional	2.10	1.69			2.21	1.64			1.62	1.21		
Kilometres travelled per week	<200km	2.49	1.85	-1.51(191.00)	0.132	2.44	1.85	-2.53(191.00)	0.012	1.70	1.33	-1.92(61.89)	0.060
	>200km	2.98	1.96			3.25	1.88			2.20	1.59		
Region	Metropolitan WA	2.51	1.83	-1.61(191.00)	0.110	2.56	1.88	-1.20(191.00)	0.230	1.79	1.44	-0.53(191.00)	0.600
	Non-Metropolitan WA	3.10	2.12			3.00	1.93			1.94	1.24		

Note. mean= Mean, SD = Standard Deviation

Hierarchical multiple regression of the Theory of Planned Behaviour components

The second analysis to answer this research question was to perform hierarchical multiple regression models of the TPB components of each of the mobile phone use behaviours (making/receiving calls, creating/sending text messages and accessing social media while driving), and to assess the variations when adding the independent variables and the past behaviour Nine models were made in total, with three full models being made for each behaviour. The TPB components relating to that behaviour was placed in the first step. The second step was the independent variables and the final step was the past behaviour scores. All models met all assumptions in the hierarchical multiple regression analysis. Assumptions regarding normality, linearity and homoscedasticity of residuals for all models were met, as assessed by visual inspection of both the partial regression plots and a plot of studentized residuals against predicted values. No evidence of multicollinearity was found for all models, as tolerance values were greater than 0.1. Standard multiple regression was performed for all respondents and is shown in Tables A6.14, A6.15 and A6.16 in Appendix 6.

Intention to make/receive calls while driving in the next week

Table 24 shows the results from three hierarchical multiple regression models to predict the intention to make/receive calls while driving in the next week. The full model (Model 3) of the attitude towards making/receiving calls, subjective norm towards making/receiving calls, perceived behavioural control of making/receiving calls, gender, licence stage, kilometres driven per week and region to predict the intention to make/receive calls while driving in the next week, were statistically significant ($p < 0.001$). The addition of the demographic variables (gender, licence stage, kilometres travelled per week and region) did not lead to a statistically significant increase in the R^2 and F ($p > 0.05$). However, the addition of the past behaviour of making/receiving calls in the previous week led to a statistically significant increase ($p < 0.05$). Concerning the unstandardized coefficients, the

TPB components (attitude, subjective norm and perceived behavioural control) had positive correlations. Subjective norm had the largest unstandardized coefficients and perceived behavioural control had the lowest unstandardized coefficients in all three models ($p < 0.05$). The past behaviour score also had a positive strong unstandardized coefficient. It appears that the hierarchical multiple regression model reveals that the attitude, subjective norm, perceived behavioural control and past behaviour significantly influences and predicts the intention of a younger respondent to make/receive calls while driving in the next week. It also appeared that the demographic variables had no significant influence.

Table 24
Hierarchical multiple regression results for intention to make/receive calls while driving against the Theory of Planned Behaviour components, the independent variables and past behaviour for younger respondents

	Model 1		Model 2		Model 3	
Characteristic	Intention to make/receive calls while driving in the next week					
	β	*p*	β	*p*	β	*p*
Attitudes	0.19	0.002	0.20	0.002	0.17	0.002
Subjective norms	0.47	0.000	0.47	0.520	0.31	0.000
Perceived behavioural controls	0.19	0.003	0.19	0.004	0.10	0.079
Gender			0.03	0.562	0.01	0.795
Licence stage			0.00	0.997	-0.03	0.416
Kilometres travelled per week			-0.01	0.801	-0.09	0.047
Region			0.02	0.643	0.03	0.494
Past behaviour in the past week					0.47	0.000
R^2	0.57		0.57		0.70	
F	82.49	0.000	34.86	0.000	54.65	0.000
ΔR^2	0.57	0.000	0.00	0.943	0.14	0.000
ΔF	82.49		0.19		83.88	

Note. β = standardised coefficients

Intention to creating/sending text messages while driving in the next week

Table 25 shows the results from the three models to predict the intention to create/send text messages while driving in the next week. The full model (Model 3) of the attitude towards creating/sending text messages while driving, subjective norm towards

creating/sending text messages while driving, perceived behavioural control of creating/sending text messages while driving, gender, licence stage, kilometres driven per week, and region to predict the intention to creating/sending text messages while driving in the next week, were statistically significant ($p < 0.001$). The addition of the demographic variables (gender, licence stage, kilometres travelled per week and region) did not lead to a statistically significant increase in the R^2 and F ($p > 0.05$). However, the addition of the past behaviour of creating/sending text messages while driving in the previous week led to a statistically significant increase ($p < 0.05$). Concerning the unstandardized coefficients, the TPB components (attitude, subjective norm and perceived behavioural control) had positive correlations. Attitude had the highest unstandardized coefficients while perceived behavioural control had the lowest unstandardized coefficients ($p < 0.05$). The past behaviour score also had a positive strong unstandardized coefficient. It appears that the hierarchical multiple regression model reveals that the attitude, subjective norm, perceived behavioural control, and past behaviour, significantly influences and predicts the intention of a younger respondent to create/send text messages while driving in the next week, and that the independent variables had no significant influence.

Table 25

Hierarchical multiple regression results for intention to create/send text messages while driving in the next week against the Theory of Planned Behaviour components, the independent variables and past behaviour for younger respondents

	Model 1		Model 2		Model 3	
Characteristic	Intention to create/send text messages while driving in the next week					
	β	*p*	β	*p*	β	*p*
Attitudes	0.39	0.000	0.40	0.000	0.26	0.000
Subjective norms	0.22	0.002	0.24	0.001	0.21	0.001
Perceived behavioural controls	0.25	0.000	0.25	0.000	0.15	0.020
Gender			0.13	0.012	0.07	0.154
Licence stage			0.06	0.199	0.04	0.371
Kilometres travelled per week			0.02	0.667	-0.00	0.891
Region			0.00	0.947	-0.02	0.610
Past behaviour in the past week					0.34	0.000
R^2	0.55		0.57		0.63	
F	76.51	0.000	34.64	0.000	38.42	0.000
ΔR^2	0.55		0.02	0.096	0.06	0.000
ΔF	76.51		2.01		28.68	

Note. β = standardised coefficients

Intention to access social media while driving in the next week

Table 26 shows the results from the three models to predict the intention to access social media while driving in the next week. The full model (Model 3) of the attitude towards accessing social media while driving, subjective norm towards accessing social media while driving, perceived behavioural control of accessing social media while driving, gender, licence stage, kilometres driven per week and region to predict the intention to access social media while driving in the next week were statistically significant ($p < 0.001$). The addition of the demographic variables (gender, licence stage, kilometres travelled per week and region) did not lead to a statistically significant increase in the R^2 and *F* ($p > 0.05$). However, the addition of the past behaviour of accessing social media while driving in the previous week led to a statistically significant increase ($p < 0.05$). Concerning the unstandardized coefficients, the TPB components (attitude, subjective norm and perceived behavioural

control) had positive correlations. Perceived behavioural controls had the highest unstandardized coefficients while subjective norm had the lowest unstandardized coefficients ($p < 0.05$). The past behaviour score also had a positive strong unstandardized coefficient. It appears that the hierarchical multiple regression model reveals that the attitude, subjective norm, perceived behavioural control, and past behaviour, significantly influences and predicts the intention of a younger respondent to access social media while driving in the next week, and that the demographic variables had no significant influence.

Table 26
Hierarchical multiple regression results for intention to access social media while driving in the next week against the Theory of Planned Behaviour components, the independent variables and past behaviour for younger respondents

	Model 1		Model 2		Model 3	
Characteristic	Intention to access social media while driving in the next week					
	β	*p*	β	*p*	β	*p*
Attitudes	0.26	0.000	0.26	0.000	0.07	0.142
Subjective norms	0.25	0.000	0.27	0.000	0.18	0.001
Perceived behavioural controls	0.37	0.000	0.36	0.000	0.20	0.000
Gender			0.05	0.342	0.08	0.073
Licence stage			0.01	0.800	-0.03	0.504
Kilometres travelled per week			0.07	0.225	0.02	0.652
Region			-0.06	0.279	-0.07	0.105
Past behaviour in the past week					0.58	0.000
R^2	0.49		0.50		0.70	
F	61.29	0.000	26.59	0.000	53.83	0.000
ΔR^2	0.49	0.000	0.01	0.539	0.20	0.000
ΔF	61.29		0.78		122.38	

Note. β = standardised coefficients

Past Behaviour of making/receiving calls, creating/sending text messages and accessing social media while driving: A proxy for future behaviour

Based on the premise provided earlier in this thesis, past behaviour may be used as a proxy for future behaviour when there is no intervention included in the research. Additional

analyses were conducted for past behaviour for making/receiving calls, creating/reading text messages and accessing social media and were correlated with the intention to engage in those behaviours in the next week. Pearson's Product Movement Correlation was used to investigate the intention- (proxy) behaviour relationship. The assumption of normality was met by visual inspection of Q-Q plots. Strong positive correlations were found between the intention use a mobile phone to make/receive calls in the next week with previously engaging in this behaviour in the past week ($r(191) = 0.73$, $p < 0.01$). This was also found for the relationship between the intention to use mobile phone to create/send text messages in the next week and previously engaging in this behaviour ($r(191) = 0.68$, $p < 0.01$) and the intention to use a mobile phone to access social media in the next week and previously engaging in this behaviour in the previous week ($r(191) = 0.78$, $p < 0.01$). If it is accepted that previous behaviour is a proxy for future behaviour then this suggests that intention-behaviour accounted for variance of 0.53; 0.46; and 0.60 for each of the three behaviours. These results are in line with other results based on the TPB. Table A6.17 in Appendix 6 shows results for all respondents.

Research Question 5

What is the ability of the younger respondents to be able to recall their knowledge of current mobile phone legislation and what are the younger respondents' enforcement experiences, and do these differ by gender, driving experience and region?

Frequencies of the respondent answers to the legal scenario questions are shown in Table 27 with Table A6.18 in Appendix 6 illustrating the frequencies for all aged respondents. The mean correct response rate was 85.90%. Scenario 3 had the largest incorrect responses, as 25.39% of younger respondents failed to answer the scenario correctly. Scenario 1 had the largest correct responses with 94.30% of younger respondents providing the right answer. The "unsure" responses were recoded into the "Incorrect" responses. These

results illustrate that a majority of younger respondents acknowledge that they are unable to physically hold their mobile phones to make/receive calls, create/send text messages and access social media regardless of traffic circumstances. A quarter of respondents were unsure about the legality of drivers who receive a phone call and physically pick up their phone, press to answer the call and place on loudspeaker, and place the phone nearby. This situation would contravene the regulations, as the driver physically held and manipulated the device, thus being eligible for the penalty if witnessed by a Police officer. Independent t-tests were performed to analyse the differences in the legislation scenario scores across the independent variables for all aged respondents, and are shown in Table A6.19 in Appendix 6.

Table 27
Frequencies of responses to legal scenarios

	Correct response (n)	Proportion %	Incorrect response (n)	Proportion %
Scenario 1	182	94.30	11	5.67
Scenario 2	160	82.90	33	17.10
Scenario 3	144	74.60	49	25.39
Scenario 4	162	83.90	31	16.06
Scenario 5	181	93.80	12	6.22
Mean %	165.80	85.90	27.20	14.09

Relationship between legislation knowledge and intention

To assess the impact of legislation knowledge on the intention to use a mobile phone while driving, the Pearson's Product-Movement Correlation analysis was performed against each legislation scenario score, as well as the intention mean scores of making/receiving calls, creating/sending text messages and accessing social media while driving in the next week for younger respondents. The results are shown in Table 28. The assumption of normality was met by visual inspection of Q-Q plots. No statistically significant correlations were found with all legislation scenario scores and the intention to make/receive calls while driving in the next week, creating/sending text messages in the next week or accessing social

media while driving in the next week. These results may indicate that the knowledge of the legislation may not significantly influence a younger respondent from the present study to use a mobile phone to make/receive calls while driving in the next week, create/send text messages while driving in the next week or accessing social media while driving in the next week. A combined legislation score was correlated using Pearson's Product-Movement Correlation analyses against each intention to perform each behaviour for all respondents and is shown in Table A6.20 in Appendix 6.

Table 28
Pearson's Product Movement Correlation analysis between legislation knowledge scores and intention to engage in each mobile phone use behaviour in the next week

	Intention to make/receive calls while driving in the next week		Intention to create/read text messages while driving in the next week		Intention to access social media while driving in the next week	
	r	*p*	*r*	*p*	*r*	*p*
Scenario 1	-0.01	0.881	-0.02	0.714	0.02	0.759
Scenario 2	-0.07	0.352	0.02	0.769	-0.00	0.968
Scenario 3	0.11	0.139	0.11	0.121	0.02	0.743
Scenario 4	-0.03	0.649	-0.06	0.379	-0.13	0.076
Scenario 5	-0.03	0.639	0.02	0.789	0.04	0.603

Qualitative analysis

Three open-ended questions were provided to all respondents for an answer at the end of the survey. Only younger respondents' responses are shown in this section. The first question asked the respondents on their general thoughts on the law regarding mobile phone use while driving. The second question asked for specific thoughts on the penalty for not adhering to the law. The third question pertained to police involvement/enforcement of the law. Unlike the quantitative questions, the qualitative questions were optional to answer, thus there were slightly different demographics profiles in the groups of respondents that answered each question, as seen in Table 29. However, despite the qualitative responses being voluntary, there was a high response rate as 181 younger respondents provided

qualitative responses, representing 93.78% of all younger respondents. As younger respondents from the same sample from the present study completed the qualitative section, there is no significant differences in demographics or independent variables between the qualitative sample and the quantitative sample. Only age, gender and region are reported as those are the identifiers that are used to identify responses in this section. Table A6.21 illustrates these results for all aged respondents.

Table 29
Selected demographics of younger respondents who answered the qualitative questions

Age	Mean	21.58
	Standard deviation	2.15
Gender (% of gender of all younger respondents)	Female	129 (97.72%)
	Male	52 (85.25%)
Region (% of region of all younger respondents)	Metropolitan W.A.	152 (93.83%)
	Outside Metropolitan W.A.	29 (93.55%)

In this section, respondents will be referred to in the following format: Gender, Age, Reside Area. Quotes from the respondents may have been edited for clarity. The selected responses for all quotes in this chapter were based on how well the quote represented the theme. It is noted that more females than males were selected for quotes in the present chapter as female respondents provided more eloquent responses under most themes than males. Table 30 displays all themes that have been identified each qualitative question.

Table 30
Themes from all qualitative questions of younger respondents

Qualitative questions and identified themes					
Qualitative question one: Mobile phone use while driving law	N (%) younger respondents	Qualitative question two: Penalty for mobile phone use while driving	N (%) younger respondents	Qualitative question three: Police's role in enforcement of using mobile phones while driving	N (%) younger respondents
Alternative to harsher penalties	1 (0.58%)	Alternatives to fine	2 (1.18%)	Adequate	101 (66.01%)
Complete ban not possible	2 (1.16%)	Different fines for different behaviours	2 (1.18%)	Anti-police	13 (8.50%)
Contradictory to use	2 (1.16%)	Graded penalty system required	9 (5.29%)	Difficult to enforce	5 (3.27%)
Harsher penalties required	15 (8.67%)	Ineffective penalties	20 (11.76%)	Education required	3 (1.96%)
Law adequate	79 (45.66%)	Justified	120 (70.59%)	More cautions	1 (0.65%)
Law inadequate	4 (2.31%)	Too harsh	15 (8.82%)	More effort needed	22 (14.38%)
Law unclear	22 (12.72%)	Use more cautions	1 (0.59%)	More powers should be given to Police	1 (0.65%)
More education needed	20 (11.56%)			Should not enforce	1 (0.65%)
More enforcement needed	1 (0.58%)			Tactics questioned	6 (3.92%)
Penalties too harsh	3 (1.73%)				
Restrictions need to be loosened	8 (4.62%)				
Supports complete ban	16 (9.25%)				
Total	173 (100.00%)		169 (100.00%)		153 (100.00%)

Qualitative question one: Mobile phone use while driving law

The first qualitative question received a variety of answers that required the creation and identification of a range of codes to identify common themes. The survey platform

(Qualtrics) displayed the qualitative questions one page at a time, which may explain the range of responses and the high respondent rate for the first qualitative question.

The majority younger respondents expressed that the current mobile phone use while driving law was adequate. Seventynine (49.66%) of responses displayed this theme. Female, 25, Metropolitan WA writes in her response her understanding of the law:

I think the law (is) *fair, it's pretty strict but the only way to deter phone users is to be strict. I think the law is easy to understand (at least if I do understand it) since you simply cannot touch your phone while driving, this is clear and easy to follow (…)*

This was followed by younger respondents expressing that the current law and its restrictions are unclear to drivers (n= 22, 12.72%). Female, 24, Outside metropolitan WA answered:

I don't think the Law on mobile phones is very comprehensive and I believe there is a few grey areas, especially since mobile phones are so advanced. Especially when it comes to things like GPS, Google maps and people using their phones for directions whilst driving.

The third largest theme expressed by younger respondents in response to their thoughts on the mobile phone use while driving law, was that more education or targeted social marketing is required to educate the driving population on the law requirements and restrictions. Female, 21, Metropolitan WA respondent had provided a response under this theme:

I believe it's not advertised enough that picking up your phone or even looking at your phone can cause harm to anyone. I also do believe that some people don't understand what is

'illegal' even touching any sort of electronic device in the car is illegal. Even if you just swipe or touch your phone you can get fined. You don't even need to be holding it.

Another respondent also provided a response underneath this theme. Female, 23, Metropolitan WA expressed:

I don't think the younger generation understands or knows the penalties associated with using phones whilst driving. I see people my age taking selfies whilst driving, even whilst on the freeway and that just concerns me.

The penalty for using a mobile phone while driving was also raised in the qualitative responses which expressed that penalties were not adequate for the law (that is, they should be more severe) (n = 4, 2.31%). However, a small number of responses expressed that the current penalties are too harsh and there needs to be more alternatives (n = 1, 0.58%). Despite there being another qualitative question specifically asking for the respondent's thoughts on the penalty for using a mobile phone while driving, as stated previously, there was only one qualitative question displayed at one time, so respondents may have assumed that this would be the only opportunity to discuss anything related to the mobile phone use while driving law. It may also have been due to the wording of the question.

Another theme was that younger respondents expressed supporting a complete ban on mobile phone use while driving, both hands-free and hand-held (n = 16, 9.25%), . However, in this section, there were respondents which supported a complete ban, but had admitted to using their mobile phone while driving on a regular basis. An example response which had the theme of "contradictory to use" was from Female, 25, Metropolitan WA, who answered:

Mobile phone use is incredibly dangerous whilst driving - my former vehicle had Bluetooth and I miss it in my current vehicle. So what I do now if a call comes in, answer it and put it on speaker on my lap. Messages I text at the lights. NO social media whilst driving

The respondent thus does not condone the behaviour, however she admits to performing the behaviour and justifies the behaviour through risk-reducing actions (creating or responding to text messages while stationary at traffic lights). There were also younger respondents who expressed that a complete ban would not be possible (n = 2, 1.16%). Male, 25, Metropolitan WA provided his response under this theme:

The penalty is fine. It is very easy to understand. Banning mobile phones completely will make it hard for tradesmen and business people to do their job as they are always in need of their phone.

Qualitative question two: Penalty for mobile phone use while driving

The majority respondents thought the penalty for using a mobile phone while driving was justified and fair (n = 120, 70.59%). Younger respondents expressed that although the financial consequences appear to be great, they understood that it was in place as a deterrent for causing injury to one's self or another, and thus accepted the penalty. Male, 21. Metropolitan WA provided a response under this theme:

Completely justifiable. I know when I touch my phone whilst driving that I am doing the wrong thing and I am putting myself and others at risk doing so. It is a selfish act and one I am not proud of, nor should anyone. But given that I really don't have a great understanding of the law surrounding mobile phone usage (which I admit is out of pure

ignorance) I would still be pretty annoyed to cop the fine and demerits if I was to be caught in the act.

The second largest proportion of younger respondents expressed that the current penalties are ineffective (n= 20, 11.76%). These responses had expressed that the penalties for using a mobile phone while driving did not deter themselves and/or other drivers. Female, 25, Metropolitan WA wrote the below response for this code:

I understand the point of fining people, but I think it's pointless. Our world has changed and people are connected to their devices. We are living in a fast-paced "immediate" society where responding to calls and messages as they come is expected and normal. There is much to be said about the psychology of this new age, where there is almost an anxiety attached to the need to check and respond immediately. Fines don't deter people, just like scare tactics don't. In an ideal world, the technology to allow safe exchanging of messages and phone calls would be available to all.

The above response discusses the attachment people have to their mobile phones, and how drivers are not deterred by fines, as it is a larger issue than using a mobile phone whilst driving. Another younger respondent Female, 25, Metropolitan WA stated that the penalty does not deter her specifically in her response:

This penalty does not deter me from using my mobile. All it makes me do is check for police cars nearby or cars that look like unmarked police cars before I use my phone.

Male, 22, Metropolitan WA also provides the following response under this theme:

While the government may imply that this is due to a concern of citizen's health, on closer examination this is clearly incorrect. Excessive fines are a clear indicator of the police force not doing what they are supposed to do, which is policing the community and preventing crime but raising revenue with an almost always victim-less crime.

The response above indicates that the respondent may believe that using a mobile phone while driving is not dangerous, and therefore it serves as an excuse for the government to have "excessive fines" on the behaviour. In other criticism of the penalty, 15 (8.82%) younger respondents expressed that the current penalty is too harsh. In this theme, younger respondents stated that the penalty for using a mobile phone while driving seems high when comparing other traffic offences, such as driving under the influence of alcohol or speeding. Female, 21, Outside Metropolitan Area expressed:

I do not believe the penalties are fair, when someone who is speeding can be just as dangerous yet the penalties are far less. I can understand it is to deter people from doing it though.

Another younger respondent who had a response under this theme stated that the penalties are too harsh, because not all drivers who use their mobile phone while driving had experienced social consequences. Male, 18, Metropolitan WA expressed:

Three demerit points are too steep. Demerit points are related to the manner in which you drive - not your attention. It's actually a bit unfair for someone to potentially lose their licence for something that may not have actually been dangerous at the time. Not everyone's

an idiot who checks their phone, no matter the circumstances. Most people would make sure it's safe to check. Thus qualifying them somewhat as "safe" drivers.

Another theme of interest was that younger respondents suggested a "graded penalty system" (n= 9, 5.29%), in that there be different penalties according to the traffic situation the driver was using their mobile phone while driving. Female, 21, Metropolitan WA provided this response:

3 demerit points seems a bit high, I think the penalty should differ depending on the traffic situation at the time, eg. waiting at traffic lights vs driving along a main road should incur different penalties.

Another young respondent, Female, 19, Metropolitan WA also expressed this sentiment in lieu of this theme:

I don't think that the $400 fine and the 3 demerit points should apply to everyone automatically regardless of the situation. I think that there should be different fines depending on what was going on. For example, if someone is somehow caught at a set of red lights viewing a message before putting the phone away I dont think that they should have to pay the same amount as someone who is going down the freeway at speeds of 80+ while commenting on Facebook.

Qualitative question three: Police's role in enforcement of using mobile phones while driving

Most respondents expressed that current police efforts in reducing mobile phone use while driving is adequate (n= 101, 66.01%). Female, 23, Outside Metropolitan WA provided this response under this theme:

They are doing a good job considering how many people do it.

Another respondent also offered the same sentiment. Female, 20, Outside Metropolitan WA expressed:

They do a great job at protecting us, especially on the roads. Mobile phone use while driving is reckless behaviour and I am glad the police find it an important issue to deal with.

Other younger respondents noted that more effort is required to combat the number of drivers on the road (n= 22, 14.38%). Female, 20, Metropolitan WA region noted that police presence is rarely felt and received contradictory advice from police, which justified her decision to physically hold and use a mobile phone while driving:

All friends, family and I have never been stopped by a police officer for phone use whilst driving, it's very hard to catch people in the act. Interestingly, though, while passing a routine breathalyser test I have had a police officer demand I take my phone holding window suction cup off my car, claiming it was a distraction. Since this encounter and removing the phone holder, I always have my phone on my lap/in my hand directly, making it so much easier to use my phone undetected, and results in me looking down off the road- as opposed

to previously glancing slightly to my right of the driver's window screen (Still with full view of the road, mirrors, other cars and general environment.) Poor judgement on the police officers part discouraging a safer option. Also, let it be known that previously (when I was driving with the phone holder) that my phone use was solely limited to following my GPS (addresses always typed and set before driving) and only answering calls made to me on the loud speaker. I now, at least 18 months after this incident of losing my phone holder, use my mobile phone constantly whilst driving- Calling, texting, Facebook. Pokemon GO, Spotify etc. As soon as I couldn't have it in visible sight, it was in my hand haha. Police need to target and apply better thought out strategies to discourage phone use whilst driving, not nit-pick safer options.

Female, 19, Outside Metropolitan WA, noted that there is a lack of resources within the police to adequately deal with the behaviour under this theme:

I think they do their best trying to stop people driving with mobiles but there are more people compared to available officers on the road, making it difficult to catch most offenders.

However, there were some responses that were critical of police in their efforts to enforce mobile phone use while driving. These responses were coded as anti-police (n= 13, 8.50%). Female, 21, Metropolitan WA states that she has witnessed police using mobile phones while driving:

Considering I've seen many police driving with a phone in their hand I find it a little hypocritical to have them enforcing this law

Female, 23, Metropolitan WA also echoed the same sentiment in her response:

I understand why they do. but I have seen police driving on the phone and have a police car drive out I front of me once and the driver was on the phone. they also have radios and many other devices in their cars which are distractions. I honestly think that they should have to abide the same laws we do.

A small proportion of younger respondents questioned the tactics of Police in enforcing the law (n= 6, 3.92%). Male, 19, Metropolitan WA respondent expressed:

At times I believe they are invading ones privacy by looking into ones car and seeing what they are doing but in the long run it still stops the offence from occurring

Summary and Conclusion

This chapter presented the quantitative and qualitative results from the research tool. A robust sample was obtained. Five hundred and fiftynine respondents completed the survey, with 193 younger respondents between the ages of 17 and 25, the analyses of which were shown in this chapter. The research tool was found to have reliability and validity, and, with a satisfactory result from the power analysis, it was certain that the results from this survey would have statistical power. Results from chi-square tests revealed that most younger respondents had never suffered a social (ever been involved in a crash where the respondent was using a mobile phone while driving, and they were at fault or in hospital resulting from that crash) or legal consequence (ever been issued a caution or an infringement) as a result of using their mobile phone while driving. This may be a finding of interest, as 76.15% of all younger respondents reported having ever physically held and used a mobile phone while driving. Younger respondents who were male, held an Ordinary licence, drive >200km a week and resided outside the metropolitan area reported higher mean past behaviour scores,

as well as showing a more positive attitude, subjective norm and perceived behavioural control for using a mobile phone to make/receive calls, create/send text messages and access social media while driving than their counterparts. Concerning the intention to engage in these behaviours in the next week, results from hierarchical multiple regression models revealed that the TPB components (attitude, subjective norm and perceived behavioural control), and past behaviour, had the most significant influence on intention. Results from this study also revealed that past behaviour accounted for a reasonable amount of variance in the intention-behaviour relationship if used as a proxy for future behaviour. The results of qualitative analyses provided much information and insight for the younger respondents, which supplements the quantitative data in this study to answer the fifth research question. A majority of younger responses in the qualitative section had expressed that they thought that the current mobile phone use legislation and its penalties were adequate and justified, and that enforcement efforts by the Western Australian Police were adequate. However, there were smaller portions of the younger respondents that had expressed the opposite of these themes, which is to be expected of any sample. The importance of these results and connections with existing literature is illustrated in Chapter 7.

Chapter 7 Discussion

Aims of this chapter

This chapter provides a discussion of the results of the data analysis of younger respondents of the present study, and whether the research questions were answered. Linkages to other literature, limitations of the study, and potential outcomes of the present study are also presented.

The main research question for this study was "How well do the standard Theory of Planned Behaviour predictors together with the socio-demographic variables, knowledge of the legislation, and past mobile phone use behaviour predict intention to use the mobile phone while driving?" Other key research questions which contribute to answering the main research question are:

(1) What are the social and legal consequences of mobile phone use while driving experienced by younger respondents, and do these differ by gender, driving experience and region?

(2) What is the past prevalence of mobile phone use while driving of the younger respondents and do these differ by gender, driving experience and region?

(3) What are the attitudes, subjective norms and perceived behavioural controls to use a mobile phone while driving of younger respondents and does this differ by gender, driving experience and region?

(4) What is the intention to use a mobile phone while driving of younger respondents and do these differ by gender, driving experience and region?

(5) What is the ability of the younger respondents to be able to recall their knowledge of current mobile phone legislation and what are the younger respondents' enforcement experiences, and do these differ by gender, driving experience and region?

The power analysis for the minimum sample size required to achieve statistical power for the present study was 138 (as explained in Chapter 4). This number was exceeded, as 559 respondents of all ages had engaged in the survey, with 193 respondents being aged between 17 – 25 years. Therefore, the results from the present study demonstrate statistical power. However, the sample gained was biased, as it was collected through a convenience sample. As noted in Chapter 6, the average young respondent in the main study was most probably female, and around 21.17 years of age, who had already graduated the licence scheme when they obtained full licensure at around 17.77 years of age. They drive a moderate amount each week, which may include driving to and from university, their part time employment and their residence within the Metropolitan area of Western Australia. While they are in their vehicle, they may or may not have Bluetooth connectivity; however, they will most likely have an Apple iPhone, which does have Bluetooth capability. Therefore, it is likely that this study is not representative of the population of the general driving population, so all results may be specific to this population only, and may not reflect other populations or samples in other studies. In saying this, most of the existing literature which investigated the use of mobile phones while driving focus heavily on younger drivers and had a comparable mean age to the present study (Gupta et al., 2016; Hayashi et al., 2015; Terry & Terry, 2015).. In addition, most younger respondents attended the Edith Cowan university campus (96.89%) and engaged in part-time work (67.40%) which is comparable to other studies which that engaged university students via survey (Gupta et al., 2016; Hayashi et al., 2015; Terry & Terry, 2015).

Research Question 1 and 5: Social and legal consequences and experiences

The first research question was investigated by assessing the social and legal consequences of the respondents, and was analysed by chi-square tests. Most younger

respondents (n = 189, 97.92%) had never suffered social consequences of using a mobile phone while driving; that is, being involved in a crash where they were at fault and used a mobile phone while driving and had to attend hospital as a result of the crash. Of those respondents who have been at fault for a crash whilst using a mobile phone while driving (n = 4, 2.07%), no crashes reportedly required hospital attendance. These findings are relatively low compared with findings from Phommachanh et al. (2016) who reported 8% of their respondents (n= 883, *x* = 17.1) had crashes due to mobile phone use while riding motorcycles. However, using a mobile phone on a motorcycle is more difficult than using it while driving a motor vehicle. Additionally, the sample size is much larger, which also may account for the difference (Phommachanh et al., 2016). The findings are also comparatively low to those found by Terry and Terry (2015), as their study had more than half (63%) of the participants having experienced one or more near crashes, with 3.2% experiencing actual crashes. However, the present study did not ask whether the younger respondents or someone that they knew they had ever been involved in a crash where mobile phone use was a factor, regardless of fault. This possibly may have led to increased numbers. In addition, questions pertaining to whether the respondents had ever experienced "near-crashes" due to mobile phone use while driving may have also increased reports of social consequences. A previous study which had conducted a survey of university students involving their crash experiences and mobile phone use while driving (n= 385, mean age = 19.0) had shown that more than half (63%) of respondents experienced one or more near crashes and 3.2% experienced actual crashes (Terry & Terry, 2015). Findings from the present study regarding social consequences thus may be under representative of the social consequence that have been experienced by the younger respondents. However, low crash involvement found in the present study may support findings by Abouk and Adams (2013), who found that road crash levels due to mobile phone use while driving remain relatively stable over time. This can be

seen in the relatively low numbers of distraction related road crash fatalities in Western Australia, as it comprised of 8% of fatalities in 2015 and has been stable in the five year average from 2009 – 2014 (mean= 14) (Western Australia Road Safety Commission, 2016a).

Most respondents had also never suffered any legal consequences or contact with law enforcement; that is, never received a caution (n = 183, 94.82%) or an infringement (n = 185, 95.85%) for mobile phone use while driving. Of those who have, the majority received a caution (n = 10, 5.18%) rather than an infringement (n = 8, 4.15%). Younger respondents who drive shorter distances (<200km) reported having more cautions, and young female respondents and those who drive shorter distances (<200km) reported having proportionately more infringements than the sample as a whole. There are no similar findings in the existing literature, so this is a useful finding from this study.

Thematic analysis of expressed thoughts by younger drivers on law relating to mobile phone use while driving, its penalty, and the role of police in using a mobile phone while driving indicated that there is a low traffic police presence on the road, as these respondents commonly noted that they had witnessed other drivers using their mobile phones while driving. As shown in Chapter 6, one respondent described how the penalty for using a mobile phone while driving does not stop her from using a mobile phone while driving; it only made her look around to see if any police are present before she uses her mobile phone. Younger respondents have also noted that there is a lack of police presence in regional Western Australia and some respondents had witnessed police using their mobile phones or other devices while driving. Therefore, not only is there a large proportion of the survey sample that had never suffered any legal consequences, there are also younger respondents who believe they can hide their use, or believe that police are never present to catch themselves or others committing this type of offence. This is a significant finding from the present study and applies to the Western Australian context and the present study sample. The concealment

of mobile phone use while driving was explored in an earlier study by Gauld, Lewis, and White (2014) who reported high levels of non-detection by police despite the high prevalence of mobile phone use while driving.

There have been limited studies that have assessed the experiences of receiving cautions and infringements for mobile phone use while driving. Although, previous studies in Australia have noted that drivers expressed low likelihood of being apprehended by police, which the study had also confirmed through thematic analysis of the qualitative responses and low prevalence rates of experiencing legal consequences (McEvoy et al., 2006). Findings from the present study may indicate that the effects of law enforcement generally decrease over time, and is combated with increased and changing enforcement activity, which may be needed in Western Australia (as noted by Abouk and Adams (2013)). Psychology and criminology literature have also noted that the community requires contact with law enforcement in order to be deterred from engaging in an illicit activity. Therefore if there are no consequences to their behaviour, there is an increased motivation to engage in the behaviour (Tyler, 2006). The low proportion of younger respondents who have not had contact with the enforcement, coupled with high prevalence rates of using a mobile phone while driving, could possibly illustrate the need for police officers in Australia to witness that the driver is physically holding his phone while driving, requiring the police officer to be present at the time of the offence (Jessop, 2008). However, anecdotal evidence suggests that officers in other jurisdictions such as Queensland only require seeing if a mobile phone screen is lit, in order to apprehend the driver for using a mobile phone while driving. Nevertheless, low proportions of younger respondents who have had contact with enforcement could be due to limited police resources allocated to traffic activities in Western Australia.

However, efforts are being made by the Western Australian Police to apprehend more people who use their mobile phone while driving. The 2015-16 annual report of the Western Australia Police state that traffic police have a key performance indicator (KPI) of 90% of traffic contacts to be dedicated to apprehending "Category A" offences (Western Australia Police, 2016). Category A offences comprise of offences from *Road Traffic Act 1974* and the *Road Traffic Code 2000*. The Category A offences under the *Road Traffic Act 1974* are: driving under the influence of alcohol and/or drugs (Sections 63 to 68A), careless (Section 59BA and 62)/reckless (Sections 60 and 60A)/dangerous driving (Section 59A and 61), no authority to drive or driving an unlicensed vehicle (Section 49) (Government of Western Australia, 2017a; Western Australia Police, 2016). The Category A offences under the *Road Traffic Code 2000* are: non-camera speeding offences (Part 11), non-wearing of restraints/helmets (Part 16, Division 2) and using a mobile phone while driving (Regulation 265) (Government of Western Australia, 2017b; Western Australia Police, 2016). Traffic contacts include issuing a traffic infringement, charging an offender for a traffic offence, and conducting a preliminary breath or drug test (Western Australia Police, 2016). In 2015-16, the Western Australia Police had exceeded its target by 7.9% and had previously exceeded this target in previous financial years between 2011-12 and 2014-15 (Western Australia Police, 2016). However, it is unclear if the proportion of the 97.9% of traffic contacts were dedicated to mobile phone use while driving.

Additionally, the lack of social and legal consequences of using a mobile phone while driving by younger respondents may have contributed to a low perceived risk of being involved in a crash or being apprehended by enforcement. Whilst the present study did not directly measure this variable, given the low proportion of younger respondents who had experience social or legal consequences from mobile phone use while driving, it assumed that the perceived risk of experiencing a social or legal consequence is low. Having a low

perceived risk of experiencing a social or legal consequence may have contributed to the high prevalence of using a mobile phone while driving by the younger respondents as the majority younger respondents had previously held and used a mobile phone while driving (n = 147, 76.17%). This figure is higher than other Australian studies on mobile phone use while driving, who reported between 50% – 70% of their population samples had engaged in the activity (Waddell & Wiener, 2014; White et al., 2010; Young & Lenné, 2010; Young et al., 2010). The study's prevalence rate is aligned with studies in the USA (between 50% and 90%) (Beck & Watters, 2016; Bergmark et al., 2016; Bernstein & Bernstein, 2015; Delgado et al., 2016; Mizenko et al., 2015; Terry & Terry, 2015). Despite numerous studies which have indicated that mobile phone use while driving increases crash risk, the high prevalence of respondents reported using their device while driving, and the low proportion of people being involved in crashes, is contradictory (Bendak, 2015; Fitch et al., 2015). However, this may be supplemented by the younger respondents employing reducing risk strategies (as described in the thematic analyses), including using their mobile phone at traffic lights. This is shown as large proportion (64.80%) of younger respondents in the present study having used their mobile phones while at a traffic light in the last week.

The thematic analysis produced insights that were not gained by the quantitative analysis of the social and legal consequences of mobile phone use while driving. Although the majority younger respondents who expressed they understood the legislation and would want a complete ban on mobile phone use while driving, some respondents were unsure of the legislation, as demonstrated by the results of the legislative scenario scores. As seen in Appendix 1, the regulation wording specifies that mobile phones must not be held or otherwise manipulated whilst driving, or while stationary (i.e. at traffic lights) but not parked. There appeared to be confusion as to what constitutes actual mobile phone use, if it was only limited to the traditional functions of a mobile phone, such as calling and texting, or whether

it extended to other forms, such as changing music and utilising GPS. In the legislative scenario scores, a quarter of younger respondents were unsure about the legality of drivers who receive a phone call and physically pick up their phone, press to answer the call and place on loudspeaker, and place the phone nearby. This situation would contravene the regulations, as the driver physically held and manipulated the device, thus being eligible for the penalty if witnessed by a Police officer. The majority of younger respondents also noted that the penalty for using a mobile phone while driving (currently $450 and three demerit points) is justified; however, there were some respondents who suggested a graded penalty system, similar to drink driving laws, according to the number of times the offence has been committed, or the severity of risk. Although this may sound feasible in theory, there may be difficulties in the enforcement of different fines and penalties, which may send a convoluted message that the hand-held mobile phone use while driving could be tolerated in some circumstances. This is not the view of the Government of Western Australia today. For instance, a news article published on ABC Online on the 7th of January 2017 stated that emergency workers are extracting mobile phones that are embedded in bodies of people who have had fatal or critical injuries from road crashes where mobile phone use was a factor (Laschon, 2017). This article included interviews from the Police and Road Safety, Minister Hon. Liza Harvey and Road Safety Commissioner Kim Papalia who expressed their concern about mobile phone use while driving (Laschon, 2017). In addition, results from the Pearson's Product-Movement Correlation analyses which assessed the correlation between each scenario score and the intention to make/receive calls while driving in the next week, create/send text messages while driving in the next week or accessing social media while driving in the next week, reveals that the knowledge of the legislation may not significantly influence a younger respondent from the present study to use a mobile phone to engage in these behaviours.

Concerning the enforcement of mobile phone use while driving, most younger respondents noted that they are satisfied with current Police efforts. However, there were younger respondents who provided comments that were against the actions and enforcement behaviour of police, and had witnessed police officers using mobile phones or other devices whilst driving, therefore questioning the legitimacy of the seriousness of the issue. Younger respondents also commented that more police resources are required to combat mobile phone use while driving, which is being combated as explained previously with Western Australian KPIs for traffic. However, it is evident with the high prevalence rate, as discussed below, that more effort is required to reduce mobile phone use while driving in Western Australia

Research Question 2: Past Behaviour

The second research question regarding past behaviour of the engagement in mobile phone use to make/receive calls, create/send text messages and access social media while driving by younger respondents was assessed. Past behaviour may have also contributed to a lower perceived risk of using a mobile phone while driving. Younger males respondents, younger respondents who hold Ordinary licences, younger respondents who drive >200km per week and younger respondents who live outside the metropolitan area of Western Australia had significantly higher mean past behaviour scores; that is, these subgroups of the sample in the present study use their mobile phones while driving to make/receive calls, create/send text messages and access social media more so than their counterparts (younger female respondents, younger respondents who hold Provisional licences, younger respondents who drive <200km a week and younger respondents who reside in the metropolitan area of Western Australia). Therefore, this subset of drivers may be more confident in their driving ability, and, as they have a full rather than a provisional license, and drive for long distances, using a mobile phone while driving may be a task which may be considered beneficial. Previous studies indicate that males are more likely to participate in

risky driving behaviour in general, as they tend to seek high-perceived rewards at the expense of risk (Glendon, 2011; Roberts & Indermaur, 2005). In 2015 in Western Australia, males comprised of 73.21% (n = 118) of fatalities and ages 17-24 comprised of 19.88% (n= 32) of fatalities, which indicate that these drivers are also prominent in road crash related fatalities (Western Australia Road Safety Commission, 2016a). Other studies also found younger drivers to using mobile phones more often when driving than older drivers (Hallett, Lambert, & Regan, 2011).

Slightly higher past behaviour mean scores were observed in making/receiving a call and creating/reading text messages than accessing social media while driving. This means that younger respondents reported using a mobile phone to make/receive calls and create/read text messages while driving more so than using a mobile phone to access social media while driving. This may indicate that making/receiving calls and creating/sending text messages could be more commonly engaged mobile phone activities than driving while accessing social media. This may be due to the perception that calling and texting are still the traditional capabilities of a mobile phone and may be perceived as more beneficial to engage in, rather than accessing social media while driving. This has also been reflected in the thematic analysis, as younger respondents stated that they do not engage in social media while driving despite still calling and texting while driving. Younger respondents mean scores reveal that they appeared to have used their mobile phones to make/receive calls while driving “rarely” to “sometimes” in the past week. The past behaviour scales are open to interpretation as no specified number of usage per week was provided as seen in other studies (Delgado et al., 2016). Therefore, “rarely” to “sometimes” may mean less than three times per week or as much as three times per week for example, and as such, cannot be accurately compared with to other studies. Provisional license holders had the lowest mean scores and respondents travelling >200km a week had the highest making/receiving calls while driving

mean scores. As provisional drivers are yet to graduate the licensure scheme, it may be possible that these drivers take greater care while driving, as provisional drivers in Western Australia have fewer demerit points to accrue than ordinary licence holders (Department of Transport Western Australia, 2014).

Younger respondents' mean texting scores reveal that they had reported the same frequency of engagement in this behaviour as receiving/making calls in the past week. Therefore, the actual frequency is also up to interpretation and is difficult to compare to other studies. Younger respondents who are more experienced (Ordinary licence holders), drive longer distances (>200km a week) and reside outside the metropolitan area report a higher frequency of creating/sending text messages on their mobile phone while driving. Previous studies have indicated that drivers who live outside the metropolitan region tend to have higher usage relating to texting while driving than those who live in the metropolitan region (Delgado et al., 2016). This may be due to increased time spent in vehicles, or reduced police presence outside the metropolitan areas. Higher levels of using a mobile phone to create/send text messages while driving outside the metropolitan region may also contribute to higher crash risk. As Thompson et al. (2013) stated, there is a higher chance of being involved in a fatal or serious crash in regional Western Australia than in the metropolitan Western Australia.

Younger respondents' mean scores for accessing social media while driving reveals that they appeared to never or rarely engage in the behaviour. However, it is difficult to compare these findings to wider research as research on social media use while driving is limited. Delgado et al. (2016) found that social media use while driving was as high as 41% among teenagers aged 16-19 years in the USA. However, as this study contains older respondents, this may account for the differences. Statistically significantly higher mean scores were held by males and respondents who drive >200km per week. Provisional drivers

scored the lowest mean score and male respondents recording the highest mean score. Again, provisional drivers may be exhibiting safer driving behaviours for fear of apprehension, and males tend to engage in risky driving behaviour more so than females (Glendon, 2011; Roberts & Indermaur, 2005).

Concerning the types of traffic situations where younger respondents use their mobile phone while driving, results indicate that most young respondents who use their device while driving, use it while stopped at traffic lights and in a suburban street. Younger males, younger respondents with Ordinary licences and younger respondents who drive >200km a week had statistically significantly higher mean scores. They used their mobile phones while driving in more traffic situations than their counterparts. Another possible reason for higher past behaviour levels for mobile phone use while driving is automaticity. As mentioned previously in Chapter 3 and 4, automaticity is where an individual has had repeated exposure to the same traffic conditions or environment so that they become less responsive to these traffic conditions, compared to when the individual first encountered the traffic conditions (Charlton & Starkey, 2013). Younger respondents in the present study may have complacency and automaticity to familiar environments (such as being stopped at traffic lights and driving on suburban streets) and are more careless when driving, matching findings by Charlton and Starkey (2013) in their investigation of automaticity and inattention.

Overall, the reported past behaviour of younger respondents was relatively low, ranging from "never" to "sometimes" using a mobile phone to make/receive calls, create/send text messages and access social media while driving in the past week. However, as noted previously, this scale is open to interpretation and does not have quantitative measures that would allow results to be compared with other studies. In addition, the general reporting of driving errors by younger respondents may not be a true reflection of the actual driving errors they commit: that is, they may underestimate their driving errors (using a mobile phone while

driving), or social desirability has prohibited them to provide true responses of their driving error. This has been found in the study by involving surveys of younger participants (n = 6133, mean age= 17.44 years) as their results revealed that frequencies of participants reported to be a passenger with a driver who engaged in texting while driving were higher than participants who self-reported this behaviour (Tucker et al., 2015). Having said this, throughout all past behaviour analyses, younger respondents with Provisional licences had the lowest past behaviour mean scores, indicating that this group had the lowest reported usage levels of mobile phone use while driving. This has not been mentioned in previous studies, as previous studies have not analysed differences in usage levels according to licence type. This is therefore a unique finding to the present study.

Research Question 3 and 4: Attitudes, Subjective Norm, Perceived Behavioural Control and Intention

The third research question of the influence of TPB components (attitude, subjective norm, perceived behavioural control and intention) coupled with the demographic variables and past behaviour of each mobile phone use type (making/receiving calls while driving, creating/sending text messages while driving and accessing social media while driving) was assessed through independent t-tests and hierarchical multiple regression. The key parameters of TPB successfully provided the theoretical framework for the present study. Attitudes towards each behaviour, subjective norms of each behaviour and perceived behavioural controls of each behaviour had predicted the intention to engage in the behaviour in the following week ($p < 0.05$).

Attitude

The attitude mean scores from independent t-tests reveal that younger respondents "Strongly disagreed" to "Disagreed" with positive attitude statements concerning using a mobile phone while driving to make/receive calls, create/send text messages and accessing

social media. The analyses also found that younger male respondents, young respondents with Ordinary licences and younger respondents who drive >200km a week had more positive attitudes towards all behaviours ($p < 0.05$). As noted in Chapter 3, attitudes that are readily available, held with certainty, stable over time and associated with past behaviour are more apt to more strongly influence behaviour (Glasman & Albarracín, 2006; Kraus, 1995). If the younger respondents in the present study have held the negative attitudes within these parameters, this may explain the low levels of past behaviour use of mobile phones while driving.

Subjective norm

Younger respondents had expressed negative subjective norms relating to mobile phone use while driving, as mean subjective norm scores indicate that they "strongly disagreed" to "disagreed" to positive statements concerning their subjective norms of making/receiving calls while driving, creating/sending text messages while driving and accessing social media while driving. Younger male respondents, younger respondents with Ordinary licences, younger respondents who drive >200km a week and younger respondents who reside outside the metropolitan area had more positive subjective norms towards making/receiving calls while driving, creating/sending text messages while driving and accessing social media while driving ($p < 0.05$). Cultural differences within the present study sample may also have contributed to low subjective norm levels towards mobile phone use while driving. This has been found in other studies (Rothengatter & Manstead, 1997). Low injunctive norms found for the present study is contrary to other studies. A study by Chen and Donmez (2016) who assessed younger drivers (under the age of 30) found that younger drivers appeared to be more influenced by injunctive norms than older drivers in predicting engagement in technology based distractions. In addition, low injunctive norms from the present study is notable, because previous studies have found that using a mobile phone while

driving is seen as more socially acceptable than driving under the influence of alcohol. The present study thus presents a contradictory finding (Terry & Terry, 2016).

Perceived social pressure was also assessed, concerning the need to respond to messages within the subjective norm questions (please refer to questions 2.39, 2.41 and 2.49 in the research tool in Appendix 5). Low levels of pressure were reported, which is contrary to findings by Atchley et al. (2011) who noted that their sample of respondents had high levels of pressure to respond to their family and friends while driving, and override any perceptions of risk to use their mobile phone while driving. This may be attributed to low levels of past behaviour engagement in mobile phone use while driving by the younger respondents in the present sample. However, the present study had only measured injunctive norms, as younger respondents were asked if the specified mobile phone use behaviour would be approved by family or friends. The significance of descriptive norms regarding other traffic violations (speeding and dangerous driving) to predict the intention to engage in these behaviours is present in other studies (Forward, 2009). Therefore, if descriptive norms would have been assessed, this study may be more comparable to other studies.

Perceived behavioural control

Younger respondents appeared to express more confidence in their ability (perceived behavioural control) to make/receive calls and creating/reading text messages while driving slightly more so than accessing social media while driving. However, overall scores indicate that the perceived behavioural control levels are low for all three mobile phone use behaviours ($p < 0.05$). This may indicate that drivers can distinguish and admit the differences in their ability to call, text and access social media while driving. Younger male respondents, younger respondents with Ordinary licences, younger respondents who drive >200km a week had expressed higher self-perceived levels of behavioural control in terms of making/receiving calls while driving, creating/sending text messages and accessing social

media while driving ($p < 0.05$). Previous studies have confirmed that perceived behavioural controls are a significant influence in the decision to engage in traffic violations (Castanier et al., 2013). This may explain the link between low perceived behavioural control levels and low levels of past behaviour of using a mobile phone while driving to make/receive calls, create/send text messages, and accessing social media while driving in the present study.

Intention

Overall, younger respondents had expressed low intention to use their mobile phone to make/receive calls, create/send text messages and access social media while driving in the next week, as they had "strongly disagreed" to "disagreed" (on average) with the direct intention statements in the research tool. Independent t-tests were performed to assess the associations with the intention to engage in making/receiving calls, creating/sending text messages and accessing social media in the next week with the independent variables (gender, licence stage, kilometres driven per week and region). Younger male respondents, younger respondents with Ordinary licences, younger respondents who drive >200km a week and younger respondents who live outside the metropolitan region had higher intention mean scores, thus having a higher intention level to engage in making/receiving calls, creating/sending text messages and accessing social media while driving in the next week ($p < 0.05$). Significant differences in gender relating to the intention to engage in mobile phone use while driving have also been found in other studies (Castanier et al., 2013; Chen & Donmez, 2016; Chen et al., 2016). This may be the case as younger male respondents reported more favourable attitudes, subjective norms and perceived behavioural controls towards making/receiving calls while driving, creating/sending text messages while driving and accessing social media while driving than females, as indicated by their significantly higher mean scores ($p < 0.05$).

Nine hierarchical multiple regression models were performed in the present study, with three models performed for the intention of making/receiving calls while driving, creating/sending text messages while driving and accessing social media while driving in the next week. Variables were entered in three steps, with the first step having the TPB components (attitude, subjective norm and perceived behavioural control); the second step having the independent variables (gender, licence stage, kilometres driven per week and region) and the third step having the past behaviour of engaging in calling/texting/accessing social media in the previous week. All full models which contained all inputted variables against the intention to engage in making/receiving calls while driving, creating/sending text messages while driving and accessing social media while driving in the next week were statistically significant ($p < 0.05$).

The TPB components of each behaviour on their own (i.e. the first step/models) statistically significantly predicted the intention to perform the behaviour in the following week in the present study ($p < 0.05$). This supports the results from the independent t-tests, as negative attitudes, subjective norms and low levels of perceived behavioural control predicted the low intention level of engaging in the mobile phone use behaviours in the following week. Studies that have been referenced in the present study have noted the inverse; that is, positive attitudes, more catering subjective norms and high levels of perceived behavioural control predicts the intention to engage in mobile phone use while driving.

Concerning the power of prediction in the first step/models, all TPB components (attitude, subjective norm and perceived behavioural control) had positive correlations with the intention to make/receive calls, create/send text messages and access social media while driving in the next week. Subjective norm had the highest unstandardized coefficients and perceived behavioural control had the lowest unstandardized coefficients ($p < 0.05$) for the prediction of the intention to making/receiving calls while driving in the next week. The

significant power of subjective norms in the prediction of the intention to engage in mobile phone use while driving has also been found in other studies (Prat et al., 2015; Rowe et al., 2016; Terry & Terry, 2016; Waddell & Wiener, 2014; White et al., 2010). Concerning the intention to create/send text messages while driving, attitude had the highest unstandardized coefficients while perceived behavioural control had the lowest unstandardized coefficients ($p < 0.05$). This finding matches the results from Nemme and White (2010), as their investigation of psychosocial influences on texting while driving among university students found that attitude was also the largest contributing factor on the intention to engage in the behaviour. Attitude is one of the stronger predictors of intention out of the TPB (Armitage & Conner, 2001). Finally, concerning the prediction of accessing social media while driving, perceived behavioural controls had the highest unstandardized coefficients, while subjective norm had the lowest unstandardized coefficients ($p < 0.05$). Perceived behavioural control was also the largest predictor in hierarchical multiple regression models for the intention to engage in mobile phone use while driving in other studies (Waddell & Wiener, 2014). The influence of subjective norms in the prediction of the intention to engage in the mobile phone use behaviours may be of interest, as other studies have stated that subjective norms are generally seen as the weakest predictor of intention due to poor measurement (Armitage & Conner, 2001). However, as noted above, subjective norm was the largest predictor in the intention to make/receive calls in the next week, but it was the weakest predictor in the intention to access social media in the next week. These findings, however, only apply to the present study, which has a biased sample, and may explain this variation.

The addition of the demographic variables did not statistically significantly predict the intention to make/receive calls, create/send text messages and access social media while driving in the next week in the present study (i.e. the second step/models) ($p < 0.05$). This may be of interest given results from the independent t-tests suggest that there are differences

for each TPB component, but when assessed in a hierarchical multiple regression with the TPB components, these differences are not significant. This may suggest that the intention to make/receive calls, create/send text messages and access social media in the next week by the younger respondents in the present study is not significantly influenced by their gender, licence type, the amount of kilometres driven per week or region where they reside. In other studies, gender was been found to have as a significant correlations in the intention to engage in mobile phone use while driving (Chen & Donmez, 2016; Chen et al., 2016).

The addition of the past behaviour mean scores of each behaviour (i.e. the third step/full models) statistically significantly predicted the intention to make/receive calls, create/send text messages and access social media while driving in the next week in the present study ($p < 0.05$). Results showed positive correlations between past behaviour of all behaviours and the intention to engage in each behaviour. Additional analyses with correlated the past behaviour mean scores with the intention scores of each behaviour using Pearson's Product-Movement Correlation also illustrated that strong positive correlations were found ($p < 0.01$). Past behaviour has been recognised as a useful predictor of future behaviour especially where no intervention has been provided (Bonta & Andrews, 2010; Conner & Armitage, 1998; Cottle, Lee, & Heilbrun, 2001). The data here indicated reasonable accounted for variance in the intention-past behaviour relationship. Future studies should include actual future behaviour and previous behaviour to determine a direct correlation and review the potential proxy relationship.

Limitations

There were some limitations in the present study. Primarily, the profile of sample respondents in the present study is likely to be biased, and thus the results may only apply to this sample and may not translate to other populations. Due to resource constraints, this study only investigated mobile phone use behaviour in one subset of a broader population in

Western Australia. Although this study has filled a much-needed gap in the literature regarding mobile phone use while driving in Western Australia, future studies could use broader samples thereby capturing other cohorts of the wider population. Regarding the demographic variables, the question in reference to driving experience could have been more transparent. For instance, the question, "Approximately how many kilometres do you drive per week", could have been amended to: "How many days a week do you drive your car?" This may make information retrieval easier than estimating kilometres driven per week. As noted previously, the Likert scales relating to past behaviour were open to interpretation, thus it was difficult to compare past behaviour usage with other studies. More defined scales, such as the number of times the younger respondents engaged in this behaviour in the last week, may have provided information that is more precise. This could also have been combated if the pilot studies were used to better validate the scale anchors.

In addition, survey questions relating to social consequences could have asked younger respondents on "near-crash" involvement, rather than asking if the respondents were involved in a crash as well as being at fault for using a mobile phone while driving. This may have collected a higher number of reported social consequences thus contribute to the TPB components of using a mobile phone while driving. Concerning the TPB, the data collection in the present study was limited to attitude, subjective norm, perceived behavioural control and intention. Follow up behaviours to assess whether respondents had followed through with their intentions were not sought, as this would have involved a second data collection from the same respondents who were not identified in their survey responses as per the ethics requirements. This issue was combated by using collected past behaviour as a proxy for future behaviour, which has been applied in previous studies. However, as collection for past behaviour and intention were collected at the same time, the intention to perform the

behaviour may have inflated the correlation. This was also noted in other studies (Bonta & Andrews, 2010; Conner & Armitage, 1998; Cottle et al., 2001).

The present study nevertheless had many strengths. It has filled the research gap in the driver distraction literature in Western Australia, and has provided more current information on the TPB components relating to mobile phone use while driving. This study also investigated differences of the TPB components and behaviour between licence type, kilometres travelled per week and Western Australian regions (metropolitan and non-metropolitan region) for making/receiving calls, creating/sending text messages and accessing social media while driving. Regarding accessing social media while driving, the present study is the first type of study which has included social media use (to the best of the author's knowledge) which is important, given its existing and growing influence in the lives of the population. The present study also assessed legislation knowledge and enforcement experiences which (to the best of the author's knowledge) has also not been researched previously.

Implications for Theory, Policy and Practice

The findings of this study support the foundations of the TPB, in that attitudes, subjective norms and perceived behavioural controls towards a behaviour influences and are positively correlated with the intention to engage in that behaviour, as well as intention having a positive influence on future behaviour. The present study not only found strong positive correlations between the TPB and intention, but also found weak positive correlations. Perceived behavioural control had the weakest correlation in predicting the intention to make/receive calls and create/send text messages while driving in the next week. However, perceived behavioural control was the strongest predictor in the intention to use a mobile phone while driving to access social media in the next week.

The present study also benefited from the TPB for providing the structure for the research tool, and to perform hierarchical multiple regression to assess the prediction of intention. This study nevertheless could have used many other models which allowed for more variation, and inclusion of other variables which would have made the present study more unique. Although the TPB is a well-grounded theory and has a wealth of evidence supporting its practicality (including the present study), road safety literature may benefit from adopting other and contemporary theoretical models, in order to produce more robust findings which may benefit the research community.

In terms of policy development, it is evident that greater traffic police enforcement and resources are required to apprehend unsuspecting drivers who use their mobile phone while driving, as it was found that the majority respondents in this study have had no contact with police, and yet reported a high prevalence rate of using a mobile phone while driving. Qualitative responses suggested that the absence of traffic police presence, especially in regional areas, is of particular concern. Policy makers may also consider whether future drivers who obtain their licensure ensure that they are fully aware of the legalities surrounding mobile phone use while driving, which may be done by adding additional questions to the theory assessment required when potential drivers obtain their 'Learner Driver' status. Considering the high number of respondents who expressed that the law should have fewer restrictions when using mobile phones while stationary and not parked (i.e. when stopped at traffic lights), policy makers may choose to closely examine whether this amendment to the regulation is feasible; and, if not, then education is needed to inform the public of the existing laws as noted below. However, the present study did find that legislation knowledge (which most younger respondents illustrated they had adequate understanding of the restrictions on the use of mobile phones while driving) did not significantly influence the intention to use a mobile phone while driving to make/receive

calls, create/send text messages or access social media while driving, which may call for more education, as noted below.

More education of the social (increased crash involvement) and legal (being fined) consequences of using a mobile phone while driving may be appropriate to reduce the future prevalence of using a mobile phone while driving. Due to the differences in the TPB components in the prediction of intention of each mobile phone use behaviour, the structure of the education surrounding non-use of handheld actions of making/receiving calls, creating/sending text messages, and accessing social media while driving may need to have different components. For instance, addressing positive attitudes towards creating/sending text messages would be the focus of an intervention, to reduce creating/sending text messages while driving. In addition, as there were no significant differences in gender, licence stage, kilometres drive per week and region, interventions could translate across these demographics.

However, existing educational resources and information for drivers in Western Australia is already present, despite many younger respondents noting that they were unaware of where to find such material. A website dedicated to mobile phone use while driving legislation and research in Australia, 'Keep your eyes on the road', is active, and is one of the top searches in Google when "mobile phone use while driving Australia" is entered (Australian Mobile Telecommunications Association, 2017). The Road Safety Commission of Western Australia website also has educational resources concerning mobile phone use while driving laws, penalties and research and information on other road safety issues (Road Safety Commission, 2017). These educational resources could perhaps be amended to better influence attitude, subjective norm and perceived behavioural control.

Finally, the present study illustrates that mobile phones play a significant role in Australian society and this role is not only limited to using the device while driving. As the

younger respondents noted in the thematic analysis, the reliance on mobile phones to perform day to day activities has outweighed the risk of using the device while driving, which creates increased crash risk and risk of being apprehended by police. This is shown by the contradictory nature of the results that this study found; that is, most respondents had negative attitudes towards the behaviour, subjective norms which do not support the use of mobile phones while driving and low to moderate perceived behavioural control of the behaviour.

The qualitative responses illustrate that despite these factors, younger drivers still use their mobile phones while driving for a variety of reasons. The results in this study may be used as a foundation for education or interventions to influence beliefs about using a mobile phone while driving. The findings from the present study may also promote discussion on the possibility of how technology could encourage drivers not to use their mobile phone while driving.

Future directions for research

The present study may be the foundation for future research on mobile phone use while driving in Western Australia, Australia, and globally. Through amending the limitations and legislative components, the present study could be replicated in different populations to assess the TPB components of making/receiving calls, creating/sending text messages and accessing social media while driving. Future research could also consider supplementing this research with an observational study that assesses the actual behaviour of the respondent against what they self-reported in the research tool. Another consideration for researchers is the possibility of retaining and following up with the respondents who completed the survey to assess whether they followed through with the intention to engage in making/receiving calls, creating/sending text messages or accessed social media in the following week (or other timeframe).

Chapter 8 Conclusion

Mobile phone use while driving is a present and growing public health and criminal issue in Western Australia, Australia and globally. As technology has advanced, mobile phones and social media have mobile phone users dependent and reliant on their mobile phones; not only for communication, but for a source of information and entertainment. Previous studies had not explored mobile phone use while driving in Western Australia in recent years, especially the possible impact of accessing social media while driving, and social and legal consequences that may have been experienced. The present study investigated the use of mobile phones while driving to make/receive calls, create/send text messages and access/create social media using an online survey that was made available to students at Edith Cowan University in Western Australia. The present study gained a sample of 559 respondents, 193 of whom were aged in the key demographic between 17 and 25 years. Components of the TPB relating to each mobile phone use behaviour were investigated (attitude, subjective norm, perceived behavioural control and intention), as well as social (crashes resulting from mobile phone use while driving) and legal (cautions or infringements issued due to mobile phone use while driving) consequences. Results revealed that mobile phone use while driving was found to be highly prevalent whilst driving, as 76.17% of younger respondents have used their mobile phone while driving. This high prevalence in the sample exists despite the younger respondents demonstrating negative attitudes, non-supportive subjective norms, and low perceived behavioural control regarding all three behaviours, as well as displaying a robust knowledge of the laws. In addition, most younger respondents had never suffered any social or legal consequences as a result of their mobile phone use while driving behaviour. Reported past behaviour in the previous week was also low, which is contrary to the reported high prevalence rate. Results have also revealed that younger male respondents, younger respondents with Ordinary licences, younger respondents

who drive >200km each week on average and younger respondents who reside outside the metropolitan area have shown more positive attitudes, subjective norms, and a higher level of perceived behavioural controls and intention than their counterparts ($p < 0.05$). There was also no statistically significant association between legislative knowledge and the intention to engage in the mobile phone use behaviours in the following week. Therefore, results from the present study may promote discussion and development of more education, social marketing and intervention possibilities to influence attitude, subjective norm and perceived behavioural control of using a mobile phone while driving.

Appendix 1 Regulation 265: Use of Mobile Phones

The following is the exact wording of Regulation 265 of the *Road Traffic Code 2000 (Government of Western Australia, 2017b)* which specifies non-mobile phone use while driving under certain circumstances:

265. Use of mobile phones

(1) In this regulation —

body, in relation to a mobile phone, means the part of the phone that contains the majority of the phone's mechanisms;

held includes held by, or resting on, any part of the driver's

body, but does not include held in a pocket of the driver's clothing or in a pouch worn by the driver;

mobile phone does not include a CB radio or any other two-way radio;

use, in relation to a mobile phone, includes any of the following actions by the driver of a vehicle —

(a) hold the phone;

(b) enter or place anything into the phone, or send or look at anything that is in the phone;

(c) turn the phone on or off;

(d) operate any other function of the phone.

(2) A driver of a vehicle must not use a mobile phone while the vehicle is moving, or is stationary but not parked, unless —

(a) the phone is being used to make or receive a phone call, other than a text message, video message, email or similar communication, and the body of the phone —

(i) is secured in a mounting affixed to the vehicle while being so used; or

(ii) is not secured in a mounting affixed to the vehicle and is not being held by the driver, and the use of the phone does not require the driver at any time while using it, to press any thing on the body of the phone or otherwise to manipulate any part of the body of the phone; or

(b) the visual display of the phone is being used as a driver's aid in accordance with regulation 264 and the use of the phone does not require the driver, at any time while using it, to press any thing on the body of the phone or otherwise to manipulate any part of the body of the phone.

Points:

(a) during a holiday period: 6;

(b) other than during a holiday period: 3.

Modified penalty: 8 PU.

(3) For the purposes of this regulation, a driver does not use a mobile phone if —

(a) a text message, video message, email or similar communication is received automatically by the phone; and

(b) on and after the receipt, the communication itself, rather than any indication that the communication has been received, does not become automatically visible on the screen of the phone.

[Regulation 265 inserted in Gazette 19 Nov 2010 p. 5756-7; amended in Gazette 4 Apr 2014 p. 886; 9 Sep 2014 p. 3247.]

Appendix 2 Pilot Study 1 Survey

Information sheet

An investigation of mobile phone use while driving

BACKGROUND Mobile phone use for any purpose while driving is common and widespread in Western Australia. In certain circumstances it is an unlawful activity and although the penalty for the activity has increased, people still continue to engage in this behaviour. Given that social media is largely popular, it is also assumed that people access their social media accounts whilst driving. This project investigates driver intention to use a mobile phone while driving, the type of activities they engage in, and their understanding of the current law and their experiences with enforcement. This project has been approved by the ECU Human Research Ethics Committee (project number 12464).

REQUESTS This project asks you to complete the survey. The survey will take, at most, ten minutes to complete and is anonymous. To be eligible for this survey, you must own a mobile phone AND have a valid driver's license. You will be asked to supply demographic information - year of birth, residential postcode and gender. If you wish to supply your mobile phone number, email address and/or alternative contact details, you will be in the draw for a chance to win one of three $50 fuel vouchers. Your contact details will be used for the draw and will not be associated with your survey responses. Participation is voluntary and you may withdraw at any time. If you choose to withdraw, any questions you may have answered will still be collected as the survey is anonymous. By choosing the "I agree" button at the bottom of the page you are providing your consent to participate. If you do not agree and do not wish to consent to participate, please choose the "I do not agree" button. This will close the survey window. All contact details will be securely disposed, once the prizes have been drawn.

Once all surveys have been collected, all chosen methods of contacts will be placed in a random generator and three participants will be chosen to win the fuel vouchers. Once the winners have been identified, all identifying information will be securely removed from a password protected computer.

This survey will ask questions regarding crash and near crash involvement which may cause discomfort. If you wish to speak to someone about your concerns, please contact ECU counselling at counselling@ecu.edu.au or phone 9370 6706. You can also contact Road Trauma Support WA on 9420 7262. Both these services are free of charge to access..

Your responses to some of the questions may disclose illegal activity, therefore, we ask you to please refrain from disclosing any information which could identify yourself.

If you have any concerns or complaints about the conduct of this survey, please contact the Research Ethics Officer below:
Research Ethics Officer
Edith Cowan University
270 Joondalup Drive JOONDALUP WA 6027
Phone: (08) 6304 2170 Email: research.ethics@ecu.edu.au

Further information about the study can be obtained from Sokunthea Kruy on 0401 799 090 or sokunthk@our.ecu.edu.au.
The outcomes of this project will be:
•Greater understanding of driver's intention to use a mobile phone while driving,
•Assessing whether social media use is largely present on the roads,
•Greater understanding of driver's understanding of law and enforcement concerning mobile phone use while driving, and
•Publication of results in a suitable journal for dissemination amongst policy and road safety researchers.

The results of the study will be available after December 2016. If you would like to be notified of the results, please contact the researcher independently via sokunthk@our.ecu.edu.au.
Many thanks for your help.
Sokunthea Kruy, Chief Investigator
Dr Cath Ferguson, Supervisor
Dr Margaret Giles, Supervisor

- ❍ I agree and consent to participate in this survey (1)
- ❍ I do not agree and do not consent to participate in this survey (2)

If I do not agree and do not c... Is Selected, Then Skip To End of Survey

Q2 Please select your year of birth

- ❍ 1930 (1)
- ❍ 1931 (2)
- ❍ 1932 (3)
- ❍ 1933 (4)
- ❍ 1934 (5)
- ❍ 1935 (6)
- ❍ 1936 (7)
- ❍ 1937 (8)
- ❍ 1938 (9)
- ❍ 1939 (10)
- ❍ 1940 (11)
- ❍ 1941 (12)
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- ❍ 1993 (64)
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- ❍ 1996 (67)
- ❍ 1997 (68)
- ❍ 1998 (69)
- ❍ 1999 (70)
- ❍ 2000 (71)

Q3 Please enter your postcode

Q4 What is your gender?

- ❍ Male (1)
- ❍ Female (2)

Q5 Do you have less than 1 year of driving experience?

- ❍ Yes (1)
- ❍ No (2)

Q6 If you have less than 1 year of driving experience, how may months of driving experience you have?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)
- 11 (11)

Q7 If you have more than 1 year of driving experience, how many years of driving experience do you have?

- 2 (1)
- 3 (2)
- 4 (3)
- 5 (4)
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- 57 (56)
- 58 (57)
- 59 (58)
- 60 (59)

Q8 Which ECU campus do you spend the most time at?

- Mount Lawley (1)
- Joondalup (2)
- Bunbury (3)
- I do not attend ECU (4)

Q9 What is your usual occupation?

Q10 Do you have a valid driver's license?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Q11 What type of driving license do you currently have?

- Provisional 1 (Red plates) (1)
- Provisional 2 (Green Plates) (2)
- Ordinary (Manual) (3)
- Ordinary (Automatic) (4)
- Other (5)

Q12 What type of license do you have?

Q13 Do you own a mobile phone?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Q14 What is your mobile phone handset?

- Apple (1)
- Blackberry (2)
- HP (3)
- HTC (4)
- Huawei (5)
- Lenovo (6)
- LG (7)
- Microsoft (8)
- Motorola (9)
- Nokia (10)
- Other (11)
- Samsung (12)
- Sony (13)
- Sony Erricson (14)
- Xiaomi (15)

Q15 Does your vehicle have a hands free kit?

- Yes (1)
- No (2)

Q16 Approximately how many kilometers do you drive a week?

Q17 Have you ever physically held AND used a mobile phone while driving?

- Yes (1)
- No (2)

Q18 Have you ever been issued an infringement for using your mobile phone while driving?

- Yes (1)
- No (2)

Q19 Have you ever been issued a caution for using your mobile phone while driving?

- Yes (1)
- No (2)

Q20 Have you ever been involved in a crash where you as the driver were using a mobile phone while driving?

- Yes (1)
- No (2)

Q21 Were you physically holding your phone while driving or using a hands-free kit?

- Physically holding a phone while driving (1)
- Using a hands-free kit (2)

Q22 In the past week, how often did you use your mobile phone to make and/or receive calls while driving?

- Not at all (1)
- (2)
- (3)
- Sometimes (4)
- (5)
- (6)
- Very often (7)

Q25 Were you physically holding your phone while driving or using a hands-free kit?

- Physically holding a phone while driving (1)
- Using a hands-free kit (2)

Q23 In the past week, how often did you use your mobile phone to make and/or read text messages while driving?

- ❍ Not at all (1)
- ❍ (2)
- ❍ (3)
- ❍ Sometimes (4)
- ❍ (5)
- ❍ (6)
- ❍ Very often (7)

Q24 Were you physically holding your phone while driving or using a hands-free kit?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a hands-free kit (2)

Q26 In the past week, how often did you use your mobile phone to use social media while driving? This includes all social media, such as Facebook, Twitter, Instagram, Snapchat etc.

- ❍ Not at all (1)
- ❍ (2)
- ❍ (3)
- ❍ Sometimes (4)
- ❍ (5)
- ❍ (6)
- ❍ Very often (7)

Q27 Were you physically holding your phone while driving or using a hands-free kit?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a hands-free kit (2)

Q28 In the past week, did you use your mobile phone in the following traffic situations?Please choose more than one traffic situation if it applies

- ❑ At the traffic lights (1)
- ❑ On a suburban street (2)
- ❑ On a major road (for example, Canning Hwy, Reid Hwy, Blair St, etc) (3)
- ❑ On a high-speed road (for example, Forrest Hwy, Freeway South, Freeway North, etc) (4)
- ❑ None of the above (5)

Q29 In the next week I intend to use my mobile phone to make a call while driving

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q30 Will you physically holding your phone while driving or using a hands-free kit?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a hands-free kit (2)

Q31 I do not believe that using my mobile phone to make calls while driving is beneficial

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q32 I need to use my mobile phone to make calls while driving to stay connected

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q33 My friends and family are not supportive of making calls while driving

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q34 I would never use my mobile phone to make calls while driving when I am driving other passengers in the car

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q35 I would always use my mobile phone to make calls while driving when I am the only one in the car

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q36 I cannot easily drive safely and use my mobile phone to make calls while driving simultaneously

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q37 I can easily use my mobile phone to make calls when the car is not moving at all/very little/at a slow speed

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q38 In the next week, I intend to use my mobile phone to use and/or check social media while driving

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q39 Will you physically holding your phone while driving or using a hands-free kit?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a hands-free kit (2)

Q40 I do not believe that using my mobile phone to use and/or check social media while driving is beneficial

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q41 I need to use my mobile phone to use and/or check social media while driving to stay connected

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q42 My friends and family are not supportive of using and/or checking social media while driving

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q43 I would never use my mobile phone to use and/or check social media while driving when I am driving other passengers in the car

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q44 I would always use my mobile phone to use and/or check social media while driving when I am the only one in the car

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q45 I cannot easily drive safely and use my mobile phone to use and/or check social media while driving simultaneously

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q46 I can easily use my mobile phone to use and/or check social media when the car is not moving at all/very little/at a slow speed

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q47 In the next week, I intend to use my mobile phone to use send a text message while driving

- Totally disagree (1)
- (2)
- (3)
- Neutral (4)
- (5)
- (6)
- Totally agree (7)

Q48 Will you physically holding your phone while driving or using a hands-free kit?

- Physically holding a phone while driving (1)
- Using a hands-free kit (2)

Q49 I do not believe that using my mobile phone to send a text message while driving is beneficial

- Totally agree (1)
- (2)
- (3)
- Neutral (4)
- (5)
- (6)
- Totally disagree (7)

Q50 I need to use my mobile phone to send text messages while driving to stay connected

- Totally disagree (1)
- (2)
- (3)
- Neutral (4)
- (5)
- (6)
- Totally agree (7)

Q51 My friends and family are not supportive of sending text messages driving

- Totally agree (1)
- (2)
- (3)
- Neutral (4)
- (5)
- (6)
- Totally disagree (7)

Q52 I would never use my mobile phone to send text messages while driving when I am driving other passengers in the car

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q53 I would always use my mobile phone to send text messages while driving when I am the only one in the car

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q54 I cannot easily drive safely and use my mobile phone to send text messages while driving simultaneously

- ❍ Totally agree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally disagree (7)

Q55 I can easily use my mobile phone to send text messages when the car is not moving at all/very little/at a slow speed

- ❍ Totally disagree (1)
- ❍ (2)
- ❍ (3)
- ❍ Neutral (4)
- ❍ (5)
- ❍ (6)
- ❍ Totally agree (7)

Q56 The following scenarios involve people using their mobile phones while driving around Perth. Please decide whether you think their actions are legal or illegal. If you are not sure about any of these scenarios, please check the “Unsure” option. While Mary was driving along Tonkin Hwy, her mobile phone (which she kept in the cup holder beside her as she did not have a hands-free kit) was ringing. It was her friend, and she was expecting this call all day as her friend had very important news about a potential job for Mary. Mary picks up the phone and answers it to her ear. Is this illegal?

- Legal (1)
- Illegal (2)
- Unsure (3)

Q57 John was driving along Reid Hwy. He's a tradesman and his phone is constantly ringing from people requesting quotes. He receives a call from a potential customer for a bathroom renovation. His phone is in the passenger's seat. John did not answer his phone but when he reaches a set of traffic lights he picks up the phone and texts the customer saying he'll call back in about half an hour when he reaches his office. Is this illegal?

- Legal (1)
- Illegal (2)
- Unsure (3)

Q58 Alice was driving on the way home from uni along Freeway North. She's had a bad day and needed some cheering up. Her sister calls her on her phone which is in the passenger's seat. Alice picks up the phone to press to answer, puts the call on loudspeaker and then places the phone back in the passenger’s seat where she is able to hear her sister and vice versa. Is this illegal?

- Legal (1)
- Illegal (2)
- Unsure (3)

Q59 Rebecca was driving to pick a friend up on the way to a party. Her phone is held in a suction cup, attached to the windscreen. She sees that her friend is calling her. As Rebecca's phone is in "Car Mode", it allows her to answer her phone by saying "Answer" and she proceeds to do so. After they had a chat, Rebecca waits for her friend to hang up so she doesn't have to. Is this illegal?

- Legal (1)
- Illegal (2)
- Unsure (3)

Q60 Daniel was driving back home from his best friend's birthday party on Canning Hwy during peak hour traffic and his car and the other cars around him were moving at about 5 km/h. His phone was in the cup holder next to the driver's seat and it vibrated suddenly. Daniel then picked up his phone and

saw that his friend uploaded and tagged an embarrassing photo of him. He commented on the photo making fun of him. Is this illegal?

- ❍ Legal (1)
- ❍ Illegal (2)
- ❍ Unsure (3)

Q61 What are your thoughts on the current mobile phone use while driving law? Please feel free to include any thoughts on this the current mobile phone while driving laws. For instance, do you think it is comprehensive? Is it easy to understand? Do you think the penalties should be more or less harsher? Do you think there should be a complete ban on mobile phone use while driving?

Q62 What are your thoughts on the penalty for using a mobile phone while driving? The penalty for contravening Regulation 265 (Use of a mobile phone while driving) of the Road Traffic Code 2000 is $400 and 3 demerit points. Please feel free to include any thoughts on this matter. For instance, do you think this penalty is justified? Do you think the Police are catching enough people?

Q63 Why do you use your mobile phone while driving? Please feel free to share any thoughts/reasons on why do you use your mobile phone while driving.

Q64 Do you wish to be in the draw to win a fuel voucher?

- ❍ Yes (1)
- ❍ No (2)

Q65 Please fill out your contact details below

Email address (preferred) (1)
Mobile number (2)
Alternative contact (3)

Q68 Instructions for participants

The above survey is based on the Theory of Planned Behavior (TPB) (Ajzen, 1991) which investigates and predicts behavior from attitude, subjective norms and perceived behavioral control in relation to using a mobile phone while driving. In addition to completing the questionnaire I need to know your thoughts and feelings about the questionnaire and its structure. Your responses will help me make the questionnaire more user friendly and relevant.

Q69 How long did it take you to complete the questionnaire?

Q70 If you chose to complete this survey, please indicate how long you would be prepared to spend completing such a survey.

Q71 What feelings did you have about the nature of the survey? Were your feelings positive, negative or neither?

Q72 Was the survey interesting for you to complete?

- Yes (1)
- No (2)

Q73 Why was the survey not interesting to complete?

Q74 How relevant did you find the questions to using a mobile phone while driving?

- Not relevant (1)
- Somewhat not relevant (3)
- Undecided (4)
- Somewhat relevant (5)
- Relevant (6)

Q75 Please detail any other comments that you think might improve the structure and design of the questionnaire. Where these comments relate to a specific question please tell me the question number.

Q76 THANK YOU VERY MUCH FOR YOUR ASSISTANCE!

Appendix 3 Pilot Study 1 Feedback

Participants 1 to 5

Participant		1	2	3	4	5
		Female, 32	**Male, 35**	**Male, 40**	**Female, 33**	**Female, 29**
Question	**Question Text**					
Q1	**Faculty of Business and Law An investigation of mobile phone use while driving Mobile phone use…**	No Q1 at the top – off putting. Subtitles – on the information sheet – easy to the eye. Should put "law enforcement". Once prizes have been drawn – rearrange. Counselling email – underline, phone number – add area code		Remove "Q1" at the top as it would put him off. There should be a warning on the front information sheet that explicitly states that you will be removed from the survey if you do not own a mobile phone or if you do not have a valid driver's license – should place these questions at the very beginning or on the information sheet as well		
Q5	**Do you have less than 1 year of driving experience?**					Change to "Do you have more than 1 year of driving experience" – more straight forward
Q14	**What is your mobile phone handset?**	Put "brand" instead of "handset"				
Q16	**Approximately how many kilometres do you drive a week?**	Give people option blocks - i.e 0km-10km				

Q20	**Have you ever been involved in a crash where you as the driver were using a mobile phone while dr...**	What sort of crash? There are a lot of variables in this question			
Q30	**Will you physically holding your phone while driving or using a hands-free kit?**	Connect this question to Q.29 - i.e. "do you intend to physically…"	Missing? (Display logic)		
Q31	**I do not believe that using my mobile phone to make calls while driving is beneficial**	Confusing - needs to be reworded. Make it into a statement	Vague and confusing	Could change to "…can be beneficial"	Avoid the double negative – put a positive and negative on the same side. Perhaps change “I do not believe” into “I do believe”
Q32	**I need to use my mobile phone to make calls while driving to stay connected**		Vague and confusing. Stay connected should be in commas i.e. "stay connected"		
Q33	**My friends and family are not supportive of making calls while driving**	Make this into a positive statement. Friends and family are different. Generally, family is more concerned about one's safety. Split this question into two			

Q34	**I would never use my mobile phone to make calls while driving when I am driving other passengers...**		Remove grammatical errors	
Q35	**I would always use my mobile phone to make calls while driving when I am the only one in the car**		Q.34 and Q.35 must be consistent – i.e. I would never should be on both or I would always should be both not both options. Scale should not be flipped	
Q36	**I cannot easily drive safely and use my mobile phone to make calls while driving simultaneously**			Change "I cannot" to "I can"
Q37	**I can easily use my mobile phone to make calls when the car is not moving at all/very little/at a...**		Q.37 change “easily” to “Safely”. Be consistent with Q.36	
Q39	**Will you physically holding your phone while driving or using a hands-free kit?**	Connect this question to Q.38 - i.e. "do you intend to physically…"	Q.38 change “I intend” to “I will probably” or “I may use” because the person may not intentionally use their mobile phone while driving	

Q40	**I do not believe that using my mobile phone to use and/or check social media while driving is ben...**	Confusing - needs to be reworded. Make it into a statement	Vague and confusing	Avoid the double negative – put a positive and negative on the same side. Perhaps change “I do not believe” into “I do believe”
Q41	**I need to use my mobile phone to use and/or check social media while driving to stay connected**		Vague and confusing. Stay connected should be in commas i.e. "stay connected"	
Q42	**My friends and family are not supportive of using and/or checking social media while driving**	Friends and family are different. Generally, family is more concerned about one's safety. Split this question into 2		
Q44	**I would always use my mobile phone to use and/or check social media while driving when I am the o...**		Q.43 and Q44. must be consistent – i.e. I would never should be on both or I would always should be both not both options. Scale should not be flipped	

Q45	**I cannot easily drive safely and use my mobile phone to use and/or check social media while drivi...**	Make this into a positive statement		Change "I cannot" to "I can"
Q48	**Will you physically holding your phone while driving or using a hands-free kit?**	Connect this question to Q.47 - i.e. "do you intend to physically…"		
Q49	**I do not believe that using my mobile phone to send a text message while driving is beneficial**	Make this into a positive statement	Vague and confusing	Avoid the double negative – put a positive and negative on the same side. Perhaps change “I do not believe” into “I do believe”
Q50	**I need to use my mobile phone to send text messages while driving to stay connected**		Vague and confusing. Stay connected should be in commas i.e. "stay connected"	
Q51	**My friends and family are not supportive of sending text messages driving**	Friends and family are different. Generally, family is more concerned about one's safety. Split this question into 2		

Q53	**I would always use my mobile phone to send text messages while driving when I am the only one in...**		Q.52 and Q453. must be consistent – i.e. I would never should be on both or I would always should be both not both options. Scale should not be flipped	
Q54	**I cannot easily drive safely and use my mobile phone to send text messages while driving simultan...**	Make this into a positive statement		Change "I cannot" to "I can"
Q56	**The following scenarios involve people using their mobile phones while driving around Perth. Plea...**		For all scenarios, change answers to “Yes”, “No” “Unsure” instead of “Illegal”, “Legal”, “Unsure” as it may be leading and does not make sense	
Q58	**Alice was driving on the way home from uni along Freeway North. She's had a bad day and needed so...**		Remove or complete “uni” into “university”. There is no Freeway North – change to Mitchell Freeway	

Q59	**Rebecca was driving to pick a friend up on the way to a party. Her phone is held in a suction cup...**		Change “suction cup” to “cradle”
Q61	**What are your thoughts on the current mobile phone use while driving law? Please feel free to inc...**	Before question 61 – put a statement that says that the following questions are not compulsory but written responses will help study. Put what the current law is.	
Q62	**What are your thoughts on the penalty for using a mobile phone while driving? The penalty for con...**		“Do you think the Police are catching people” does not belong

General feedback	Questions seemed to repeat however once he was filling out the survey he could understand the layout and why it was set up in such a manner. Suggested to have very clear section which outlines question blocks on voice calls, text messages and social media. Change statements to make it more clear. Survey was clear, user-friendly an easy to understand	Have clear section headings which separate questions on voice calls, text messages and social media otherwise it is repetitive	Would be useful to have “back” and “next” on navigation buttons	Suggested to have an initial question at the beginning which asks the individual if they use their mobile phone for: voice calls, text messages, social media, voice calls and text messages, voice calls and social media ect and only show the relevant sections. Liked the scenarios

Participants 6 to 10

	Participant	6	7	8	9	10
		Female, 25	**Female, 33**	**Female, 21**	**Female, 24**	**Male, 65**
	Participant notes		*These individuals had no contact with the researcher so the researcher could only source answers from the last part of the survey.*			
Question	**Question Text**					
Q5	**Do you have less than 1 year of driving experience?**	Rephrase. Perhaps change to "at least one year of driving experience"	Could be changed to "At what age did you get your license"			
Q6	**If you have less than 1 year of driving experience, how may months of driving experience you have?**	Remove "If you have less/more than…"				
Q7	**If you have more than 1 year of driving experience, how many years of driving experience do you h...**	Remove "If you have less/more than…"				
Q8	**Which ECU campus do you spend the most time at?**	Should be moved further up, after Gender as they do not belong in current section				

Q9	**What is your usual occupation?**	Should be moved further up, after Gender as they do not belong in current section	
Q15	**Does your vehicle have a hands free kit?**		Add a “Bluetooth” option. Change to “Does your vehicle have: a bluetooth option to connect your phone, a hand free cradle, both”. Consider adding a follow up question – “Do you use it?” and have a scale
Q16	**Approximately how many kilometers do you drive a week?**	Change into number blocks i.e. 0-10km – prevent people from overthinking	Amend to “each week”
Q19	**Have you ever been issued a caution for using your mobile phone while driving?**	Should be before Q.18 – a caution should be before an infringement	
Q22	**In the past week, how often did you use your mobile phone to make and/or receive calls while driv...**	22, 25, 23 and 24 should be on the same page	Use “voice call” instead of “phone call”

Q25	**Were you physically holding your phone while driving or using a hands-free kit?**	22, 25, 23 and 24 should be on the same page	On the page after where it asks whether you plan to use your phone for certain tasks and then asks specific questions on that, the first question asks whether this will be handheld or hands free, however doesn't reiterate what task is being performed. Maybe include this otherwise people might assume just in general?
Q23	**In the past week, how often did you use your mobile phone to make and/or read text messages while...**	22, 25, 23 and 24 should be on the same page	
Q24	**Were you physically holding your phone while driving or using a hands-free kit?**	22, 25, 23 and 24 should be on the same page	On the page after where it asks whether you plan to use your phone for certain tasks and then asks specific questions on that, the first question asks whether this will be handheld or hands free, however doesn't reiterate what task is being performed. Maybe include this otherwise people might assume just in general?

Q27	**Were you physically holding your phone while driving or using a hands-free kit?**	On the page after where it asks whether you plan to use your phone for certain tasks and then asks specific questions on that, the first question asks whether this will be handheld or hands free, however doesn't reiterate what task is being performed. Maybe include this otherwise people might assume just in general?	
Q28_4	**In the past week, did you use your mobile phone in the following traffic situations? Please choos...- On a high-speed road (for example, Forrest Hwy, Freeway South, Freeway North, etc)**		Change Freeway South to Kwinana Freeway and Freeway North to Mitchell Freeway

Q29	**In the next week I intend to use my mobile phone to make a call while driving**	Above Q.29 should be a statement which states "The following series of questions concerning making a voice call while driving". Q.29 and Q.30 should be on the same page		Slightly change wording on the scale if changing question – make into a definitive statement
Q30	**Will you physically holding your phone while driving or using a hands-free kit?**	Q.29 and Q.30 should be on the same page	On the page after where it asks whether you plan to use your phone for certain tasks and then asks specific questions on that, the first question asks whether this will be handheld or hands free, however doesn't reiterate what task is being performed. Maybe include this otherwise people might assume just in general?	Change to "hands free kit option"
Q31	**I do not believe that using my mobile phone to make calls while driving is beneficial**	Avoid the double negative		Change "beneficial" – who is it beneficial to?

Q32	**I need to use my mobile phone to make calls while driving to stay connected**		"stay connected" – FOMO (Fear of missing out)
Q33	**My friends and family are not supportive of making calls while driving**	Should change to "How supportive are family and friends" and change the scale to "very supportive, not supportive" etc	Family and friends are different
Q34	**I would never use my mobile phone to make calls while driving when I am driving other passengers...**	Change to "When there are other passengers in the car, I would never use my phone"	Change "other" to "with". Remove "would" and make it into a statement

Q35	**I would always use my mobile phone to make calls while driving when I am the only one in the car**	Change to “when I am the only one in the car”		Change to “I only” – there would be only one person in the car. Add a follow up question – why don’t you use a phone when passengers are in the car and add multiple choice answers such as: "Passengers can answer a call/reply back to text message/check social media"; "Passengers would not want me to use the phone" because - Considered inappropriate, I don’t/they don’t, I don’t care/they don’t care, I don’t care but my passengers care, My passengers don’t care but I care; Nobody tells me what to do; Only endangers myself
Q36	**I cannot easily drive safely and use my mobile phone to make calls while driving simultaneously**	Confusing – rephrase. Individuals would have to spend too long thinking about the question. Question is presuming a response. Change to a firm and concise statement.		Rephrase. Place “simultaneously” before “driving”

Q37	**I can easily use my mobile phone to make calls when the car is not moving at all/very little/at a...**	There are 3 questions in one – should separate them out.		Three questions in one – separate o Slow speed o Speed limit or higher o Not moving
Q38	**In the next week, I intend to use my mobile phone to use and/or check social media while driving**	Should be a statement which states "The following series of questions concerning using social media while driving"		Slightly change wording on the scale if changing question – make into a definitive statement
Q39	**Will you physically holding your phone while driving or using a hands-free kit?**	Display logic question does not work	On the page after where it asks whether you plan to use your phone for certain tasks and then asks specific questions on that, the first question asks whether this will be handheld or hands free, however doesn't reiterate what task is being performed. Maybe include this otherwise people might assume just in general?	

Q40	**I do not believe that using my mobile phone to use and/or check social media while driving is ben...**	Avoid the double negative	
Q41	**I need to use my mobile phone to use and/or check social media while driving to stay connected**		Family and friends are different
Q42	**My friends and family are not supportive of using and/or checking social media while driving**	Should change to "How supportive are family and friends" and change the scale to "very supportive, not supportive" etc	
Q43	**I would never use my mobile phone to use and/or check social media while driving when I am drivin...**	Change to "When there are other passengers in the car, I would never use my phone"	Change "other" to "with". Remove "would" and make it into a statement

Q44	**I would always use my mobile phone to use and/or check social media while driving when I am the o...**	Change to “when I am the only one in the car”		Change to “I only” – there would be only one person in the car. Add a follow up question – why don’t you use a phone when passengers are in the car and add multiple choice answers such as: "Passengers can answer a call/reply back to text message/check social media"; "Passengers would not want me to use the phone" because - Considered inappropriate, I don’t/they don’t, I don’t care/they don’t care, I don’t care but my passengers care, My passengers don’t care but I care; Nobody tells me what to do; Only endangers myself
Q45	**I cannot easily drive safely and use my mobile phone to use and/or check social media while drivi...**	Confusing – rephrase. Individuals would have to spend too long thinking about the question. Question is presuming a response. Change to a firm and concise statement.		“simultaneously” is in the wrong spot

Q46	**I can easily use my mobile phone to use and/or check social media when the car is not moving at a...**	There are 3 questions in one – should separate them out.		Three questions in one – separate o Slow speed o Speed limit or higher o Not moving
Q47	**In the next week, I intend to use my mobile phone to use send a text message while driving**	Should be a statement which states "The following series of questions concerning text messaging while driving"		Slightly change wording on the scale if changing question – make into a definitive statement
Q48	**Will you physically holding your phone while driving or using a hands-free kit?**		On the page after where it asks whether you plan to use your phone for certain tasks and then asks specific questions on that, the first question asks whether this will be handheld or hands free, however doesn't reiterate what task is being performed. Maybe include this otherwise people might assume just in general?	

Q49	**I do not believe that using my mobile phone to send a text message while driving is beneficial**	Avoid the double negative	
Q51	**My friends and family are not supportive of sending text messages driving**	Should change to "How supportive are family and friends" and change the scale to "very supportive, not supportive" etc	Family and friends are different
Q52	**I would never use my mobile phone to send text messages while driving when I am driving other pas...**	Change to "When there are other passengers in the car, I would never use my phone"	
Q53	**I would always use my mobile phone to send text messages while driving when I am the only one in...**	Change to "when I am the only one in the car"	

Q54	**I cannot easily drive safely and use my mobile phone to send text messages while driving simultan...**		"simultaneously" is in the wrong spot
Q55	**I can easily use my mobile phone to send text messages when the car is not moving at all/very lit...**		Three questions in one – separate o Slow speed o Speed limit or higher o Not moving
Q56	**The following scenarios involve people using their mobile phones while driving around Perth. Plea...**	Modernise the names. Change answers to "Yes", "No" and "Unsure"	
Q58	**Alice was driving on the way home from uni along Freeway North. She's had a bad day and needed so...**	Change to "Alice presses the answer button"	

Q60	**Daniel was driving back home from his best friend's birthday party on Canning Hwy during peak hou...**		remove “making fun of him” in the last sentence.
Q61	**What are your thoughts on the current mobile phone use while driving law? Please feel free to inc...**	Rephrase. Amend the little text – “more or less harsher” should be “more or less harsh”	Should extrapolate questions. Could make yes or no answers based on little text
Q63	**Why do you use your mobile phone while driving? Please feel free to share any thoughts/reasons o...**	Should not be there as there are many other previous questions which answer it	Why is this in here?

General feedback	For all scales – text should be on all of the options i.e. hardly ever. Change "Alternative contact" to "Alternative contact number"	The individual took 5 minutes to complete the survey and would give 5 minutes to complete the survey if asked externally from the pilot study. When asked about how interesting the survey is to complete – the individual checked "Yes". The individual thought the survey was very relevant to mobile phone use while driving	The individual took 10 minutes to complete the survey but would be willing to give 10-20 minutes if approached externally from the pilot study. The individual had positive feelings toward the survey as they "agree with mobile restriction laws". The survey was interesting to complete. The survey was "somewhat relevant" to using a mobile phone while driving	The individual took 10 minutes to complete the survey and would be willing to give the same amount of time to complete the survey if approached externally. Feelings towards the survey was neutral and was interesting to complete. They survey was relevant to mobile phone use while driving. Also for the scales for each question, these switch around from agree/disagree on the left depending on the question. Might be better to have the scale the same way for each question i.e. disagree left and agree right or vice versa	Have separate blocks to distinguish voice calls, text messages and social media. Mentioned GPS – it is still an illegal option to use GPS on a phone according to current law. Should have questions regarding attitudes towards police enforcement. I use my phone openly because I don't care about getting caught/penalty does not mean anything to me etc

Appendix 4 Pilot Survey 2

An investigation of mobile phone use while driving

BACKGROUND Mobile phone use for any purpose while driving is common and widespread in Western Australia. In certain circumstances it is an unlawful activity and although the penalty for the activity has increased, people still continue to engage in this behaviour. Given that social media is largely popular, it is also assumed that people access their social media accounts whilst driving. This project investigates driver intention to use a mobile phone while driving, the type of activities they engage in, and their understanding of the current law and their experiences with enforcement. This project has been approved by the ECU Human Research Ethics Committee (project number 12464).

REQUESTS This project asks you to complete the survey. The survey will take, at most, ten minutes to complete and is anonymous. To be eligible for this survey, you must own a mobile phone AND have a valid driver's license. You will be asked to supply demographic information - year of birth, residential postcode and gender. If you wish to supply your mobile phone number, email address and/or alternative contact details, you will be in the draw for a chance to win one of three $50 fuel vouchers. Your contact details will be used for the draw and will not be associated with your survey responses. Participation is voluntary and you may withdraw at any time. If you choose to withdraw, any questions you may have answered will still be collected as the survey is anonymous. By choosing the "I agree" button at the bottom of the page you are providing your consent to participate. If you do not agree and do not wish to consent to participate, please choose the "I do not agree" button. This will close the survey window. All contact details will be securely disposed once the prizes have been drawn. Once all surveys have been collected, all chosen methods of contacts will be placed in a random generator and three participants will be chosen to win the fuel vouchers. Once the winners have been identified, all identifying information will be securely removed from a password protected computer.

This survey will ask questions regarding crash and near crash involvement which may cause discomfort. If you wish to speak to someone about your concerns, please contact ECU counselling at counselling@ecu.edu.au or phone 9370 6706. You can also contact Road Trauma Support WA on 9420 7262. Both these services are free of charge to access.

Your responses to some of the questions may disclose illegal activity, therefore, we ask you to please refrain from disclosing any information which could identify yourself. If you have any concerns or complaints about the conduct of this survey, please contact the Research Ethics Officer below:
Research Ethics Officer

Edith Cowan University
270 Joondalup Drive
JOONDALUP WA 6027
Phone: (08) 6304 2170 Email: research.ethics@ecu.edu.au

Further information about the study can be obtained from Sokunthea Kruy on 0401 799 090 or sokunthk@our.ecu.edu.au.

The outcomes of this project will be:

•Greater understanding of driver's intention to use a mobile phone while driving,

•Assessing whether social media use is largely present on the roads,

•Greater understanding of driver's understanding of law and enforcement concerning mobile phone use while driving, and

•Publication of results in a suitable journal for dissemination amongst policy and road safety researchers.

The results of the study will be available after December 2016. If you would like to be notified of the results, please contact the researcher independently via sokunthk@our.ecu.edu.au.

Many thanks for your help.

Sokunthea Kruy, Chief Investigator

Dr Cath Ferguson, Supervisor

Dr Margaret Giles, Supervisor

- ❍ I own a mobile phone AND have a valid license AND agree to consent to participate in this survey (3)
- ❍ I do not agree and do not consent to participate in this survey (2)

If I do not agree and do not c... Is Selected, Then Skip To End of Survey

Q2.1 The following questions concern your demographic information, general driving habits and other relevant details

Q2.2 Please select your year of birth

- ❍ 1930 (1)
- ❍ 1931 (2)
- ❍ 1932 (3)
- ❍ 1933 (4)
- ❍ 1934 (5)
- ❍ 1935 (6)
- ❍ 1936 (7)
- ❍ 1937 (8)
- ❍ 1938 (9)
- ❍ 1939 (10)
- ❍ 1940 (11)
- ❍ 1941 (12)
- ❍ 1942 (13)
- ❍ 1943 (14)
- ❍ 1944 (15)
- ❍ 1945 (16)
- ❍ 1946 (17)
- ❍ 1947 (18)
- ❍ 1948 (19)
- ❍ 1949 (20)
- ❍ 1950 (21)
- ❍ 1951 (22)
- ❍ 1952 (23)
- ❍ 1953 (24)
- ❍ 1954 (25)
- ❍ 1955 (26)
- ❍ 1956 (27)
- ❍ 1957 (28)
- ❍ 1958 (29)
- ❍ 1959 (30)
- ❍ 1960 (31)
- ❍ 1961 (32)
- ❍ 1962 (33)
- ❍ 1963 (34)
- ❍ 1964 (35)
- ❍ 1965 (36)
- ❍ 1966 (37)
- ❍ 1967 (38)
- ❍ 1968 (39)
- ❍ 1969 (40)
- ❍ 1970 (41)
- ❍ 1971 (42)
- ❍ 1972 (43)
- ❍ 1973 (44)
- ❍ 1974 (45)
- ❍ 1975 (46)

- 1976 (47)
- 1977 (48)
- 1978 (49)
- 1979 (50)
- 1980 (51)
- 1981 (52)
- 1982 (53)
- 1983 (54)
- 1984 (55)
- 1985 (56)
- 1986 (57)
- 1987 (58)
- 1988 (59)
- 1989 (60)
- 1990 (61)
- 1991 (62)
- 1992 (63)
- 1993 (64)
- 1994 (65)
- 1995 (66)
- 1996 (67)
- 1997 (68)
- 1998 (69)
- 1999 (70)
- 2000 (71)

Q2.3 Please enter your postcode

Q2.4 What is your gender?

- Male (1)
- Female (2)

Q2.5 Which ECU campus do you spend the most time at?

- Mount Lawley (1)
- Joondalup (2)
- Bunbury (3)
- I do not attend ECU (4)

Q2.6 What is your usual occupation?

Q2.7 At what age did you get your license?

Q2.8 What stage in the licensing process are you in?

- Provisional 1 (Red plates) (1)
- Provisional 2 (Green Plates) (2)
- Ordinary (Manual) (3)
- Ordinary (Automatic) (4)

Q2.9 What is your mobile phone brand?

- Apple (1)
- Blackberry (2)
- HP (3)
- HTC (4)
- Huawei (5)
- Lenovo (6)
- LG (7)
- Microsoft (8)
- Motorola (9)
- Nokia (10)
- Other (11)
- Samsung (12)
- Sony (13)
- Sony Erricson (14)
- Xiaomi (15)

Q2.10 Does your vehicle have a Bluetooth option?

- Yes (1)
- No (2)
- I don’t know (3)

Q2.11 Approximately how many kilometers do you drive a week?

- 0-50 (1)
- 51-100 (2)
- 101-200 (3)
- 201-300 (4)
- Over 301 (5)

Q2.12 The following questions concern your involvement with law (concerning using a mobile phone while driving) and crashes

Q2.13 Have you ever physically held AND used a mobile phone while driving?

- ❍ Yes (2)
- ❍ No (1)

Q2.14 Have you ever been issued a caution for using your mobile phone while driving?

- ❍ Yes (2)
- ❍ No (1)

Q2.15 Have you ever been issued an infringement for using your mobile phone while driving?

- ❍ Yes (2)
- ❍ No (1)

Q2.16 Have you ever been involved in a crash where you as the driver were using a mobile phone while driving?

- ❍ Yes (2)
- ❍ No (1)

Q2.17 If you have ever been involved in any sort of crash where you as the driver were using a mobile phone while driving, did someone had to go to hospital as a result of the crash?

- ❍ Yes (1)
- ❍ No (2)

Q2.18 If you have ever been involved in any sort of crash where you as the driver were using a mobile phone while driving, were you physically holding your phone while driving or using a Bluetooth option or a combination of both?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a Bluetooth option (2)
- ❍ Combination of both (3)

Q2.19 The following questions concern your usage of a mobile phone while driving in the past week

Q2.20 In the past week, how often did you use your mobile phone to make and/or receive calls while driving?

- ❍ Never (1)
- ❍ Rarely (2)
- ❍ Occasionally (3)
- ❍ Sometimes (4)
- ❍ Frequently (5)
- ❍ Usually (6)
- ❍ Every time (7)

If Never Is Selected, Then Skip To When you used your phone to make and/...

Q2.21 When you used your phone to make and/or receive calls while driving, were you physically holding your phone while driving or using a Bluetooth option or a combination of both?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a Bluetooth option (2)
- ❍ Combination of both (3)

Q2.22 In the past week, how often did you use your mobile phone to create, read or send text messages while driving?

- ❍ Never (1)
- ❍ Rarely (2)
- ❍ Occasionally (3)
- ❍ Sometimes (4)
- ❍ Frequently (5)
- ❍ Usually (6)
- ❍ Every time (7)

If Never Is Selected, Then Skip To In the past week, how often did you u...

Q2.23 When you used your phone to create, read or send text messages were you physically holding your phone while driving or using a Bluetooth option or a combination of both?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a Bluetooth option (2)
- ❍ Combination of both (3)

Q2.24 In the past week, how often did you use your mobile phone to use social media while driving? This includes all social media, such as Facebook, Twitter, Instagram, Snapchat etc.

- ❍ Never (1)
- ❍ Rarely (2)
- ❍ Occasionally (3)
- ❍ Sometimes (4)
- ❍ Frequently (5)
- ❍ Usually (6)
- ❍ Every time (7)

Q2.25 In the past week, did you use your mobile phone in the following traffic situations?Please choose more than one traffic situation if it applies

- ❑ At the traffic lights (1)
- ❑ On a suburban street (2)
- ❑ On a major road (for example, Canning Hwy, Reid Hwy, Blair St, etc) (3)
- ❑ On a high-speed road (for example, Forrest Hwy, Kwinana Freeway, Mitchell Freeway, etc) (4)
- ❑ None of the above (5)

Q2.26 The following are a series of statements concern using your mobile phone to make calls while driving

Q2.27 In the next week I intend to use my mobile phone to make a call while driving

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree of disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q2.28 I believe making calls while driving can be beneficial for me

- ❍ Strongly agree (7)
- ❍ Agree (6)
- ❍ Somewhat agree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (3)
- ❍ Disagree (2)
- ❍ Strongly disagree (1)

Q2.29 I need to make calls while driving to “stay connected” to my social networks

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly Agree (7)

Q2.30 My family are not supportive of making calls while driving

- ❍ Strongly agree (1)
- ❍ Agree (2)
- ❍ Somewhat agree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (5)
- ❍ Disagree (6)
- ❍ Strongly disagree (7)

Q2.31 My friends are supportive of making calls while driving

- ❍ Strongly agree (7)
- ❍ Agree (6)
- ❍ Somewhat agree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (3)
- ❍ Disagree (2)
- ❍ Strongly disagree (1)

Q2.32 When other passengers are in the car I would never make calls while driving

- ❍ Strongly agree (1)
- ❍ Agree (2)
- ❍ Somewhat agree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (5)
- ❍ Disagree (6)
- ❍ Strongly disagree (7)

Q2.33 When I am the only one in the car I would always make calls while driving

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q2.34 I can drive safely and make calls simultaneously

- ❍ Strongly agree (7)
- ❍ Agree (6)
- ❍ Somewhat agree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (3)
- ❍ Disagree (2)
- ❍ Strongly disagree (1)

Q2.35 I can easily use my mobile phone to make calls when the car is:

	Totally disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Not travelling at all (i.e. 0km/h) (1)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very little speed (i.e. 1km/h to 20km/h) (2)	❍	❍	❍	❍	❍	❍	❍
Travelling at a slow speed (i.e. 21km/h to 50km/h) (3)	❍	❍	❍	❍	❍	❍	❍
Travelling at a moderate speed (i.e. 51km/h to 70km/h) (4)	❍	❍	❍	❍	❍	❍	❍
Travelling at a high speed (i.e. 71km/h to 100km/h) (24)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very high speed (i.e. over 101km/h) (25)	❍	❍	❍	❍	❍	❍	❍

Q2.36 The following are a series of statements concern using your mobile phone to access social media while driving

Q2.37 In the next week, I intend to use my mobile phone to use and/or check social media while driving

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q2.38 I believe that checking social media while driving can be beneficial for me

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.39 I need to check social media while driving to “keep up to date” with my social media

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q2.40 My family do not approve of using and/or checking social media while driving

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree or disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q2.41 My friends are supportive of using and/or checking social media while driving

- ❍ Strongly agree (7)
- ❍ Agree (6)
- ❍ Somewhat agree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (3)
- ❍ Disagree (2)
- ❍ Strongly disagree (1)

Q2.42 When I am driving other passengers in the car I would never use or check social media while driving

- ❍ Strongly agree (1)
- ❍ Agree (2)
- ❍ Somewhat agree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (5)
- ❍ Disagree (6)
- ❍ Strongly disagree (7)

Q2.43 When I am the only one in the car I would always check social media while driving

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q2.44 I can drive safely and use or check social media

- ❍ Strongly agree (7)
- ❍ Agree (6)
- ❍ Somewhat agree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (3)
- ❍ Disagree (2)
- ❍ Strongly disagree (1)

Q2.45 I can easily use my mobile phone to use and/or check social media when the car is:

	Totally disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Not travelling at all (i.e. 0km/h) (1)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very little speed (i.e. 1km/h to 20km/h) (2)	❍	❍	❍	❍	❍	❍	❍
Travelling at a slow speed (i.e. 21km/h to 50km/h) (3)	❍	❍	❍	❍	❍	❍	❍
Travelling at a moderate speed (i.e. 51km/h to 70km/h) (4)	❍	❍	❍	❍	❍	❍	❍
Travelling at a high speed (i.e. 71km/h to 100km/h) (24)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very high speed (i.e. over 101km/h) (25)	❍	❍	❍	❍	❍	❍	❍

Q2.46 The following are a series of statements concern using your mobile phone to create, read or send text messages while driving

Q2.47 In the next week, I intend to use my mobile phone to create, read or send a text message while driving

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.48 I believe that creating, reading or sending a text message while driving is beneficial to me

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.49 When I hear my text message notification ringtone while driving and I must check my phone or else I will miss out on something important

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q2.50 My friends support me creating, reading or sending text messages driving

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.51 My family condemn creating, reading or sending text messages while driving

- ❍ Strongly disagree (7)
- ❍ Disagree (6)
- ❍ Somewhat disagree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat agree (3)
- ❍ Agree (2)
- ❍ Strongly agree (1)

Q2.52 When other passengers are in the car I would never create, read or send text messages while driving

- ❍ Strongly agree (1)
- ❍ Agree (2)
- ❍ Somewhat agree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (5)
- ❍ Disagree (6)
- ❍ Strongly disagree (7)

Q2.53 When I am alone in the car I would always create, read or send text messages

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q2.54 I can drive safely and create, read or send text messages

- ❍ Strongly agree (1)
- ❍ Agree (2)
- ❍ Somewhat agree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (5)
- ❍ Disagree (6)
- ❍ Strongly disagree (7)

Q2.55 I can easily use my mobile phone to use to create, read or send text messages when the car is:

	Totally disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Not travelling at all (i.e. 0km/h) (1)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very little speed (i.e. 1km/h to 20km/h) (2)	❍	❍	❍	❍	❍	❍	❍
Travelling at a slow speed (i.e. 21km/h to 50km/h) (3)	❍	❍	❍	❍	❍	❍	❍
Travelling at a moderate speed (i.e. 51km/h to 70km/h) (4)	❍	❍	❍	❍	❍	❍	❍
Travelling at a high speed (i.e. 71km/h to 100km/h) (24)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very high speed (i.e. over 101km/h) (25)	❍	❍	❍	❍	❍	❍	❍

Q2.56 The following scenarios involve people using their mobile phones while driving around Perth. Please decide whether you think their actions are legal or illegal. If you are not sure about any of these scenarios, please check the “Unsure” option.

Q2.57 While Zoe was driving along Tonkin Hwy, her mobile phone (which she kept in the cup holder beside her as she did not have a hands-free kit) was ringing. It was her friend, and she was expecting this call all day as her friend had very important news about a potential job for Zoe. Zoe picks up the phone and answers it to her ear. Is this illegal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Q2.58 Daniel was driving along Reid Hwy. He's a tradesman and his phone is constantly ringing from people requesting quotes. He receives a call from a potential customer for a bathroom renovation. His phone is in the passenger's seat. Daniel did not answer his phone but when he reaches a set of traffic lights he picks up the phone and texts the customer saying he'll call back in about half an hour when he reaches his office. Is this illegal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Q2.59 Mia was driving on the way home from university along Freeway North. She's had a bad day and needed some cheering up. Her sister calls her on her phone which is in the passenger's seat. Mia picks up the phone to press the answer button, puts the call on loudspeaker and then places the phone back in the passenger’s seat where she is able to hear her sister and vice versa. Is this illegal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Q2.60 Sofia was driving to pick a friend up on the way to a party. Her phone is held in a suction cup, attached to the windscreen. She sees that her friend is calling her. As Sofia's phone is in "Car Mode", it allows her to answer her phone by saying "Answer" and she proceeds to do so. After they had a chat, Sofia waits for her friend to hang up so she doesn't have to. Is this illegal?

- ❍ Yes (2)
- ❍ No (1)
- ❍ Unsure (3)

Q2.61 Owen was driving back home from his best friend's birthday party on Canning Hwy during peak hour traffic and his car and the other cars around him were moving at about 5 km/h. His phone was in the cup holder next to the driver's seat and it vibrated suddenly. Owen then picked up his phone and saw that his friend uploaded and tagged an embarrassing photo of him. He commented on the photo making fun of him. Is this illegal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Q2.62 The following questions ask for your opinions on the current law and penalty for using your mobile phone while driving, and police participation concerning this issue

Q2.63 What are your thoughts on the current mobile phone use while driving law?Please feel free to include any thoughts on this the current mobile phone while driving laws. For instance, do you think it is comprehensive? Is it easy to understand? Do you think the penalties should be more or less harsher? Do you think there should be a complete ban on mobile phone use while driving?

Q2.64 The penalty for contravening Regulation 265 (Use of a mobile phone while driving) of the Road Traffic Code 2000 is $400 and 3 demerit points. What are your thoughts on the penalty for using a mobile phone while driving? Please feel free to include any thoughts on this matter. For instance, do you think this penalty is justified?

Q2.65 What are your thoughts on the role of Police in stopping people using mobile phones while driving? Please feel free to share any thoughts. Please feel free to include any thoughts on this matter.

Q2.66 Do you wish to be in the draw to win a fuel voucher?

- ❍ Yes (1)
- ❍ No (2)

Q2.67 Please fill out your contact details below

Email address (preferred) (1)
Mobile number (2)
Alternative contact number (3)

Appendix 5 Final Survey

An investigation of mobile phone use while driving

BACKGROUND Mobile phone use for any purpose while driving is common and widespread in Western Australia. In certain circumstances it is an unlawful activity and although the penalty for the activity has increased, people still continue to engage in this behaviour. Given that social media is largely popular, it is also assumed that people access their social media accounts whilst driving. This project investigates driver intention to use a mobile phone while driving, the type of activities they engage in, and their understanding of the current law and their experiences with enforcement. This project has been approved by the ECU Human Research Ethics Committee (project number 12464).

REQUESTS This project asks you to complete the survey. The survey will take, at most, ten minutes to complete and is anonymous. To be eligible for this survey, you must own a mobile phone AND have a valid driver's license. You will be asked to supply demographic information - year of birth, residential postcode and gender. If you wish to supply your mobile phone number, email address and/or alternative contact details, you will be in the draw for a chance to win one of three $50 fuel vouchers. Your contact details will be used for the draw and will not be associated with your survey responses. Participation is voluntary and you may withdraw at any time. If you choose to withdraw, any questions you may have answered will still be collected as the survey is anonymous. By choosing the "I agree" button at the bottom of the page you are providing your consent to participate. If you do not agree and do not wish to consent to participate, please choose the "I do not agree" button. This will close the survey window.

All contact details will be securely disposed once the prizes have been drawn. Once all surveys have been collected, all chosen methods of contacts will be placed in a random generator and three participants will be chosen to win the fuel vouchers. Once the winners have been identified, all identifying information will be securely removed from a password protected computer.

This survey will ask questions regarding crash and near crash involvement which may cause discomfort. If you wish to speak to someone about your concerns, please contact ECU counseling at counselling@ecu.edu.au or phone 9370 6706. You can also contact Road Trauma Support WA on 9420 7262. Both these services are free of charge to access.

Your responses to some of the questions may disclose illegal activity, therefore, we ask you to please refrain from disclosing any information which could identify yourself. If you have any concerns or complaints about the conduct of this survey, please contact the Research Ethics Officer below:

Research Ethics Officer

Edith Cowan University
270 Joondalup Drive
JOONDALUP WA 6027
Phone: (08) 6304 2170 Email: research.ethics@ecu.edu.au

Further information about the study can be obtained from Sokunthea Kruy on 0401 799 090 or sokunthk@our.ecu.edu.au. The outcomes of this project will be:

•Greater understanding of driver's intention to use a mobile phone while driving,

•Assessing whether social media use is largely present on the roads,

•Greater understanding of driver's understanding of law and enforcement concerning mobile phone use while driving, and

•Publication of results in a suitable journal for dissemination amongst policy and road safety researchers.

The results of the study will be available after December 2016. If you would like to be notified of the results, please contact the researcher independently via sokunthk@our.ecu.edu.au.

Many thanks for your help.

Sokunthea Kruy, Chief Investigator

Dr Cath Ferguson, Supervisor

Dr Margaret Giles, Supervisor

- ❍ I own a mobile phone AND have a valid license AND agree to consent to participate in this survey (3)
- ❍ I do not agree and do not consent to participate in this survey (2)

If I do not agree and do not c... Is Selected, Then Skip To End of Survey

Q2.1 The following questions concern your demographic information, general driving habits and other relevant details

Q2.2 Please select your year of birth

- ❍ 1930 (1)
- ❍ 1931 (2)
- ❍ 1932 (3)
- ❍ 1933 (4)
- ❍ 1934 (5)
- ❍ 1935 (6)
- ❍ 1936 (7)
- ❍ 1937 (8)
- ❍ 1938 (9)
- ❍ 1939 (10)
- ❍ 1940 (11)
- ❍ 1941 (12)
- ❍ 1942 (13)
- ❍ 1943 (14)
- ❍ 1944 (15)
- ❍ 1945 (16)
- ❍ 1946 (17)
- ❍ 1947 (18)
- ❍ 1948 (19)
- ❍ 1949 (20)
- ❍ 1950 (21)
- ❍ 1951 (22)
- ❍ 1952 (23)
- ❍ 1953 (24)
- ❍ 1954 (25)
- ❍ 1955 (26)
- ❍ 1956 (27)
- ❍ 1957 (28)
- ❍ 1958 (29)
- ❍ 1959 (30)
- ❍ 1960 (31)
- ❍ 1961 (32)
- ❍ 1962 (33)
- ❍ 1963 (34)
- ❍ 1964 (35)
- ❍ 1965 (36)
- ❍ 1966 (37)
- ❍ 1967 (38)
- ❍ 1968 (39)
- ❍ 1969 (40)
- ❍ 1970 (41)
- ❍ 1971 (42)
- ❍ 1972 (43)
- ❍ 1973 (44)
- ❍ 1974 (45)
- ❍ 1975 (46)

- 1976 (47)
- 1977 (48)
- 1978 (49)
- 1979 (50)
- 1980 (51)
- 1981 (52)
- 1982 (53)
- 1983 (54)
- 1984 (55)
- 1985 (56)
- 1986 (57)
- 1987 (58)
- 1988 (59)
- 1989 (60)
- 1990 (61)
- 1991 (62)
- 1992 (63)
- 1993 (64)
- 1994 (65)
- 1995 (66)
- 1996 (67)
- 1997 (68)
- 1998 (69)
- 1999 (70)
- 2000 (71)

Q2.3 Please identify which area you reside in

- Metropolitan Western Australia (Between Yanchep and Mandurah) (1)
- Outside the Metropolitan Area (Regional Western Australia (2)
- Outside of Western Australia (3)

Q2.4 What is your gender?

- Male (0)
- Female (1)

Q2.5 Which ECU campus do you spend the most time at?

- Mount Lawley (1)
- Joondalup (2)
- Bunbury (3)
- I do not attend ECU (4)

Q2.6 What is you employment status?

- Part time (1)
- Full time (2)
- Not employed (3)

Q2.7 At what age did you get your license?

Q2.8 What stage in the licensing process are you in?

- Provisional 1 (Red plates) (1)
- Provisional 2 (Green Plates) (2)
- Ordinary (Manual) (3)
- Ordinary (Automatic) (4)

Q2.9 What is your mobile phone brand?

- Apple (1)
- Blackberry (2)
- HP (3)
- HTC (4)
- Huawei (5)
- Lenovo (6)
- LG (7)
- Microsoft (8)
- Motorola (9)
- Nokia (10)
- Other (11)
- Samsung (12)
- Sony (13)
- Sony Erricson (14)
- Xiaomi (15)

Q2.10 Does your vehicle have a Bluetooth option?

- Yes (1)
- No (2)
- I don’t know (3)

Q2.11 Approximately how many kilometers do you drive a week?

- 0-50 (1)
- 51-100 (2)
- 101-200 (3)
- 201-300 (4)
- Over 301 (5)

Q2.12 The following questions concern your involvement with law (concerning using a mobile phone while driving) and crashes

Q2.13 Have you ever physically held AND used a mobile phone while driving?

- ❍ Yes (2)
- ❍ No (1)

Q2.14 Have you ever been issued a caution for using your mobile phone while driving?

- ❍ Yes (2)
- ❍ No (1)

Q2.15 Have you ever been issued an infringement for using your mobile phone while driving?

- ❍ Yes (2)
- ❍ No (1)

Q2.16 Have you ever been involved in a crash where you as the driver were using a mobile phone while driving?

- ❍ Yes (2)
- ❍ No (1)

Q2.17 If you have ever been involved in any sort of crash where you as the driver were using a mobile phone while driving, did someone have to go to hospital as a result of the crash?

- ❍ Yes (1)
- ❍ No (2)

Q2.18 If you have ever been involved in any sort of crash where you as the driver were using a mobile phone while driving, were you physically holding your phone while driving or using a Bluetooth option or a combination of both?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a Bluetooth option (2)
- ❍ Combination of both (3)

Q2.19 The following questions concern your usage of a mobile phone while driving in the past week

Q2.20 In the past week, how often did you use your mobile phone to make and/or receive calls while driving?

- ❍ Never (1)
- ❍ Rarely (2)
- ❍ Occasionally (3)
- ❍ Sometimes (4)
- ❍ Frequently (5)
- ❍ Usually (6)
- ❍ Every time (7)

If Never Is Selected, Then Skip To When you used your phone to make and/...

Q2.21 When you used your phone to make and/or receive calls while driving, were you physically holding your phone while driving or using a Bluetooth option or a combination of both?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a Bluetooth option (2)
- ❍ Combination of both (3)

Q2.22 In the past week, how often did you use your mobile phone to create, read or send text messages while driving?

- ❍ Never (1)
- ❍ Rarely (2)
- ❍ Occasionally (3)
- ❍ Sometimes (4)
- ❍ Frequently (5)
- ❍ Usually (6)
- ❍ Every time (7)

If Never Is Selected, Then Skip To In the past week, how often did you u...

Q2.23 When you used your phone to create, read or send text messages were you physically holding your phone while driving or using a Bluetooth option or a combination of both?

- ❍ Physically holding a phone while driving (1)
- ❍ Using a Bluetooth option (2)
- ❍ Combination of both (3)

Q2.24 In the past week, how often did you use your mobile phone to use social media while driving?This includes all social media, such as Facebook, Twitter, Instagram, Snapchat etc.

- ❍ Never (1)
- ❍ Rarely (2)
- ❍ Occasionally (3)
- ❍ Sometimes (4)
- ❍ Frequently (5)
- ❍ Usually (6)
- ❍ Every time (7)

Q2.25 In the past week, did you use your mobile phone in the following traffic situations?Please choose more than one traffic situation if it applies

- ❑ At the traffic lights (1)
- ❑ On a suburban street (2)
- ❑ On a major road (for example, Canning Hwy, Reid Hwy, Blair St, etc) (3)
- ❑ On a high-speed road (for example, Forrest Hwy, Kwinana Freeway, Mitchell Freeway, etc) (4)
- ❑ None of the above (5)

Q2.26 The following are a series of statements concern using your mobile phone to make calls while driving

Q2.27 In the next week I intend to use my mobile phone to make a call while driving

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree of disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q2.28 I believe making calls while driving can be beneficial for me

- ❍ Strongly agree (7)
- ❍ Agree (6)
- ❍ Somewhat agree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (3)
- ❍ Disagree (2)
- ❍ Strongly disagree (1)

Q2.29 I need to make calls while driving to “stay connected” to my social networks

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly Agree (7)

Q2.30 My family are not supportive of making calls while driving

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree or disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q2.31 My friends are supportive of making calls while driving

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.32 When other passengers are in the car I would never make calls while driving

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree or disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q2.33 When I am the only one in the car I would always make calls while driving

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q2.34 I can drive safely and make calls simultaneously

- ❍ Strongly agree (7)
- ❍ Agree (6)
- ❍ Somewhat agree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (3)
- ❍ Disagree (2)
- ❍ Strongly disagree (1)

Q2.35 I can easily use my mobile phone to make calls when the car is:

	Totally disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Not travelling at all (i.e. 0km/h) (1)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very little speed (i.e. 1km/h to 20km/h) (2)	❍	❍	❍	❍	❍	❍	❍
Travelling at a slow speed (i.e. 21km/h to 50km/h) (3)	❍	❍	❍	❍	❍	❍	❍
Travelling at a moderate speed (i.e. 51km/h to 70km/h) (4)	❍	❍	❍	❍	❍	❍	❍
Travelling at a high speed (i.e. 71km/h to 100km/h) (24)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very high speed (i.e. over 101km/h) (25)	❍	❍	❍	❍	❍	❍	❍

Q2.36 The following are a series of statements concern using your mobile phone to access social media while driving

Q2.37 In the next week, I intend to use my mobile phone to use and/or check social media while driving

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q2.38 I believe that checking social media while driving can be beneficial for me

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.39 I need to check social media while driving to “keep up to date” with my social media

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q2.40 My family do not approve of using and/or checking social media while driving

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree or disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q2.41 My friends are supportive of using and/or checking social media while driving

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.42 When I am driving other passengers in the car I would never use or check social media while driving

- Strongly agree (1)
- Agree (2)
- Somewhat agree (3)
- Neither agree or disagree (4)
- Somewhat disagree (5)
- Disagree (6)
- Strongly disagree (7)

Q2.43 When I am the only one in the car I would always check social media while driving

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q2.44 I can drive safely and use or check social media

- ❍ Strongly agree (7)
- ❍ Agree (6)
- ❍ Somewhat agree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (3)
- ❍ Disagree (2)
- ❍ Strongly disagree (1)

Q2.45 I can easily use my mobile phone to use and/or check social media when the car is:

	Totally disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Not travelling at all (i.e. 0km/h) (1)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very little speed (i.e. 1km/h to 20km/h) (2)	❍	❍	❍	❍	❍	❍	❍
Travelling at a slow speed (i.e. 21km/h to 50km/h) (3)	❍	❍	❍	❍	❍	❍	❍
Travelling at a moderate speed (i.e. 51km/h to 70km/h) (4)	❍	❍	❍	❍	❍	❍	❍
Travelling at a high speed (i.e. 71km/h to 100km/h) (24)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very high speed (i.e. over 101km/h) (25)	❍	❍	❍	❍	❍	❍	❍

Q2.46 The following are a series of statements concern using your mobile phone to create, read or send text messages while driving

Q2.47 In the next week, I intend to use my mobile phone to create, read or send a text message while driving

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.48 I believe that creating, reading or sending a text message while driving is beneficial to me

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.49 When I hear my text message notification ringtone while driving and I must check my phone or else I will miss out on something important

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree or disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

Q2.50 My friends support me creating, reading or sending text messages driving

- Strongly agree (7)
- Agree (6)
- Somewhat agree (5)
- Neither agree or disagree (4)
- Somewhat disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q2.51 My family condemn creating, reading or sending text messages while driving

- ❍ Strongly disagree (7)
- ❍ Disagree (6)
- ❍ Somewhat disagree (5)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat agree (3)
- ❍ Agree (2)
- ❍ Strongly agree (1)

Q2.52 When other passengers are in the car I would never create, read or send text messages while driving

- ❍ Strongly agree (1)
- ❍ Agree (2)
- ❍ Somewhat agree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (5)
- ❍ Disagree (6)
- ❍ Strongly disagree (7)

Q2.53 When I am alone in the car I would always create, read or send text messages

- ❍ Strongly disagree (1)
- ❍ Disagree (2)
- ❍ Somewhat disagree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat agree (5)
- ❍ Agree (6)
- ❍ Strongly agree (7)

Q2.54 I can drive safely and create, read or send text messages

- ❍ Strongly agree (1)
- ❍ Agree (2)
- ❍ Somewhat agree (3)
- ❍ Neither agree or disagree (4)
- ❍ Somewhat disagree (5)
- ❍ Disagree (6)
- ❍ Strongly disagree (7)

Q2.55 I can easily use my mobile phone to use to create, read or send text messages when the car is:

	Totally disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Not travelling at all (i.e. 0km/h) (1)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very little speed (i.e. 1km/h to 20km/h) (2)	❍	❍	❍	❍	❍	❍	❍
Travelling at a slow speed (i.e. 21km/h to 50km/h) (3)	❍	❍	❍	❍	❍	❍	❍
Travelling at a moderate speed (i.e. 51km/h to 70km/h) (4)	❍	❍	❍	❍	❍	❍	❍
Travelling at a high speed (i.e. 71km/h to 100km/h) (24)	❍	❍	❍	❍	❍	❍	❍
Travelling at a very high speed (i.e. over 101km/h) (25)	❍	❍	❍	❍	❍	❍	❍

Q2.56 The following scenarios involve people using their mobile phones while driving around Perth. Please decide whether you think their actions are legal or illegal. If you are not sure about any of these scenarios, please check the “Unsure” option.

Q2.57 While Zoe was driving along Tonkin Hwy, her mobile phone (which she kept in the cup holder beside her as she did not have a hands-free kit) was ringing. It was her friend, and she was expecting this call all day as her friend had very important news about a potential job for Zoe. Zoe picks up the phone and answers it to her ear. Is this illegal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Q2.58 Daniel was driving along Reid Hwy. He's a tradesman and his phone is constantly ringing from people requesting quotes. He receives a call from a potential customer for a bathroom renovation. His phone is in the passenger's seat. Daniel did not answer his phone but when he reaches a set of traffic lights he picks up the phone and texts the customer saying he'll call back in about half an hour when he reaches his office. Is this illegal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Q2.59 Mia was driving on the way home from university along Freeway North. She's had a bad day and needed some cheering up. Her sister calls her on her phone which is in the passenger's seat. Mia picks up the phone to press the answer button, puts the call on loudspeaker and then places the phone back in the passenger’s seat where she is able to hear her sister and vice versa. Is this illegal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Q2.60 Sofia was driving to pick a friend up on the way to a party. Her phone is held in a suction cup, attached to the windscreen. She sees that her friend is calling her. As Sofia's phone is in "Car Mode", it allows her to answer her phone by saying "Answer" and she proceeds to do so. After they had a chat, Sofia waits for her friend to hang up so she doesn't have to. Is this illegal?

- ❍ Yes (2)
- ❍ No (1)
- ❍ Unsure (3)

Q2.61 Owen was driving back home from his best friend's birthday party on Canning Hwy during peak hour traffic and his car and the other cars around him were moving at about 5 km/h. His phone

was in the cup holder next to the driver's seat and it vibrated suddenly. Owen then picked up his phone and saw that his friend uploaded and tagged an embarrassing photo of him. He commented on the photo making fun of him. Is this illegal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Q2.62 The following questions ask for your opinions on the current law and penalty for using your mobile phone while driving, and police participation concerning this issue

Q2.63 What are your thoughts on the current mobile phone use while driving law?Please feel free to include any thoughts on this the current mobile phone while driving laws. For instance, do you think it is comprehensive? Is it easy to understand? Do you think the penalties should be more or less harsher? Do you think there should be a complete ban on mobile phone use while driving?

Q2.64 The penalty for contravening Regulation 265 (Use of a mobile phone while driving) of the Road Traffic Code 2000 is $400 and 3 demerit points. What are your thoughts on the penalty for using a mobile phone while driving? Please feel free to include any thoughts on this matter. For instance, do you think this penalty is justified?

Q2.65 What are your thoughts on the role of Police in stopping people using mobile phones while driving? Please feel free to share any thoughts. Please feel free to include any thoughts on this matter.

Q2.66 Do you wish to be in the draw to win a fuel voucher?

- ❍ Yes (1)
- ❍ No (2)

Q2.67 Please fill out your contact details below

Email address (preferred) (1)
Mobile number (2)
Alternative contact number (3)

Appendix 6 Data analysis of whole cohort in the main study

Table A6.1
Descriptive statistics of all respondents

Characteristic	Mean or Proportion (%)	Standard Deviation
Age	31.42	10.996
Female	70.5%	-
Age of when license was first obtained	18.36	2.613
Metropolitan Western Australia	76.6%	-
University students who attended campus	90.7%	-
Part-time employment	50.7%	-
Ordinary (Manual) license type	68.9%	-
100 to 200 kilometres driven per week	27.7%	-
Confirmed Bluetooth connectivity in vehicles	51.9%	-
Possessed an “Apple” mobile phone brand	56.5%	-

Table A6.2

Chi-square test results of the social consequences of using a mobile phone while driving by independent variable of all respondents

		Ever been involved in a crash		X^2	*p*
		Yes	No		
Gender	Male	3	162	(a)	
	% within Gender	1.8%	98.2%		
	% within Ever been involved in a crash	23.1%	29.7%		
	% of Total	0.5%	29.0%		
	Female	10	384		
	% within Gender	2.5%	97.5%		
	% within Ever been involved in a crash	76.9%	70.3%		
	% of Total	1.8%	68.7%		
Age	17-25 (inclusive)	4	189	(a)	
	% within Age Groups	2.1%	97.9%		
	% within Ever been involved in a crash	30.8%	34.6%		
	% of Total	0.7%	33.8%		
	Over 26 (inclusive)	9	357		
	% within Age Groups	2.5%	97.5%		
	% within Ever been involved in a crash	69.2%	65.4%		
	% of Total	1.6%	63.9%		
License stage	Ordinary	12	473	(a)	
	% within License stage	2.5%	97.5%		
	% within Ever been involved in a crash	92.3%	86.6%		
	Provisional	1	73		
	% within License stage	1.4%	98.6%		
	% within Ever been involved in a crash	7.7%	13.4%		
Kilometres travelled per week	0 – 200	6	224	0.138	0.710
	% within Kilometres travelled per week	2.6%	97.4%		
	% within Ever been involved in a crash	46.2%	41.0%		
	Over 201	7	322		
	% within Kilometres travelled per week	2.1%	97.9%		
	% within Ever been involved in a crash	53.8%	59.0%		
Region	Metropolitan WA	10	435	(a)	
	% within Region	2.2%	97.8%		
	% within Ever been involved in a crash	76.9%	79.8%		
	Non-Metropolitan WA	3	110		
	% within Region	2.7%	97.3%		
	% within Ever been involved in a crash	23.1%	20.2%		

Note. (a) Chi-square tests not conducted.

Table A6.3 *Chi-square test results of the legal consequences of using a mobile phone while driving by independent variable by all respondents*

		Ever been issued a caution		X^2	p	Ever been issued an infringement		X^2	p
		Yes (n)	No (n)			Yes (n)	No (n)		
Gender	Male	15	150			5	160		
	% within Gender	9.1%	90.9%			3.0%	97.0%		
	% within Ever been issued a caution/infringement	41.7%	28.7%			17.2%	30.2%		
	Female	21	373	2.730	0.098	24	370	2.215	0.137
	% within Gender	5.3%	94.7%			6.1%	93.9%		
	% within Ever been issued a caution/infringement	58.3%	71.3%			82.8%	69.8%		
Age	17-25 (inclusive)	10	183			8	185		
	% within Age Groups	5.2%	94.8%			4.1%	95.9%		
	% within Ever been issued a caution/infringement	27.8%	35.0%			27.6%	34.9%		
	Over 26 (inclusive)	26	340	0.775	0.379	21	345	0.652	0.420
	% within Age Groups	7.1%	92.9%			5.7%	94.3%		
	% within Ever been issued a caution/infringement	72.2%	65.0%			72.4%	65.1%		
License stage	Ordinary	34	451			27	458		
	% within License Stage	7.0%	93.0%			5.6%	94.4%		
	% within Ever been issued a caution/infringement	94.4%	86.2%	(a)		93.1%	86.4%	(a)	
	Provisional	72	2			2	72		
	% within License Stage	97.3%	2.7%			2.7%	97.3%		
	% within Ever been issued a caution/infringement	13.8%	5.6%			6.9%	13.6%		
Kilometres travelled per week	0 – 200	7	223			8	222		
	% within Kilometres travelled per week	3.0%	97.0%			3.5%	96.5%		
	% within Ever been issued a caution/infringement	19.4%	42.6%	7.483	0.006	27.6%	51.9%	2.322	0.128
	Over 201	29	300			21	308		
	% within Kilometres travelled per week	8.8%	91.2%			6.4%	93.6%		

	% within Ever been issued a caution/infringement	80.6%	57.4%			72.4%	58.1%		
Region	Metropolitan WA	26	491			22	423		
	% within Region	5.8%	94.2%			4.9%	95.1%		
	% within Ever been issued a caution/infringement	72.2%	80.3%			75.9%	80.0%		
	Non-Metropolitan WA	10	103	1.350	0.245	7	106	0.286	0.593
	% within Region	8.8%	91.2%						
	% within Ever been issued a caution/infringement	27.8%	19.7%						

Note. X^2 = Chi-square value, (a) Chi-square tests not conducted.

Table A6.4

Chi-square test results of ever holding and using a mobile phone while driving among independent variables of all respondents

		Ever held and used a mobile phone while driving		X^2	*p*
		Yes	No		
Gender	Male	135	30	0.014	0.907
	% within Gender	81.8%	18.2%		
	% within Ever Held	29.4%	30.0%		
	Female	324	70		
	% within Gender	82.2%	17.8%		
	% within Ever Held	70.6%	70.0%		
Age	17-25 (inclusive)	147	46	7.093	0.008
	% within Age Groups	76.2%	23.80%		
	% within Ever Held	32.0%	46.00%		
	Over 26 (inclusive)	312	54		
	% within Age Groups	85.2%	14.80%		
	% within Ever Held	68.0%	54.00%		
License stage	Ordinary	417	68	37.326	0.000
	% within License stage	86.0%	14.0%		
	% within Ever Held	90.8%	68.0%		
	Provisional	42	32		
	% within License stage	56.8%	43.2%		
	% within Ever Held	9.2%	32.0%		
Kilometres travelled per week	0 – 200	175	55	9.654	0.002
	% within Kilometres travelled per week	76.1%	23.9%		
	% within Ever Held	38.1%	55.0%		
	Over 201	284	45		
	% within Kilometres travelled per week	86.3%	13.7%		
	% within Ever Held	61.9%	45.0%		
Region	Metropolitan WA	365	80	0.005	0.945
	% within Region	82.0%	18.0%		
	% within Ever Held	79.7%	80.0%		
	Non-Metropolitan WA	93	20		
	% within Region	82.3%	17.7%		
	% within Ever Held	20.3%	20.0%		

Table A6.5

Independent t-test samples results for usage of mobile phones while driving to make/receive calls in the last week scores against the independent variables of all respondents

Independent variables		Usage of mobile phones to make/receive calls in the past week scores			
		$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	3.75	2.362	2.781 (557)	0.006
	Female	3.14	2.316		
Age	17-25 (inclusive)	3.38	2.356	0.412 (557)	0.681
	Over 26 (inclusive)	3.29	2.341		
License stage	Ordinary	3.44	2.369	3.287 (105.675)	0.001
	Provisional	2.58	2.034		
Kilometres travelled per week	0 – 200	2.67	2.259	-5.653 (557)	0.000
	Over 201	3.78	2.297		
Region	Metropolitan WA	3.29	2.336	-0.537 (556)	0.592
	Non-Metropolitan WA	3.42	2.390		

Note. mean= mean, SD = standard deviation

Table A6.6

Independent t-test samples results for usage of mobile phones while driving to create/read text messages in the last week scores against the independent variables of all respondents

Independent variables		Usage of mobile phones to create/send text messages in the past week scores			
		$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	3.07	2.568	0.107 (557)	0.915
	Female	3.05	2.432		
Age	17-25 (inclusive)	3.19	2.532	0.911 (577)	0.363
	Over 26 (inclusive)	2.99	2.438		
License stage	Ordinary	3.13	2.485	2.027 (100.218)	0.045
	Provisional	2.54	2.324		
Kilometres travelled per week	0 – 200	2.69	2.332	-2.978 (517.270)	0.003
	Over 201	3.31	2.535		
Region	Metropolitan WA	2.98	2.462	-1.422 (557)	0.156
	Non-Metropolitan WA	3.35	2.496		

Note. mean= mean, SD = standard deviation

Table A6.7

Independent t-test samples results for usage of mobile phones while driving to access social media in the last week scores against the independent variables of all respondents

Independent variables		Usage of mobile phones to access social media in the past week scores			
		$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	1.59	1.16	2.63 (246.60)	0.009
	Female	1.33	0.89		
Age	17-25 (inclusive)	1.51	1.07	1.77 (557)	0.064
	Over 26 (inclusive)	1.35	0.91		
License stage	Ordinary	1.43	1.00	1.66 (109.57)	0.099
	Provisional	1.26	0.81		
Kilometres travelled per week	0 – 200	1.27	0.76	-3.09 (557)	0.002
	Over 201	1.51	1.09		
Region	Metropolitan WA	1.40	0.96	-0.30 (556)	0.761
	Non-Metropolitan WA	1.43	1.03		

Note. mean= mean, SD = standard deviation

Table A6.8

Frequencies of mobile phone usage at traffic placements in the past week of all respondents

Traffic Placement	Number of selected responses (n)		All respondents
	Yes (%)	No (%)	
Traffic light	334 (59.7%)	225 (40.3%)	559 (100%)
Suburban street	152 (27.2%)	407 (72.8%)	
Major Road	82 (14.7%)	477 (85.3%)	
High speed road	77 (13.8%)	482 (86.2%)	
None of the above	192 (34.3%)	367 (65.7%)	

Table A6.9

Independent t-test samples results for usage of mobile phones while driving in certain traffic situations scores against the independent variables of all respondents

Independent variables		Usage of mobile phones in certain traffic situations in the past week scores			
		$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	1.33	1.381	2.11 (251.15)	0.035
	Female	1.08	1.075		
Age	17-25 (inclusive)	1.26	1.21	1.53 (557)	0.125
	Over 26 (inclusive)	1.10	1.16		
License stage	Ordinary	1.19	1.185	1.63 (557)	0.103
	Provisional	0.95	1.121		
Kilometres travelled per week	0 – 200	0.91	1.024	-4.24 (542.69)	0.000
	Over 201	1.32	1.249		
Region	Metropolitan WA	1.14	1.186	-0.41 (556)	0.683
	Non-Metropolitan WA	1.19	1.156		

Note. mean= mean, SD = standard deviation

Table A6.10

Independent t-test samples results of attitude scores concerning using a mobile phone while driving to make/receive calls, create/read text messages and access social media while driving across the independent variables of all respondents

Independent variables		Attitude Scores											
		Making/receiving calls				Create/read text messages				Access social media			
		R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	2.56	2.94	3.38 (282.92)	0.001	2.72	3.23	2.69 (263.81)	0.008	1.75	2.40	2.57 (255.63)	0.011
	Female	2.11	2.67			2.33	2.68			1.49	1.91		
Age	17-25 (inclusive)	2.21	2.53	-0.44 (440.51)	0.660	2.58	2.92	1.45 (557)	0.146	1.60	2.21	0.61 (557)	0.545
	Over 26 (inclusive)	2.26	2.90			2.39	2.84			1.54	2.01		
License stage	Ordinary	2.30	2.85	2.68 (557)	0.008	2.48	2.88	1.55 (557)	0.121	1.59	2.11	1.87 (104.73)	0.064
	Provisional	1.84	2.07			2.21	2.74			1.37	1.84		
Kilometres travelled per week	0 – 200	1.86	2.33	-5.75 (548.48)	0.000	2.22	2.55	-3.34 (563.64)	0.001	1.44	2.00	-2.32 (510.26)	0.021
	Over 201	2.51	2.94			2.61	3.03			1.65	2.12		
Region	Metropolitan WA	2.22	2.73	-0.65 (556)	0.517	2.41	2.87	-1.22 (556)	0.224	1.56	2.11	-0.09 (556)	0.927
	Non-Metropolitan WA	2.32	2.98			2.60	2.85			1.57	1.99		

Note. Rmean= Recalculated mean (composite mean of construct), SD = Standard Deviation

Table A6.11

Independent t-test samples results of subjective norm scores concerning using a mobile phone while driving to make/receive calls, create/read text messages and access social media while driving across the independent variables of all respondents

Independent variables		Subjective Norm Scores											
		Making/receiving calls				Create/read text messages				Access social media			
		R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	2.85	5.38	2.06 (557)	0.039	2.49	4.65	2.01 (557)	0.044	2.03	4.04	2.99 (264.18)	0.003
	Female	2.59	5.24			2.27	4.62			1.76	3.38		
Age	17-25 (inclusive)	2.57	4.76	-1.38 (445.49)	0.169	2.48	4.65	2.08 (557)	0.038	1.96	3.76	2.31 (557)	0.021
	Over 26 (inclusive)	2.72	5.55			2.26	4.61			1.78	3.51		
License stage	Ordinary	2.76	5.35	4.83 (111.09)	0.000	2.34	4.66	0.32 (557)	0.749	1.85	3.63	0.39 (557)	0.699
	Provisional	2.09	4.28			2.30	4.52			1.80	3.54		
Kilometres travelled per week	0 – 200	2.33	4.92	-5.27 (517.33)	0.000	2.17	4.33	-2.80 (557)	0.005	1.77	3.57	-1.44 (498.72)	0.149
	Over 201	2.91	5.35			2.45	4.80			1.89	3.64		
Region	Metropolitan WA	2.63	5.20	-1.43 (556)	0.155	2.27	4.38	-2.50 (150.94)	0.013	1.81	3.48	-1.51 (156.19)	0.133
	Non-Metropolitan WA	2.83	5.65			2.61	5.44			1.97	4.07		

Note. Rmean= Recalculated mean (composite mean of construct), SD = Standard Deviation

Table A6.12

Independent t-test samples results of perceived behavioural control scores concerning using a mobile phone while driving to make/receive calls, create/read text messages and access social media while driving across the independent variables of all respondents

Independent variables		Perceived Behavioural Control Scores											
		Making/receiving calls				Create/read text messages				Access social media			
		R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*	R$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	3.76	12.31	3.14 (272.48)	0.002	2.89	11.42	3.62 (230.67)	0.000	2.45	9.63	3.25 (247.08)	0.001
	Female	3.27	10.68			2.39	7.81			2.06	7.33		
Age	17-25 (inclusive)	3.45	10.93	0.32 (557)	0.749	2.76	9.83	2.85 (351.09)	0.005	2.44	9.23	3.74 (323.40)	0.000
	Over 26 (inclusive)	3.40	11.48			2.42	8.68			2.03	7.36		
License stage	Ordinary	3.48	11.45	2.83 (106.65)	0.006	2.55	9.32	0.77 (557)	0.443	2.17	8.22	-0.39 (557)	0.695
	Provisional	2.98	9.69			2.42	8.08			2.23	7.84		
Kilometres travelled per week	0 – 200	3.04	10.47	-4.69 (557)	0.000	2.33	7.81	-3.18 (548.67)	0.002	2.01	7.30	-2.91(537.30)	0.004
	Over 201	3.68	11.49			2.68	9.89			2.30	8.63		
Region	Metropolitan WA	3.38	11.35	-0.97 (556)	0.330	2.49	9.13	-1.63 (556)	0.105	2.16	8.29	-0.84 (556)	0.403
	Non-Metropolitan WA	3.55	11.08			2.71	9.21			2.26	7.65		

Note. Rmean= Recalculated mean (composite mean of construct), SD = Standard Deviation

Table A6.13

Independent t-test samples results of intention scores concerning using a mobile phone while driving to make/receive calls, create/read text messages and access social media while driving across the independent variables of all respondents

Independent variables		Intention Scores											
		Making/receiving calls				Create/read text messages				Access social media			
		$\bar{x}$	SD	*t*(df)	*p*	$\bar{x}$	SD	*t*(df)	*p*	$\bar{x}$	SD	*t*(df)	*p*
Gender	Male	3.08	2.24	2.75 (267.58)	0.006	2.60	1.92	0.85 (557)	0.934	1.82	1.44	1.86 (274.78)	0.064
	Female	2.53	1.90			2.46	1.81			1.58	1.26		
Age	17-25 (inclusive)	2.60	1.88	-0.80 (428.61)	0.424	2.63	1.89	1.21 (557)	0.227	1.81	1.41	2.14 (557)	0.032
	Over 26 (inclusive)	2.74	2.10			2.43	1.82			1.56	1.26		
License stage	Ordinary	2.79	2.05	3.34 (107.35)	0.001	2.56	1.87	2.37 (107.01)	0.019	1.66	1.34	0.29 (557)	0.773
	Provisional	2.05	1.72			2.08	1.58			1.61	1.21		
Kilometres travelled per week	0 – 200	2.31	1.83	-3.89 (532.65)	0.000	2.24	1.75	-2.78 (514.99)	0.006	1.47	1.15	-2.81 (544.71)	0.005
	Over 201	2.69	2.11			2.68	1.89			1.78	1.42		
Region	Metropolitan WA	2.66	2.00	-0.80 (556)	0.423	2.44	1.82	-1.47 (556)	0.142	1.61	1.27	-1.32 (556)	0.188
	Non-Metropolitan WA	2.83	2.13			2.72	1.92			1.80	1.48		

Note. mean= Mean, SD = Standard Deviation

Table A6.14

Multiple regression results for intention to make/receive calls, create/read text messages and access social media while driving against the Theory of Planned Behaviour components of all respondents

	Model 1	Model 2	Model 3
Characteristic	Intention to make/receive calls while driving	Intention to create/read text messages while driving	Intention to access social media while driving
	β	β	β
Attitudes	0.18	0.40	0.16
Subjective norms	0.49	0.31	0.27
Perceived behavioural controls	0.21	0.17	0.40
Adjusted R^2	0.61	0.58	0.44

Note. β = standardised coefficients

Table A6.15

Multiple regression results for intention to make/receive calls, create/read text messages and access social media while driving against the independent variables and the Theory of Planned Behaviour components of all respondents

	Model 1	Model 2	Model 3
Characteristic	Intention to make/receive calls while driving	Intention to create/read text messages while driving	Intention to access social media while driving
	β	β	β
Attitude	0.182	0.405	0.156
Subjective norm	0.494	0.303	0.271
Perceived behavioural control	0.212	0.178	0.402
Male	-0.028	0.075	0.038
Age	0.015	-0.002	0.000
License stage	0.006	-0.055	0.001
Kilometres travelled per week	-0.034	0.006	0.040
Region	-0.007	-0.016	0.018
Adjusted R^2	0.609	0.583	0.438

Note. β = standardised coefficients

Table A6.16

Multiple regression results for intention to make/receive calls, create/read text messages and access social media while driving against the Theory of Planned Behaviour components and past behaviour of all respondents

	Model 1	Model 2	Model 3
Characteristic	Intention to make/receive calls while driving	Intention to create/read text messages while driving	Intention to access social media while driving
	β	β	β
Attitude	0.149	0.273	0.047
Subjective norm	0.365	0.224	0.138
Perceived behavioural control	0.124	0.084	0.184
Past Behaviour (Calls)	0.329	-	-
Past Behaviour (Text)	-	0.370	-
Past Behaviour (Social Media)	-	-	0.577
Adjusted R^2	0.671	0.650	0.640

Note. β = standardised coefficients

Table A6.17

Pearson's Product Movement Correlation analysis between past behaviour and intention to engage in each mobile phone use behaviour in the next week of all respondents

	Intention to engage in the behaviour in the next week		
Past behaviour frequencies in the last week	Make/receive calls	Create/read text messages	Access social media
	r	*r*	*r*
Make/receive calls	0.689	-	-
Create/read text messages	-	0.717	-
Access social media	-	-	0.767

Table A6.18

Frequencies of responses to legal scenarios of all respondents

	Correct response (n)	Proportion %	Incorrect response (n)	Proportion %	Respondent unsure (n)	Proportion %
Scenario 1	534	95.5	20	3.6	2	0.4
Scenario 2	478	85.5	32	5.7	46	8.2
Scenario 3	410	73.3	50	8.9	96	17.2
Scenario 4	41	7.3	467	83.5	48	8.6
Scenario 5	527	94.3	20	3.6	9	1.6
Mean %	-	71.8	-	23.6	-	7.2

Table A6.19

Independent t-tests results of the legislation scenario scores against the independent variables of all respondents

		Legislation scenario scores			
Independent variables		$\bar{x}$	Std. D.	*t*(df)	*p*
Gender	Male	1.16	0.87	1.177(229.280)	0.241
	Female	1.03	0.59		
Age	17-25 (inclusive)	1.03	0.69	-1.027(557)	0.305
	Over 26 (inclusive)	1.09	0.68		
License stage	Ordinary	1.04	0.68	-0.915(557)	0.361
	Provisional	1.12	0.70		
Kilometres travelled per week	0-200	1.06	0.70	0.207(557)	0.836
	Over 201	1.05	0.67		
Region	Metropolitan WA	1.06	0.69	0.043(556)	0.966
	Non-Metropolitan WA	1.05	0.65		

Note. mean= mean, SD = standard deviation

Table A6.20

Pearson's Product Movement Correlation analysis between legislation knowledge scores and intention to engage in each mobile phone use behaviour in the next week of all respondents

	Intention to engage in the behaviour in the next week		
	Make/receive calls	Create/read text messages	Access social media
	r	*r*	*r*
Legislation knowledge scores	-0.26	0.20	0.059

Table A6.21
Demographics of respondents who answered the qualitative questions of all respondents

		Qualitative questions content					
		Law		Penalty		Police	
		N (%)	% of Qualitative sample	N (%)	% of Qualitative sample	N (%)	% of Qualitative sample
Total respondents (% of all respondents)		457 (81.75%)	100.00%	455 (81.40%)	100.00%	432 (77.28%)	100.00%
Age	Mean	32.31	-	32.37	-	32.66	-
	Standard deviation	11.50	-	11.52	-	11.64	-
Gender (% of gender of all respondents)	Female	332 (84.26%)	72.65%	329 (83.50%)	73.93%	312 (79.19%)	72.22%
	Male	125 (76.22%)	27.35%	126 (76.83%)	27.69%	120 (73.10%)	27.78%
Region (% of region of all respondents)	Metropolitan W.A.	363 (81.57%	49.43%	361 (81.12%)	79.34%	341 (76.63%)	78.94%
	Outside Metropolitan W.A.	93 (81.59%)	20.35%	93 (81.58%)	20.44%	90 (78.95%)	20.83%

Appendix 7 Search terms used for the Literature Review

Mobile phone OR cell phone AND driving

Mobile phone OR cell phone AND driving AND Australia

Mobile phone OR cell phone AND driving AND young people

Mobile phone OR cell phone AND driving AND theory of planned behaviour OR theory of planned behaviour

Mobile phone OR cell phone AND driving AND novice OR inexperience

Mobile phone OR cell phone AND addiction

Safe system AND driving AND Australia

Safe system AND driving

Young people AND driving

Young people AND peer pressure AND driving

Young people AND speeding AND driving

Young people AND alcohol AND driving

References

Abouk, R., & Adams, S. (2013). Texting Bans and Fatal Accidents on Roadways: Do They Work? Or Do Drivers Just React to Announcements of Bans? *American Economic Journal-Applied Economics, 5*(2), 179-199.

AIHW. (2011). *Young Australians: their health and wellbeing 2011* (Cat. no. PHE 140). Retrieved from Canberra: http://www.aihw.gov.au/publication-detail/?id=10737419261

Aiken, L. S., & West, S. G. (1993). *Multiple Regression: Testing and Interpreting Interactions*. United States of America: SAGE Publications.

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211. doi:http://dx.doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior. *Journal of Applied Social Psychology, 32*(4), 665-683. doi:10.1111/j.1559-1816.2002.tb00236.x

Ajzen, I. (2007). *Attitudes, Personality and Behavior*. Berkshire, United Kingdom: McGraw-Hill Education.

Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health, 26*(9), 1113-1127. doi:10.1080/08870446.2011.613995

Ajzen, I., Brown, T. C., & Carvajal, F. (2004). Explaining the Discrepancy between Intentions and Actions: The Case of Hypothetical Bias in Contingent Valuation. *Personality and Social Psychology Bullietin, 30*(9), 1108-1121. doi:10.1177/0146167204264079

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, N.J: Prentice-Hall.

Ajzen, I., & Fishbein, M. (2000). Attitudes and the Attitude-Behavior Relation: Reasoned and Automatic Processes. *European Review of Social Psychology, 11*(1), 1-33. doi:10.1080/14792779943000116

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*(4), 471-499. doi:10.1348/014466601164939

Askew, K., Buckner, J. E., Taing, M. U., Ilie, A., Bauer, J. A., & Coovert, M. D. (2014). Explaining cyberloafing: The role of the theory of planned behavior. *Computers in Human Behavior, 36*, 510-519. doi:10.1016/j.chb.2014.04.006

Atchley, P., Atwood, S., & Boulton, A. (2011). The choice to text and drive in younger drivers: Behavior may shape attitude. *Accident Analysis & Prevention, 43*(1), 134-142. doi:http://dx.doi.org/10.1016/j.aap.2010.08.003

Australia Post. (2016). Find a postcode. Retrieved from http://auspost.com.au/postcode/6065

Australian Bureau of Statistics. (2013). Young adults: Then and now. Retrieved from http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features40April+2013

Australian Bureau of Statistics. (2016a). *1270.0.55.001 - Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2016*. (1270.0.55.001). Canberra: Australian Bureau of Statistics Retrieved from http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1270.0.55.001Main+Features1July%202016?OpenDocument.

Australian Bureau of Statistics. (2016b). *6401.0 Consumer Price Index, Australia, Sep 2016*. (6401.0). Canberra: Australian Bureau of Statistics Retrieved from http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/6401.0Main+Features1Sep%202016?OpenDocument.

Australian Mobile Telecommunications Association. (2017). keepyoureyesontheroad.org.au. Retrieved from http://www.keepyoureyesontheroad.org.au/

Australian Transport Council. (2011). *National Road Safety Strategy 2011-2020*. Canberra: Department of Infrastructure and Regional Development Retrieved from http://www.infrastructure.gov.au/roads/safety/national_road_safety_strategy/.

Auzoult, L. (2015). Is the congruence between behavioral intention, attitude, norm and behavioral control normative? *STUDIA PSYCHOLOGICA, 57*(4), 315-325.

Bagozzi, R. P. (1992). The Self-Regulation of Attitudes, Intentions, and Behavior. *Social Psychology Quarterly, 55*(2), 178-204. doi:10.2307/2786945

Bamberg, S., Ajzen, I., & Schmidt, P. (2003). Choice of Travel Mode in the Theory of Planned Behavior: The Roles of Past Behavior, Habit, and Reasoned Action. *Basic and Applied Social Psychology, 25*(3), 175-187. doi:10.1207/S15324834BASP2503_01

Baum, S. (2000). Drink driving as a social problem: comparing the attitudes and knowledge of drink driving offenders and the general community. *Accident Analysis and Prevention, 32*(5), 689-694. doi:10.1016/S0001-4575(99)00106-2

Beanland, V., Fitzharris, M., Young, K. L., & Lenné, M. G. (2013). Driver inattention and driver distraction in serious casualty crashes: Data from the Australian National Crash In-depth Study. *Accident Analysis & Prevention, 54*(0), 99-107.

Beck, K. H., & Watters, S. (2016). Characteristics of college students who text while driving: Do their perceptions of a significant other influence their decisions? *Transportation Research Part F: Traffic Psychology and Behaviour, 37*, 119-128.

Bendak, S. (2015). Objective assessment of the effects of texting while driving: a simulator study. *International Journal of Injury Control and Safety Promotion, 22*(4), 387-392.

Bentler, P. M., & Speckart, G. (1979). Models of attitude-behavior relations. *Psychological Review, 86*(5), 452-464.

Bergmark, R. W., Gliklich, E., Guo, R., & Gliklich, R. E. (2016). Texting while driving: the development and validation of the distracted driving survey and risk score among young adults. *Injury Epidemiology, 3*(1), 1-10.

Berk, R. A. (1983). An Introduction to Sample Selection Bias in Sociological Data. *American Sociological Review, 48*(3), 386-398. doi:10.2307/2095230

Bernstein, J. J., & Bernstein, J. (2015). Texting at the light and other forms of device distraction behind the wheel. *BMC Public Health, 15*.

Billieux, J., Philippot, P., Schmid, C., Maurage, P., De Mol, J., & Van der Linden, M. (2015). Is Dysfunctional Use of the Mobile Phone a Behavioural Addiction? Confronting Symptom-

Based Versus Process-Based Approaches. *Clinical Psychology & Psychotherapy, 22*(5), 460-468.

Bingham, R. C., Zakrajsek, J. S., Almani, F., Shope, J. T., & Sayer, T. B. (2015). Do as I say, not as I do: Distracted driving behavior of teens and their parents. *Journal of Safety Research, 55*, 21-29. doi:http://dx.doi.org/10.1016/j.jsr.2015.07.007

Bonta, J., & Andrews, D. A. (2010). *Psychology of Criminal Conduct* (Vol. 5). New Providence, NJ: LexisNexis.

Braddock, K., & Dillard, J. P. (2016). Meta-analytic evidence for the persuasive effect of narratives on beliefs, attitudes, intentions, and behaviors. *Communication Monographs, 83*(4), 446-467. doi:10.1080/03637751.2015.1128555

Braitman, K. A., Kirley, B. B., McCartt, A. T., & Chaudhary, N. K. (2008). Crashes of novice teenage drivers: Characteristics and contributing factors. *Journal of Safety Research, 39*(1), 47-54.

Bruijn, d. G. J., Gardner, B., Osch, v. L., & Sniehotta, F. F. (2014). Predicting automaticity in exercise behaviour: the role of perceived behavioural control, affect, intention, action planning, and behaviour. *International Journal of Behavioral Medicine, 21*(5), 767-774. doi:10.1007/s12529-013-9348-4

Buckley, L., Chapman, R. L., & Sheehan, M. (2014). Young driver distraction: state of the evidence and directions for behavior change programs. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine, 54*(5 Suppl), S16. doi:10.1016/j.jadohealth.2013.12.021

Bureau of Infrastructure, T. a. R. E. B. (2017). *Road Trauma Australia 2016 statistical summary*. Retrieved from Canberra, ACT: https://bitre.gov.au/publications/ongoing/files/Road_Trauma_Australia_2016_rev.pdf

Carpenter, C. S., & Nguyen, H. V. (2015). Effects of a Driver Cellphone Ban on Overall, Handheld, and Hands-Free Cellphone Use While Driving: New Evidence from Canada. *Health Economics, 24*(11), 1452-1467.

Carter, S. R. (2016). Using confirmatory factor analysis to manage discriminant validity issues in social pharmacy research. *International Journal of Clinical Pharmacy, 38*(3), 731-737. doi:10.1007/s11096-016-0302-9

Castanier, C., Deroche, T., & Woodman, T. (2013). Theory of planned behaviour and road violations: The moderating influence of perceived behavioural control. *Transportation Research Part F: Traffic Psychology and Behaviour, 18*, 148-158. doi:http://dx.doi.org/10.1016/j.trf.2012.12.014

Cazzulino, F., Burke, R. V., Muller, V., Arbogast, H., & Upperman, J. S. (2014). Cell phones and young drivers: a systematic review regarding the association between psychological factors and prevention. *Traffic Injury Prevention, 15*(3), 234-242. doi:10.1080/15389588.2013.822075

Chambers, J. A., & Swanson, V. (2006). A health assessment tool for multiple risk factors for obesity: Results from a pilot study with UK adults. *Patient Education and Counseling, 62*(1), 79-88. doi:http://dx.doi.org/10.1016/j.pec.2005.06.007

Chan, D. C. N., Wu, A. M. S., & Hung, E. P. W. (2010). Invulnerability and the intention to drink and drive: An application of the theory of planned behavior. *Accident Analysis & Prevention, 42*(6), 1549-1555. doi:http://dx.doi.org/10.1016/j.aap.2010.03.011

Charlton, S. G., & Starkey, N. J. (2013). Driving on familiar roads: Automaticity and inattention blindness. *Transportation Research Part F: Traffic Psychology and Behaviour, 19*(0), 121-133.

Chaykowski, K. (2016). Snapchat Passes 60 Million Daily Users In The U.S. And Canada. Retrieved from http://www.forbes.com/sites/kathleenchaykowski/2016/09/26/snapchat-passes-60-million-daily-users-in-the-u-s-and-canada/#2a9d7aa934dc

Chen, H.-Y. W., & Donmez, B. (2016). What drives technology-based distractions? A structural equation model on social-psychological factors of technology-based driver distraction engagement. *Accident Analysis & Prevention, 91*, 166-174.

Chen, H.-Y. W., Donmez, B., Hoekstra-Atwood, L., & Marulanda, S. (2016). Self-reported engagement in driver distraction: An application of the Theory of Planned Behaviour. *Transportation Research Part F: Traffic Psychology and Behaviour, 38*, 151-163.

Cheon, J., Lee, S., Crooks, S. M., & Song, J. (2012). An investigation of mobile learning readiness in higher education based on the theory of planned behavior. *Computers and Education, 59*(3), 1054-1064. doi:10.1016/j.compedu.2012.04.015

Collins, D. (2015). *Cognitive Interviewing Practice* (K. Metzler Ed.). London: SAGE Publications Ltd.

Conner, M., & Armitage, C. J. (1998). Extending the Theory of Planned Behavior: A Review and Avenues for Further Research. *Journal of Applied Social Psychology, 28*(15), 1429-1464. doi:10.1111/j.1559-1816.1998.tb01685.x

Cottle, C. C., Lee, R. J., & Heilbrun, K. (2001). The Prediction of Criminal Recidivism in Juveniles: A Meta-Analysis. *Criminal Justice and Behavior, 28*(3), 367-394.

Cowling, D. (2016). Social Media Statistics Australia – August 2016. *Social Media Statistics Australia*. Retrieved from http://www.socialmedianews.com.au/social-media-statistics-australia-august-2016/

Cramer, D. (2004a). Construct Validity. In D. Howitt (Ed.), *The SAGE Dictionary of Statistics*. SAGE Research Methods Online: SAGE.

Cramer, D. (2004b). t Test for Unrelated Samples. In D. Howitt (Ed.), *The SAGE Dictionary of Statistics*. SAGE Research Methods Online: SAGE.

Creaser, J. I., Edwards, C. J., Morris, N. L., & Donath, M. (2015). Are cellular phone blocking applications effective for novice teen drivers? *Journal of Safety Research, 54*, 75.e29-78.

Crits-Christoph, P., Gibbons, M. B. C., Ring-Kurtz, S., Gallop, R., & Present, J. (2009). A pilot study of community-friendly manual-guided drug counseling. *Journal of Substance Abuse Treatment, 37*(1), 8-16. doi:http://dx.doi.org/10.1016/j.jsat.2008.09.004

Croy, G., Gerrans, P., & Speelman, C. P. (2012). *Psychological determinants of retirement savings behaviour: an application of the theory of planned behaviour*. Saarbrücken: LAP Lambert Academic Publishing.

Dale, H., Scott, C., & Ozakinci, G. (2017). Safe Drive Stay Alive: exploring effectiveness of a real-world driving intervention for predrivers and the utility of the health action process approach. *Injury Prevention, 23*(2), 109-113. doi:10.1136/injuryprev-2015-041831

Deepend. (2014). *Australian mobile device ownership and home usage report 2014*. Retrieved from New South Wales: http://www.deepend.com.au/static/uploads/white-paper/papers/Deepend_White_Paper-Device_Usage_in_the_Home.pdf

Delgado, M. K., Wanner, K. J., & McDonald, C. (2016). Adolescent Cellphone Use While Driving: An Overview of the Literature and Promising Future Directions for Prevention. *Media and Communication, 4*(3), 79-89.

Deloitte. (2015). *Mobile Consumer Survey 2015 - The Australian Cut*. Retrieved from Sydney, Australia: http://landing.deloitte.com.au/rs/761-IBL-328/images/deloitte-au-tmt-mobile-consumer-survey-2015-291015.pdf

Department of Infrastructure and Regional Development. (2016). *Australian Road Death Database: Fatalities*. Retrieved from: https://www.bitre.gov.au/statistics/safety/fatal_road_crash_database.aspx

Department of Infrastructure and Transport. (2013). *Road Deaths Australia: 2012 Statistical Summary*. Retrieved from Canberra, Australia: http://www.bitre.gov.au/publications/ongoing/files/RDA_Summary_2012_June.pdf

Department of Transport Western Australia. (2014). Rules for Novice Drivers. Retrieved from http://www.transport.wa.gov.au/licensing/20424.asp

Dew, D. (2008). Misreporting. In P. J. Lavrakas (Ed.), *Encyclopedia of Survey Research Methods* (pp. 467-468). Thousand Oaks, CA: Sage Publications, Inc.

DPP v Chresta, 13744 of 2004 (NSW Supreme Court 2005).

Edith Cowan University. (2016). About ECU. Retrieved from http://www.ecu.edu.au/professorial-recruitment

Facebook. (2016). About Facebook. Retrieved from https://www.facebook.com/pg/facebook/about/

Farmer, C. M., Braitman, K. A., & Lund, A. K. (2010). Cell phone use while driving and attributable crash risk. *Traffic Injury Prevention, 11*(5), 466-470.

Farmer, C. M., Klauer, S. G., McClafferty, J. A., & Guo, F. (2015a). Relationship of Near-Crash/Crash Risk to Time Spent on a Cell Phone While Driving. *Traffic Injury Prevention, 16*(8), 792-800.

Farmer, C. M., Klauer, S. G., McClafferty, J. A., & Guo, F. (2015b). Secondary Behavior of Drivers on Cell Phones. *Traffic Injury Prevention, 16*(8), 801-808.

Fitch, G. M., Bartholomew, P. R., Hanowski, R. J., & Perez, M. A. (2015). Drivers' visual behavior when using handheld and hands-free cell phones. *Journal of Safety Research, 54*, 105.e129-108.

Flynn, K. (2015). How Many People Are On Tinder? Company Defends With 'Actual Data' In Vanity Fair Comeback. Retrieved from http://www.ibtimes.com/how-many-people-are-tinder-company-defends-actual-data-vanity-fair-comeback-2050092

Forward, S. E. (2009). The theory of planned behaviour: The role of descriptive norms and past behaviour in the prediction of drivers' intentions to violate. *Transportation Research Part F: Traffic Psychology and Behaviour, 12*(3), 198-207. doi:http://dx.doi.org/10.1016/j.trf.2008.12.002

Francis, J. J., Eccles, M. P., Johnston, M., Walker, A., Grimshaw, J., Foy, R., . . . Bonetti, D. (2004). *Constructing Questionnaires Based On The Theory of Planned Behaviour: A Manual For Health Services Researchers*. Retrieved from United Kingdom: http://pages.bangor.ac.uk/~pes004/exercise_psych/downloads/tpb_manual.pdf

Freydier, C., Berthelon, C., & Bastien-Toniazzo, M. (2016). Does early training improve driving skills of young novice French drivers? *Accident Analysis & Prevention, 96*, 228-236.

Gauld, C. S., Lewis, I., & White, K. M. (2014). Concealed texting while driving: What are young people's beliefs about this risky behaviour? *Safety Science, 65*(0), 63-69. doi:http://dx.doi.org/10.1016/j.ssci.2013.12.017

Gauld, C. S., Lewis, I., White, K. M., Fleiter, J. J., & Watson, B. (2017). Smartphone use while driving: What factors predict young drivers' intentions to initiate, read, and respond to social

interactive technology? *Computers in Human Behavior, 76*, 174-183. doi:https://doi.org/10.1016/j.chb.2017.07.023

Gelman, A., Hill, J., & Yajima, M. (2012). Why We (Usually) Don't Have to Worry About Multiple Comparisons. *Journal of Research on Educational Effectiveness, 5*, 189 - 211.

Giles, M. J. (2003). Correcting for selectivity bias in the estimation of road crash costs. *Applied Economics, 35*(11), 1291-1301. doi:10.1080/0003684032000090717

Glanz, K., Rimer, B. K., & Lewis, F. M. (2002). *Health behavior and health education : theory, research, and practice* (3rd ed. ed.). San Francisco :: Jossey-Bass.

Glasman, L. R., & Albarracín, D. (2006). Forming Attitudes That Predict Future Behavior: A Meta-Analysis of the Attitude-Behavior Relation. *Psychological Bulletin, 132*(5), 778-822. doi:10.1037/0033-2909.132.5.778

Glendon, A. I. (2011). Neuroscience and Young Drivers. In B. E. Porter (Ed.), *Handbook of Traffic Psychology* (pp. 109-125). San Diego: Academic Press.

Godin, G., Conner, M., & Sheeran, P. (2005). Bridging the intention-behaviour 'gap': The role of moral norm. *British Journal of Social Psychology, 44*(4), 497-512. doi:10.1348/014466604X17452

Google Inc. (Cartographer). (2018). Google Maps: My Maps. Retrieved from www.google.com/maps

Road Traffic Act 1974, (2017a).

Road Traffic Code 2000, (2017b).

Road Traffic Code 2000, 265 C.F.R. (2017c).

Freedom of Information Act 1992, (2018).

Graham, H., & White, R. (2007). Young People, Dangerous Driving and Car Culture. *Youth Studies Australia, 26*(3), 28-35.

Gupta, P. B., Burns, D. J., & Boyd, H. (2016). Texting While Driving: An Empirical Investigation of Students' Attitudes and Behaviors. *Information Systems Management, 33*(1), 88-101.

Hair, J. F. (2006). *Multivariate data analysis* (Vol. 6th). Upper Saddle River, N.J: Pearson Prentice Hall.

Hallett, C., Lambert, A., & Regan, M. A. (2011). Cell phone conversing while driving in New Zealand: Prevalence, risk perception and legislation. *Accident Analysis & Prevention, 43*(3), 862-869. doi:http://dx.doi.org/10.1016/j.aap.2010.11.006

Hatfield, J., & Fernandes, R. (2009). The role of risk-propensity in the risky driving of younger drivers. *Accident Analysis & Prevention, 41*(1), 25-35.

Hatfield, J., Friswell, R., & Williamson, A. (2015). *Road Crash Injuries: Cost and Prevention* (AP-R491-15). Retrieved from New South Wales, Australia:

Hattar, A., Pal, S., & Hagger, M. S. (2016). Predicting Physical Activity-Related Outcomes in Overweight and Obese Adults: A Health Action Process Approach. *Applied Psychology: Health and Well-Being, 8*(1), 127-151. doi:10.1111/aphw.12065

Hayashi, Y., Russo, C. T., & Wirth, O. (2015). Texting while driving as impulsive choice: A behavioral economic analysis. *Accident Analysis & Prevention, 83*, 182-189.

He, J., Chaparro, A., Wu, X., Crandall, J., & Ellis, J. (2015). Mutual interferences of driving and texting performance. *Computers in Human Behavior, 52*, 115-123.

Hsieh, C.-M., Park, S. H., & McNally, R. (2016). Application of the Extended Theory of Planned Behavior to Intention to Travel to Japan Among Taiwanese Youth: Investigating the Moderating Effect of Past Visit Experience. *Journal of Travel & Tourism Marketing, 33*(5), 717-729. doi:10.1080/10548408.2016.1167387

Huang, P., & Winston, F. K. (2011). Young Drivers. In B. E. Porter (Ed.), *Handbook of Traffic Psychology* (pp. 315-338). San Diego: Academic Press.

IBM Corp. (Released 2014.). SPSS Statistics, Version 23.0. Armonk, NY: IBM Corp.

Instagram. (2016). About Us. Retrieved from https://www.instagram.com/about/us/

Ismeik, M., Al-Kaisy, A., & Al-Ansari, K. (2015). Perceived risk of phoning while driving: A case study from Jordan. *Safety Science, 78*, 1-10.

Ivers, R., Senserrick, T., Boufous, S., Stevenson, M., Chen, H.-Y., Woodward, M., & Norton, R. (2009). Novice Drivers' Risky Driving Behavior, Risk Perception, and Crash Risk: Findings From the DRIVE Study. *American Journal of Public Health, 99*(9), 1638-1644.

Iversen, H. (2004). Risk-taking attitudes and risky driving behaviour. *Transportation Research Part F: Psychology and Behaviour, 7*(3), 135-150. doi:10.1016/j.trf.2003.11.003

Jessop, G. (2008). Who's on the line? Policing and enforcing laws relating to mobile phone use while driving. *International Journal of Law, Crime and Justice, 36*(3), 135-152.

Jiang, K., Ling, F., Feng, Z., Wang, K., & Shao, C. (2017). Why do drivers continue driving while fatigued? An application of the theory of planned behaviour. *Transportation Research Part A: Policy and Practice, 98*, 141-149. doi:https://doi.org/10.1016/j.tra.2017.02.003

Jupp, V. (2006). Simulation. In V. Jupp (Ed.), *The SAGE Dictionary of Social Research Methods*. SAGE Research Methods Online: SAGE.

Kovac, V. B., Cameron, D. L., & Høigaard, R. (2016). The extended Theory of Planned Behaviour and college grades: the role of cognition and past behaviour in the prediction of students' academic intentions and achievements. *Educational Psychology, 36*(4), 792-811. doi:10.1080/01443410.2014.923557

Kraus, S. J. (1995). Attitudes and prediction of behavior: A meta-analysis of the empirical literature. *Personality and Social Psychology Bullietin, 21*(1), 58-75.

Langford, J. (2009). Towards Zero: Understanding a Safe System approach to road safety. *Fact Sheet.* Retrieved from http://c-marc.curtin.edu.au/local/docs/CMARC%20Fact%20Sheet%201%20Towards%20Zero.pdf

Larsson, P., & Tingvall, C. (2013). The Safe System Approach – A Road Safety Strategy Based on Human Factors Principles. In D. Harris (Ed.), *Engineering Psychology and Cognitive Ergonomics. Applications and Services*. Sweden: Springer-Verlag Berlin Heidelberg.

Laschon, E. (2017). Mobile phones found by paramedics 'embedded' in crash victims' bodies, WA Minister says. *ABC Online*. Retrieved from http://www.abc.net.au/news/2017-01-04/mobile-phone-car-crash-embedded-in-victims-bodies-liza-harvey/8162028

Lavrakas, P. (2008a). Encyclopedia of Survey Research Methods. doi:10.4135/9781412963947

Lavrakas, P. (2008b). Opinion Norms. In P. Lavrakas (Ed.), *Encyclopedia of Survey Research Methods*. SAGE Research Methods Online: SAGE.

Lee, C. J., Geiger-Brown, J., & Beck, K. H. (2016). Intentions and willingness to drive while drowsy among university students: An application of an extended theory of planned behavior model. *Accident Analysis & Prevention, 93*, 113-123. doi:https://doi.org/10.1016/j.aap.2016.05.002

Lee, J. D., Young, K. L., & Regan, M. A. (2008). Defining driver distraction. In K. Young, J. D. Lee, & M. A. Regan (Eds.), *Driver Distraction: Theory, Effects, and Mitigation*. Boca Raton, FL: CRC Press.

Lee, Y.-j., Won, D., & Bang, H. (2014). Why do event volunteers return? Theory of planned behavior. *International Review on Public and Nonprofit Marketing, 11*(3), 229-241. doi:10.1007/s12208-014-0117-0

Lewis-Beck, M. S., Bryman, A., & Liao, T. F. (2004). Cronbach's Alpha. In M. S. Lewis-Beck, A. Bryman, & T. F. Liao (Eds.), *The SAGE Encyclopedia of Social Science Research Methods*. SAGE Research Methods Online: SAGE.

Lheureux, F., Auzoult, L., Charlois, C., Hardy-Massard, S., & Minary, J.-P. (2016). Traffic Offences: Planned or Habitual? Using the Theory of Planned Behaviour and habit strength to explain frequency and magnitude of speeding and driving under the influence of alcohol. *British Journal of Psychology, 107*(1), 52-71. doi:10.1111/bjop.12122

Li, M. Y., Frieze, I., & Tang, C. S.-k. (2010). Understanding Adolescent Peer Sexual Harassment and Abuse: Using the Theory of Planned Behavior. *Sexual Abuse, 22*(2), 157-171. doi:doi:10.1177/1079063210363827

Mahfoud, Z. R., Cheema, S., Alrouh, H., Al-Thani, M. H., Al-Thani, A. A. M., & Mamtani, R. (2015). Seat belt and mobile phone use among vehicle drivers in the city of Doha, Qatar: an observational study. *BMC Public Health, 15*, 937.

Manning, M. (2009). The effects of subjective norms on behaviour in the theory of planned behaviour: A meta-analysis. *British Journal of Social Psychology, 48*(4), 649-705. doi:10.1348/014466608X393136

Martinez-Brockman, J. L., Shebl, F. M., Harari, N., & Pérez-Escamilla, R. (2017). An assessment of the social cognitive predictors of exclusive breastfeeding behavior using the Health Action Process Approach. *Social Science & Medicine, 182*, 106-116. doi:https://doi.org/10.1016/j.socscimed.2017.04.014

Mathison, S. (2005). Construct Validity. In S. Mathison (Ed.), *Encyclopedia of Evaluation*. SAGE Research Methods Online: SAGE.

McCartt, A. T., Hellinga, L. A., & Bratiman, K. A. (2006). Cell phones and driving: review of research. *Traffic Injury Prevention, 7*(2), 89-106.

McCartt, A. T., Shabanova, V. I., & Leaf, W. A. (2003). Driving experience, crashes and traffic citations of teenage beginning drivers. *Accident Analysis & Prevention, 35*(3), 311-320.

McEvoy, S. P., Stevenson, M. R., & Woodward, M. (2006). Phone use and crashes while driving: a representative survey of drivers in two Australian states. *Medical Journal of Australia, 185*(11/12), 630-634.

McKnight, A. J., & McKnight, A. S. (2003). Young novice drivers: careless or clueless? *Accident Analysis & Prevention, 35*(6), 921-925.

McNabb, J., & Gray, R. (2016). Staying Connected on the Road: A Comparison of Different Types of Smart Phone Use in a Driving Simulator. *PLoS One, 11*(2).

Michael Bloor, F. W. (2006). *Piloting. Keywords in Qualitative Methods. SAGE Publications Ltd*. London, England: SAGE Publications Ltd.

Microsoft Corporation. (2010). Microsoft Excel (Version November, 2016). California, United States of America: Microsoft Corporation.

Mills, A. (2010). Thematic Analysis. In G. Durepos (Ed.), *Encyclopedia of Case Study Research*. Thousand Oaks, California.

Mizenko, A. J., Tefft, B. C., Arnold, L. S., & Grabowski, J. G. (2015). The relationship between age and driving attitudes and behaviors among older Americans. *Injury Epidemiology, 2*(1), 1-10.

Moan, I. S., & Rise, J. (2011). Predicting intentions not to "drink and drive" using an extended version of the theory of planned behaviour. *Accident Analysis & Prevention, 43*(4), 1378-1384. doi:https://doi.org/10.1016/j.aap.2011.02.012

Montaño, D. E., & Kasprzyk, D. (2002). Theory of Reasoned Action, Theory of Planned Behavior, and the Intergrated Behavioral Model. In K. Glanz, B. K. Rimer, & F. M. Lewis (Eds.), *Health Behavior and Health Education : Theory, Research, and Practice* (3rd ed. ed.). San Francisco :: Jossey-Bass.

Moore, D. S. (2000). *The Basic Practice of Statistics* (2nd ed.). United States of America: W H. Freeman and Company,.

Murgraff, V., McDermott, M. R., & Walsh, J. (2003). Self-Efficacy and Behavioral Enactment: The Application of Schwarzer's Health Action Process Approach to the Prediction of Low-Risk, Single-Occasion Drinking. *Journal of Applied Social Psychology, 33*(2), 339-361. doi:10.1111/j.1559-1816.2003.tb01900.x

Murphy, C. C., Vernon, S. W., Diamond, P. M., & Tiro, J. A. (2014). Competitive Testing of Health Behavior Theories: How Do Benefits, Barriers, Subjective Norm, and Intention Influence Mammography Behavior? *Annals of Behavioral Medicine, 47*(1), 120-129. doi:10.1007/s12160-013-9528-0

National Transport Commission. (2017). The Australian Road Rules. Retrieved from https://www.ntc.gov.au/roads/rules-compliance/the-australian-road-rules/

Nemme, H. E., & White, K. M. (2010). Texting while driving: Psychosocial influences on young people's texting intentions and behaviour. *Accident Analysis & Prevention, 42*(4), 1257-1265. doi:http://dx.doi.org/10.1016/j.aap.2010.01.019

Nielson. (2015). *The Mobile Story: Nielson Mobile Ratings, IAB Australia and Nielson, Smartphone and Tablet Audience Measurement (Australia, September Preview Data 2015)*. Retrieved from Sydney, Australia: https://www.iabaustralia.com.au/research-and-resources/research-resources/item/12-research-and-resource/2013-3rd-mobile-ratings-report-september-2015

Norman, P., & Conner, M. (2006). The theory of planned behaviour and binge drinking: Assessing the moderating role of past behaviour within the theory of planned behaviour. *British Journal of Health Psychology, 11*, 55-70.

Office of Road Safety. (1984). *Road traffic accident data and rates: Australia, States and Territories 1925 to 1981* (OR 7). Retrieved from Canberra: http://www.infrastructure.gov.au/roads/safety/publications/1984/pdf/Stats_Aust_1.pdf

Office of Road Safety. (2009). *Towards Zero - Road Safety Strategy*. Perth: Office of Road Safety Retrieved from http://www.ors.wa.gov.au/Documents/Strategies/ors-towards-zero-strategy.aspx.

Office of Road Safety, & Western Australian Police. (2014). *2013 Preliminary Fatal and Critical Injuries on WA Roads*. Retrieved from Western Australia: http://www.ors.wa.gov.au/Stats/Annual/annual-prelim-crash-stats-2013.aspx

Ogden, J. (2003). Some Problems With Social Cognition Models: A Pragmatic and Conceptual Analysis. *Health Psychology, 22*(4), 424-428. doi:10.1037/0278-6133.22.4.424

Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin, 124*(1), 54-74. doi:10.1037/0033-2909.124.1.54

Oxford University Press. (Ed.) (2014) Oxford Dictionaries. United Kingdom: Oxford University Press.

Papadakaki, M., Tzamalouka, G., Gnardellis, C., Lajunen, T. J., & Chliaoutakis, J. (2016). Driving performance while using a mobile phone: A simulation study of Greek professional drivers. *Transportation Research Part F: Traffic Psychology and Behaviour, 38*, 164-170.

Paris, H., & Broucke, S. V. d. (2008). Measuring cognitive determinants of speeding: An application of the theory of planned behaviour. *Transportation Research Part F: Traffic Psychology and Behaviour, 11*(3), 168-180. doi:http://dx.doi.org/10.1016/j.trf.2007.09.002

Park, H. S., Klein, K. A., Smith, S., & Martell, D. (2009). Separating Subjective Norms, University Descriptive and Injunctive Norms, and U.S. Descriptive and Injunctive Norms for Drinking

Behavior Intentions. *Health Communication, 24*(8), 746-751. doi:10.1080/10410230903265912

Peltzer, K. (2011). Road Use Behavior in Sub-Saharan Africa. In B. E. Porter (Ed.), *Handbook of Traffic Psychology* (pp. 503-518). San Diego: Academic Press.

Persaud, N. (2010). *Pilot Study. Encyclopedia of Research Design. SAGE Publications, Inc*. Thousand Oaks, CA: SAGE Publications, Inc.

Phommachanh, S., Ichikawa, M., Nakahara, S., Mayxay, M., & Kimura, A. (2016). Student motorcyclists' mobile phone use while driving in Vientiane, Laos. *International Journal of Injury Control and Safety Promotion*, 1-6.

Prat, F., Gras, M. E., Planes, M., González-Iglesias, B., & Sullman, M. J. M. (2015). Psychological predictors of texting while driving among university students. *Transportation Research Part F: Traffic Psychology and Behaviour, 34*, 76-85. doi:http://dx.doi.org/10.1016/j.trf.2015.07.023

Qualtrics. (2015). Qualtrics (Version November, 2016). Provo, Utah, USA: Qualtrics. Retrieved from http://www.qualtrics.com

Rahman, M. S., Osmangani, A. M., Daud, N. M., & Fadi Abdel Muniem, A. (2016). Knowledge sharing behaviors among non academic staff of higher learning institutions: Attitude, subjective norms and behavioral intention embedded model. *Library Review, 65*(1/2), 65-83. doi:10.1108/LR-02-2015-0017

Regan, M. A., & Hallett, C. (2011). Driver Distraction: Definition, Mechanisms, Effects, and Mitigation. In B. E. Porter (Ed.), *Handbook of Traffic Psychology* (pp. 275-286). San Diego: Academic Press.

Regan, M. A., Hallett, C., & Gordon, C. P. (2011). Driver distraction and driver inattention: Definition, relationship and taxonomy. *Accident Analysis & Prevention, 43*(5), 1771-1781.

Rhodes, R. E. (2015). Will the new theories (and theoreticians!) please stand up? A commentary on Sniehotta, Presseau and Araújo-Soares. *Health Psychology Review, 9*(2), 156-159. doi:10.1080/17437199.2014.882739

Rhodes, R. E., Brown, S. G., & McIntyre, C. A. (2006). Integrating the Perceived Neighborhood Environment and the Theory of Planned Behavior When Predicting Walking in a Canadian Adult Sample. *American Journal of Health Promotion, 21*(2), 110-118.

Risbey, T., Cregan, M., & Silva, H. D. (2010). *Social Cost of Road Crashes.* Paper presented at the Australasian Transport Research Forum 2010, Canberra, Australia.

Rivis, A., & Sheeran, P. (2003). Descriptive norms as an additional predictor in the theory of planned behaviour: A meta-analysis. *Current Psychology, 22*(3), 218-233. doi:10.1007/s12144-003-1018-2

Road Safety Commission. (2017). Mobile Phones. Retrieved from https://www.rsc.wa.gov.au/Road-Rules/Browse/Mobile-Phones

Roberts, L., & Indermaur, D. (2005). Boys and Road Rage: Driving-Related Violence and Aggression in Western Australia. *The Australian and New Zealand Journal of Criminology, 38*(3), 361-380. doi:10.1375/acri.38.3.361

Rocco, L., & Sampaio, B. (2015). Are handheld cell phone and texting bans really effective in reducing fatalities? *Empirical Economics*, 1-24.

Rothengatter, T., & Manstead, A. S. R. (1997). The Role of Subjective Norm in Predicting the Intention to Commit Traffic Violations. In T. Rothengatter & E. C. Vaya (Eds.), *Traffic and Transport Psychology: Theory and Application* (pp. 389-394). Amsterdam: Pergamon.

Rowe, R., Andrews, E., Harris, P. R., Armitage, C. J., McKenna, F. P., & Norman, P. (2016). Identifying beliefs underlying pre-drivers' intentions to take risks: An application of the Theory of Planned Behaviour. *Accident Analysis & Prevention, 89*, 49-56. doi:http://dx.doi.org/10.1016/j.aap.2015.12.024

Rudisill, T. M. (2016). Who actually receives cell phone use while driving citations and how much are these laws enforced among states? A descriptive, cross-sectional study. *BMJ Open, 6*(6), 2044-6055.

Rudisill, T. M., & Zhu, M. (2015). The association between states' texting regulations and the prevalence of texting while driving among U.S. high school students. *Annals of Epidemiology, 25*(12), 888-893.

Sabey, B. E., & Taylor, H. (1980). *The Known Risks We Run: The Highway*. Retrieved from Crowthorne, Berkshire:

Salkind, N. (2010a). Pearson Product-Moment Correlation Coefficient. In N. Salkind (Ed.), *Encyclopedia of Research Design*. Thousand Oaks, California: SAGE.

Salkind, N. (2010b). T-Test, Independent Samples. In N. Salkind (Ed.), *Encyclopedia of Research Design*. Thousand Oaks, California: SAGE.

Sanbonmatsu, D. M., Strayer, D. L., Behrends, A. A., Ward, N., & Watson, J. M. (2016). Why drivers use cell phones and support legislation to restrict this practice. *Accident Analysis & Prevention, 92*, 22-33. doi:http://dx.doi.org/10.1016/j.aap.2016.03.010

Sanbonmatsu, D. M., Strayer, D. L., Biondi, F., Behrends, A. A., & Moore, S. M. (2016). Cell-phone use diminishes self-awareness of impaired driving. *Psychonomic Bulletin & Review, 23*(2), 617-623.

Schwandt, T. (2007). Thematic Analysis. In T. A. Schwandt (Ed.), *The SAGE Dictionary of Qualitative Inquiry* (3 ed.). SAGE Research Methods Online: SAGE.

Schwarzer, R. (1992). Self-efficacy in the adoption and maintenance of health behaviors: Theoretical approaches and a new model. In *Self-efficacy: Thought control of action.* (pp. 217-243). Washington, DC, US: Hemisphere Publishing Corp.

Scott-Parker, B., Goode, N., Salmon, P. M., & Senserrick, T. (2016). Knowing me knowing you: Key players and their interactions within the young driver road safety system. *Safety Science, 88*, 88-96.

Scott-Parker, B., Hyde, M. K., Watson, B., & King, M. J. (2013). Speeding by young novice drivers: What can personal characteristics and psychosocial theory add to our understanding? *Accident; analysis and prevention, 50*, 242-250. doi:10.1016/j.aap.2012.04.010

Scott-Parker, B., King, M. J., & Watson, B. (2015). The psychosocial purpose of driving and its relationship with the risky driving behaviour of young novice drivers. *Transportation Research Part F: Traffic Psychology and Behaviour, 33*, 16-26.

Scott-Parker, B., Watson, B., King, M. J., & Hyde, M. K. (2014). Young novice drivers and the risky behaviours of parents and friends during the Provisional (intermediate) licence phase: A brief report. *Accident Analysis & Prevention, 69*, 51-55.

Sensis. (2016). *Sensis Social Media Report 2016: How Australian people and businesses are using social media*. Retrieved from Australia: https://www.sensis.com.au/assets/PDFdirectory/Sensis_Social_Media_Report_2016.PDF

Seo, M., Kim, J.-H., & David, P. (2015). Always Connected or Always Distracted? ADHD Symptoms and Social Assurance Explain Problematic Use of Mobile Phone and Multicommunicating. *Journal of Computer-Mediated Communication, 20*(6), 667-681.

Sheeran, P., Orbell, S., & Trafimow, D. (1999). Does the Temporal Stability of Behavioral Intentions Moderate Intention-Behavior and Past Behavior-Future Behavior Relations? *PERSONALITY AND SOCIAL PSYCHOLOGY BULLETIN, 25*(6), 724-734. doi:doi:10.1177/0146167299025006007

Sheppard, B. H., Hartwick, J., & Warshaw, P. R. (1988). The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research. *Journal of Consumer Research, 15*(3), 325-343.

Shuman, T., Wu, X., Wan, Y., Zhang, S., Hao, J., & Fangbiao, T. (2016). Interactions of problematic mobile phone use and psychopathological symptoms with unintentional injuries: a school-based sample of Chinese adolescents. *BMC Public Health, 16*.

Singh, S. (2015). *Critical reasons for crashes investigated in the National Motor Vehicle Crash Causation Survey* (DOT HS 812 115). Retrieved from Washington, DC:

Snap Inc. (2016). Snap Inc. Retrieved from https://www.snap.com/en-US/

Sniehotta, F. F., Gellert, P., Witham, M. D., Donnan, P. T., Crombie, I. K., & McMurdo, M. E. T. (2013). Psychological theory in an interdisciplinary context: Psychological, demographic, health-related, social, and environmental correlates of physical activity in a representative cohort of community-dwelling older adults. *International Journal of Behavioral Nutrition and Physical Activity, 10*(1), 106. doi:10.1186/1479-5868-10-106

Sniehotta, F. F., Presseau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review, 8*(1), 1-7. doi:10.1080/17437199.2013.869710

Stavrinos, D., Garner, A. A., Franklin, C. A., Johnson, H. D., Welburn, S. C., Griffin, R., . . . Fine, P. R. (2015). Distracted Driving in Teens With and Without Attention-Deficit/Hyperactivity Disorder. *Journal of Pediatric Nursing, 30*(5), e183-e191.

Strayer, D. L., Turrill, J., Cooper, J. M., Coleman, J. R., Medeiros-Ward, N., & Biondi, F. (2015). Assessing Cognitive Distraction in the Automobile. *Human Factors: The Journal of the Human Factors and Ergonomics Society, 57*(8), 1300-1324.

Tabachnick, B. G., & Fidell, L. S. (2014). *Using Multivariate Statistics* (6th ed.). Essex, England: Pearson Education Limited.

Terry, C. P., & Terry, D. L. (2015). Cell Phone-Related Near Accidents Among Young Drivers: Associations With Mindfulness. *The Journal of Psychology, 149*(7), 665-683.

Terry, C. P., & Terry, D. L. (2016). Distracted Driving Among College Students: Perceived Risk Versus Reality. *Current Psychology, 35*(1), 115-120. doi:10.1007/s12144-015-9373-3

The World Bank Group, & University of Washington. (2014). *Transport for Health: The Global Burden of Disease from Motorized Road Transport*. Retrieved from United States of America: http://siteresources.worldbank.org/INTTOPGLOROASAF/Resources/IHME_T4H_FINAL_TO_WORLD_BANK-compressed.pdf

Thompson, P. E., Hill, D. L., Beidatsch, K. P., & Bramwell, J. (2013). *Reported Road Crashes in Western Australia 2011*. Retrieved from Western Australia: http://www.ors.wa.gov.au/Stats/Annual/annual-crash-stats-2011.aspx

Tivesten, E., & Wiberg, H. (2013). What can the drivers' own description from combined sources provide in an analysis of driver distraction and low vigilance in accident situations? *Accident Analysis & Prevention, 52*, 51-63.

Tourangeau, R. (1984). Cognitive Sciences and Survey Methods. In T. B. Jabine, M. L. Straf, J. M. Tanur, & R. Tourangeau (Eds.), *Cognitive Aspects of Survey Methodology: Building a Bridge Between Disciplines* (pp. 73-100). Washington, DC, USA: National Academies Press.

Trewin, D. (2001). *Year Book Australia, 2001* (1301.0). Retrieved from Canberra: http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/7B268DE64F791420CA2569DF00012F05/$File/13010_2001.pdf

Triandis, H. C. (1977). *Interpersonal behavior*. Monterey, California: Brooks/Cole Pub. Co.

Truong, L. T., Nguyen, H. T. T., & De Gruyter, C. (2016). Mobile phone use among motorcyclists and electric bike riders: A case study of Hanoi, Vietnam. *Accident Analysis & Prevention, 91*, 208-215.

Tucker, S., Pek, S., Morrish, J., & Ruf, M. (2015). Prevalence of texting while driving and other risky driving behaviors among young people in Ontario, Canada: Evidence from 2012 and 2014. *Accident Analysis & Prevention, 84*, 144-152.

Twitter. (2016). Twitter Usage/Company Facts. Retrieved from https://about.twitter.com/company

Tyler, T. R. (2006). *Why People Obey The Law*. New Jersey, USA: Princeton University Press.

Van Dyke, N. A., & Fillmore, M. T. (2015). Distraction produces over-additive increases in the degree to which alcohol impairs driving performance. *Psychopharmacology, 232*(23), 4277-4284.

Verster, J. C., & Roth, T. (2011). Standard operation procedures for conducting the on-the-road driving test, and measurement of the standard deviation of lateral position (SDLP). *International Journal of General Medicine, 2011*(4), 359—371. doi:https://doi.org/10.2147/IJGM.S19639

Vogt, W. (2005a). Construct Validity. In *Dictionary of Statistics & Methodology* (3 ed.). SAGE Research Methods Online: SAGE.

Vogt, W. (2005b). Cronbach's Alpha. In W. P. Vogt (Ed.), *Dictionary of Statistics & Methodology* (3 ed.). SAGE Research Methods Online: SAGE.

Vogt, W. (2005c). Levene's Test. In W. P. Vogt (Ed.), *Dictionary of Statistics and Methodology* (3 ed.). SAGE Research Methods Online: SAGE.

Vogt, W. (2005d). T-Test. In W. Vogt (Ed.), *Dictionary of Statistics & Methodology* (3 ed.). SAGE Research Methods Online: SAGE.

Waddell, L. P., & Wiener, K. K. K. (2014). What's driving illegal mobile phone use? Psychosocial influences on drivers' intentions to use hand-held mobile phones. *Transportation Research Part F: Traffic Psychology and Behaviour, 22*(0), 1-11.

Walsh, S. P., White, K. M., Hyde, M. K., & Watson, B. (2008). Dialling and driving: Factors influencing intentions to use a mobile phone while driving. *Accident Analysis & Prevention, 40*(6), 1893-1900. doi:http://dx.doi.org/10.1016/j.aap.2008.07.005

Western Australia Police. (2016). *Annual Report 2016*. Retrieved from Perth, Western Australia: https://www.police.wa.gov.au/About-Us/Our-agency/Annual-report

Western Australia Road Safety Commission. (2016a). *2015 Preliminary Fatal and Critical Injuries on WA Roads - Summary*. Retrieved from Western Australia: https://rsc.wa.gov.au/Stats/Annual/annual-prelim-crash-statistics-2015.aspx

Western Australia Road Safety Commission. (2016b). Double Demerits. Retrieved from https://rsc.wa.gov.au/Road-Rules-Penalties/Double-Demerits

Western Australia Road Safety Commission. (2016c). *Reported road crashes in Western Australia 2014*. Retrieved from Perth, Western Australia: https://rsc.wa.gov.au/Documents/Statistics/Annual/annual-crash-statistics-2014.aspx

Western Australian Police. (2011). *Road Policing Strategy 2011-2014*. Perth: Western Australian Police Retrieved from http://www.police.wa.gov.au/LinkClick.aspx?fileticket=4UFh4GZTaxA%3D&tabid=1525.

White, K. M., Hyde, M. K., Walsh, S. P., & Watson, B. (2010). Mobile phone use while driving: An investigation of the beliefs influencing drivers' hands-free and hand-held mobile phone use. *Transportation Research Part F: Traffic Psychology and Behaviour, 13*(1), 9-20.

Wong, C. L., & Mullan, B. A. (2009). Predicting breakfast consumption: An application of the theory of planned behaviour and the investigation of past behaviour and executive function. *British Journal of Health Psychology, 14*(3), 489-504. doi:10.1348/135910708X360719

World Health Organization. (2010). *Global Plan for the Decade of Action for Road Safety 2011 - 2020*. Retrieved from Geneva, Switzerland: http://www.who.int/roadsafety/decade_of_action/plan/plan_english.pdf?ua=1

World Health Organization. (2013). *Global status report on road safety 2013: supporting a decade of action*. Retrieved from Luxembourg: http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/

World Health Organization. (2015). *Global status report on road safety 2015*. Retrieved from Italy: http://www.who.int/violence_injury_prevention/road_safety_status/2015/en/

Yanko, M. R., & Spalek, T. M. (2013). Route familiarity breeds inattention: A driving simulator study. *Accident Analysis & Prevention, 57*, 80-86. doi:http://dx.doi.org/10.1016/j.aap.2013.04.003

Young, K. L., & Lenné, M. G. (2010). Driver engagement in distracting activities and the strategies used to minimise risk. *Safety Science, 48*(3), 326-332.

Young, K. L., Rudin-Brown, C. M., & Lenné, M. G. (2010). Look Who's Talking! A Roadside Survey of Drivers' Cell Phone Use. *Traffic Injury Prevention, 11*(6), 555-560.

Zhou, R., Rau, P.-L. P., Zhang, W., & Zhuang, D. (2012). Mobile phone use while driving: Predicting drivers' answering intentions and compensatory decisions. *Safety Science, 50*(1), 138-149. doi:http://dx.doi.org/10.1016/j.ssci.2011.07.013