



Understanding the psychological precursors of young drivers' willingness to speed and text while driving



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ABSTRACT

This study applied the Prototype Willingness Model (PWM) to investigate the factors that may predict young drivers' (non-intentional) willingness to text while driving, text while stopped, and engage in high and low levels of speeding. In addition, the study sought to assess whether general optimism bias would predict young drivers' willingness to text and speed over and above the PWM. Licenced drivers ($N = 183$) aged 17–25 years ($M = 19.84$, $SD = 2.30$) in Queensland, Australia completed an online survey. Hierarchical multiple regressions revealed that the PWM was effective in explaining the variance in willingness to perform all four illegal driving behaviours. Particularly, young drivers who possessed favourable attitudes and a positive prototype perception towards these behaviours were more willing to engage in texting and speeding. In contrast to the study's predictions, optimistically biased beliefs decreased young drivers' willingness to text while stopped and engage in high and low levels of speeding. The findings of the study may help inform policy and educational campaigns to better target risky driving behaviours by considering the influence of attitudes, prototypes and the non-intentional pathway that may lead to engagement in texting while driving and stopped and engagement in high and low levels of speeding.

1. Introduction

Road crashes are the leading cause of death and serious injury among young adults. In Australia, for instance, 226 young drivers aged between 17 and 25 years died as a result of a car crash in 2015, contributing to 19% of all fatally injured drivers (Bureau of Infrastructure, Transport and Regional Economics [BITRE], 2016). Previous research has suggested that the foremost predictive factor for young drivers' injury and fatality is their risky driving behaviours, including speeding and distracted driving (e.g., Constantinou et al., 2011). Of these risky behaviours, distracted driving involving mobile phone use and speeding are among the key contributing behaviours to young driver fatal crashes (Department of Transport and Main Roads, 2012) and, therefore are the focus of this paper.

The purpose of this study was to examine young drivers' beliefs, perceptions, and decision-making processes that may determine their willingness to engage in four risky driving behaviours: texting while driving (TWD), texting while stopped (TWS), high level speeding (HLS), and low level speeding (LLS). The Prototype Willingness Model (PWM) was applied to investigate the factors that may predict young drivers'

(non-intentional) willingness to engage in these aforementioned on-road behaviours. In addition, the current research extended upon the PWM to include the phenomenon of general optimism bias, to assess whether this distinct construct of risk perception may predict young drivers' willingness to TWD, TWS, HLS, and LLS, above and beyond the constructs of the PWM.

1.1. Texting while driving

TWD refers to opening, reading, or sending text-messages on a mobile phone while driving and has been reported to increase the risk of being involved in a car crash (McEvoy et al., 2005). In Australia, it is illegal for drivers to physically hold a mobile phone for any purpose while driving and while stopped in traffic (Queensland Government, 2018). Despite this, young Australian drivers (18–25-years-old) continue to use a mobile phone when driving. For instance, an Australian study by Gauld et al. (2014) found that 60.8% of drivers ($N = 171$) reported reading a text message in a concealed manner at least 1–2 times per a week, with 50.9% reporting sending a text message in a concealed manner at least 1–2 times per a week. Given that TWD is a

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large problem among younger drivers (Harrison, 2011) the current study focused on drivers' willingness to engage in this risky driving behaviour.

TWS refers to when the vehicle is stationary in traffic while the driver is texting (e.g., when stopped at a traffic light). TWS has generally been perceived as a 'low-risk' and even a 'safe' behaviour (Caird et al., 2014). However, these notions are ill advised, as TWS is still a significant safety issue, slowing reaction time and leading to a decline or loss of awareness (Bernstein and Bernstein, 2015). Previous research has suggested that TWD and TWS should be assessed as separate behaviours given that drivers may perceive that TWS to be the more "safer" behaviour compared to TWD (e.g., Atchley et al., 2011). The influence of these separate behaviours has yet to be comprehensively researched and therefore, TWD and TWS were assessed separately in the current study.

1.2. Speeding

In addition to mobile phone use, speed is another factor that has been reported to increase crash risk. Previous research highlights that speeding not only increases the risk of crashing, but also the severity of injuries associated with these crashes (Kloeden et al., 1997). Slowed reaction time, increased stopping distance after braking, reduced vehicle control, greater impact force, and speed variation disrupting a homogenous traffic flow are just some of the potential dangerous outcomes of speeding (Global Road Safety Partnership, 2008). However, despite the risks associated with the behaviour, young drivers continue to speed (Scott-Parker and Oviedo-Trespalacios, 2017). Therefore, it is critical that research continues to investigate the cognitive predecessors that may be influencing young drivers' willingness to speed, and more specifically, the differences that may arise in these cognitions between LLS (driving up to 10 km/h above the speed limit) and HLS (driving more than 10 km/h above the speed limit).

1.3. Prototype willingness model

Among the research aimed at explaining and understanding why young adults continuously partake in risk taking behaviours, some studies have posited that the particular risk behaviour has been planned, reasoned and intended (Gerrard et al., 2008). However, this is not always the case, as intention is not always the best or only predictor of risk taking behaviour. An example of this is the discrepancy between what an individual reports regarding their intentions to perform a particular risky behaviour and their actual future behaviour (Gibbons et al., 1995a). For instance, Gibbons and Gerrard (1995) found that out of the adolescents' who reported they had no intention to drink alcohol in the coming year, a year later 20% of this group of non-intenders had in fact drank (Gerrard et al., 2003). Typically, then when asked why they ended up performing the behaviour they did not intend to do, adolescents respond with "it just happened", often in reaction to a social setting or stimuli (Gibbons et al., 2006). Hence, this finding further emphasises the socially, unplanned, risk conducive decision-making process of engaging or performing in risky behaviours. As a result of the growing findings that an individuals' engagement in a risky behaviour may also be a product of social reaction and unintentional willingness as well as intention, Gibbons and Gerrard (1995; see also Gibbons et al., 1998; Gerrard et al., 2002, 2003) created the Prototype Willingness Model (PWM).

The PWM is a dual-process model aimed at explaining the elements involved in the decision-making process of adolescents' and young adults' likelihood of performing risky behaviours (Gerrard et al., 2008; Gibbons et al., 2006). The PWM (see Fig. 1) predicts that the route leading to risky behaviour includes two pathways involving different types of information processing: the reasoned action path and the social reaction path. The reasoned action path has been proposed to reflect intended risk taking behaviour whereas the social reaction path has

been proposed to reflect more reactive behaviours (i.e., behaviour that has not been pre-planned; Gibbons et al., 2009). Both pathways incorporate an element of risk perception (perceived conditional vulnerability, herein referred to as risk perception) as well as previous behaviour, which is usually described as the best predictor of the proceeding constructs and behavioural outcomes of the model (Gerrard et al., 2008; Gibbons et al., 2006). While intentions and the reasoned action path have already been comprehensively studied in the context of speeding behaviour and texting while driving or stopped (utilising the Theory of Planned Behaviour; e.g., Forward, 2009; Gauld et al., 2014), there has been limited research which has assessed willingness and the social reaction path. Further, and given that young drivers' engagement in TWD and speeding may be a reaction to the current driving situation (e.g., receiving a text message while driving or engaging in speeding behaviour due to running late to an appointment), the focus of this paper is on the social reaction path.

The social reaction path theorises that due to social opportunity, young adults may be willing to engage in a risky behaviour that they did not intend on partaking in (Schmidt et al., 2014). The social reaction path includes attitudes, risk perception, subjective norms, and prototypes which are proposed to predict behavioural willingness (referred to hereafter as willingness), leading to risky behaviour. Attitudes refer to how an individual feels and what they believe about a particular behaviour (e.g., good or bad; Lambert and Laird, 2016). Risk perception can be defined as an individual's subjective experience and awareness of risk, which determines how they will perceive their own susceptibility of injury (or not) and consequence when partaking in a particular risky behaviour (Deery, 1999). Subjective norms encompass an individual's belief about how important people in their life would react to them partaking in a certain risky behaviour (Gibbons et al., 1995b). Prototypes are the perceived social image that an individual internally possesses about the typical person their age and sex who would engage in a particular behaviour (Todd et al., 2014). Two factors of perceptions shape and influence ones' prototype perception: similarity, how similar or dissimilar individuals believe they are to their prototype, and favourability, how much they positively or negatively perceive their prototype (van Lettow et al., 2016). The PWM suggests that the higher people positively perceive their prototype, and the more similar they believe they are to their prototype, the greater the likelihood that they will engage in the risky behaviour described in the prototype (Rivis et al., 2006). Finally, willingness is defined as an individuals' openness to risky behaviour opportunity, which is more impulsive and less contemplative than intention (Gibbons et al., 2009). While research has applied the constructs of the PWM to investigate willingness to engage in mobile phone use while driving (Rozario et al., 2010) and speeding behaviour (e.g., Chalesghar et al., 2013; Elliott et al., 2016); to the best of the authors' knowledge, there has been no published research which has applied the PWM to assess texting while driving and stopped and high and low levels of speeding.

1.4. Optimism bias

Research has found that although most drivers are aware of the risks associated with risky driving, regardless, they still believe that these risks do not apply to themselves (DeJoy, 1989). Within the road safety literature, optimism bias has commonly been measured by perceived risk of being involved in or being responsible for a car crash and the perception of the individual's own driving skills and capabilities compared to others (e.g., Delhomme et al., 2009; White et al., 2011). For instance, White et al. (2011) found that young drivers perceived themselves to be more skilled and less likely to be involved in a car crash compared to their typical peers. While this previous research has focused on state-based optimism bias relating specifically to driving behaviours, general trait-based optimism bias has yet to be explicitly researched in how it may influence engagement in risky driving behaviours. It is important to understand and differentiate optimism bias

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