



# Factors influencing intentions to text while driving among Polish drivers



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## ABSTRACT

Previous research has found that using a mobile phone while driving has a detrimental effect on driver safety and performance. The present study used the Theory of Planned Behaviour (TPB) to examine a number of factors thought to be related to intentions to send or read text messages while driving. A total of 298 Polish drivers completed a survey that included measures of the TPB components related to intentions to send or read text messages in four different scenarios. The scenarios differed according to whether or not the drivers were waiting at traffic lights or travelling at 100 km/h and according to whether or not they were under time pressure. The research found that Attitudes and Perceived Behavioural Control were positive predictors of general intentions to use a mobile phone while driving. Similarly, Attitudes consistently predicted intentions to send and read text messages across the four scenarios. The findings of this study could be utilised for developing an educational campaign aimed at promoting more positive attitudes toward road safety and at reducing intentions to use mobile phones while driving.

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## 1. Introduction

A large body of research has shown that driver distractions are a major cause of motor vehicle collisions (e.g., Caird, Johnston, Willness, Asbridge, & Steel, 2014). As the research demonstrates, engagement in tasks such as “manual typing, texting, dialling, reaching for an object, or reading” are among the most distracting activities behind the wheel (Dingus, 2014). The statistics on vehicle crashes caused by distracted driving highlight the scale of the problem. In 2012, for instance, 3328 people were killed in distraction-related crashes on American roads (NHTSA, 2015). This same research found that the vast majority of American teens and young adults reported that they had read (78%) and sent (71%) text messages while driving. Distracted driving can be defined as “any activity that could divert a person’s attention away from the primary task of driving” (NHTSA, 2015). Thus, there is general consensus among researchers that mobile phones are a serious distraction among drivers, regardless of whether they are handheld or hands-free (e.g., He et al., 2014). For example, drivers made more lane excursions when sending and receiving text messages (Curry, Greenberg, & Blanco, 2002). Furthermore, texting drivers compensated for distraction by increasing their following distances or reducing their speed (Strayer & Drews, 2004).

Texting while driving is a particularly risky activity, as it not only requires the driver’s attention, but also diverts the driver’s eyes away from the road to the mobile phone. Further, Hosking, Young, and Regan (2006) found that sending text messages significantly impaired the perception of safety critical messages during driving. Not only does using a mobile phone while driving reduce concentration, but it also has a detrimental effect on cognitive functions. Using a mobile phone requires the use of

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one's working memory which is also required for concentrating on the road, resulting in impaired lane position and reaction times (Irwin, Monement, & Desbrow, 2015). Texting while driving also increases the probability of crashing. For instance, in a simulator study, Bendak (2014) found that drivers who were texting while driving crossed lane and road boundaries more often, diverted their eyes from the road more frequently, and had five times as many crashes as drivers who were not texting.

The problem of distracted driving concerns all drivers regardless of their age (Pope, Bell, & Stavrinou, 2017; Prat, Gras, Planes, Font-Mayolas, & Sullman, 2017). Rumschlag et al. (2015) examined the effects of texting on the driving performance of 50 drivers (aged 18–59 years) who engaged in a series of brief text conversations while driving in a simulator. The authors concluded that texting was a significant distraction that had a detrimental effect on driving, even when texting skill was taken into consideration. However, in the same study, they also found relationships between the proportion of lane excursions, texting skill level, and age. As regards gender differences, most research has found none in the frequency of texting, but there were differences in the length of the text messages, with women writing significantly shorter messages than men (Struckman-Johnson, Gaster, Struckman-Johnson, Johnson, & May-Shinagle, 2015). Furthermore, Struckman-Johnson et al. (2015) found that texting while driving was positively related to mobile phone dependence, risky behavioural tendencies, texting distractibility, crash risk estimates, and driving confidence. Furthermore, in a meta-analysis, Caird et al. (2014) examined the relationship between text messaging and driving performance as manifested in eye movements, stimulus detection, reaction time, collisions, lane positioning, speed, and headway. They found that typing and reading text messages had a significant negative impact on driver attention while driving. Research has also examined whether the detrimental effects of texting could be ameliorated by speech-based text entry. However, He, Choi, McCarley, Chaparro, and Wang (2015) found that although speech-based text entry had a lower detrimental effect on driving, compared to manual texting, it still significantly disrupted driving performance.

There are a small number of studies that have shown that the Theory of Planned Behaviour (TPB; Ajzen, 1991) can be used to explain mobile phone use while driving (e.g., Nemme & White, 2010). An underlying assumption of the TPB model is that intentions predict behaviour and that intentions result from an individual's attitude towards a particular behaviour, subjective norms, and perceived behavioural control (PBC) over the behaviour. Attitude is the positive or negative evaluation of the behaviour, subjective norms refer to the perception of whether important others would approve or disapprove of the behaviour, while PBC is the perceived level of control that one has over this behaviour. According to a number of researchers (Ajzen, 2002; Trafimow, Sheeran, Conner, & Finlay, 2002), PBC can be conceived as a multidimensional higher-order concept that consists of two separate but interrelated constructs: self-efficacy and controllability. However, for the driving behaviours investigated in the present study, we wanted to demonstrate the role of PBC as a global measure in order to see how it relates to intentions without splitting the construct into instrumental and affective dimensions. This approach has also been used by previous research into driver distraction (e.g., Walsh, White, Hyde, & Watson, 2008).

With the increase in the use of modern devices in cars, including mobile phones, the phenomenon of driver distraction is becoming increasingly important. Surprisingly, despite the awareness of risk and the fact that this practice is illegal in most developed countries, many drivers continue to text while driving regardless of the potential serious consequences (Sullman & Baas, 2004; Sullman, Prat, & Kuzu-Tasci, 2015). Perhaps the reason for this is that drivers underestimate the risk involved in this behaviour (Kannellaidis, Goliadis, & Zarifopoulos, 1995), but nonetheless the perceived risk of using mobile phones is an important psychological construct underpinning the habit of texting while driving (see Stradling & Parker, 1997). Previous research has found that risk perceptions were negatively related to making and taking calls while driving, but not to the overall frequency of talking while driving (Nelson, Atchley, & Little, 2009). It seems that perceived risk perception does not directly lead to actual behaviour. Therefore, risk perceptions (perceived crash risk and perceived risk of apprehension) were included in the present study. Previous research on attitudes towards mobile phone use could provide the foundations for developing educational campaigns targeted at those who use mobile phones while driving.

### 1.1. The present study

The present study was conducted in Poland, which has the highest (109 per million) road fatality rate in the EU (European Commission, 2014). For example, in 2013, 3291 people died in motor vehicle collisions and 43,471 were injured on Polish roads (Police stats, 2013). Driver distraction is one of the major causes of motor vehicle crashes, with many drivers using a mobile phone despite the fact that this practice is illegal and that, if caught, they may be fined. This issue is also particularly topical, as police statistics indicate that in 2013 three times as many drivers were fined for breaking the law regarding mobile phone use while driving as in 2012. The present study examined the intentions to text while driving and their predictors using the TPB. This study primarily focused on young people, due to the higher prevalence of mobile phone use among younger drivers (e.g., Yanniss, Roumpas, & Papadimitriou, 2016).

## 2. Method

### 2.1. Participants and procedure

We collected data over a period of three months, using two approaches. Firstly, we used snowball sampling. A group of undergraduate psychology students, who received credit points for assisting with the study, were asked to pass the question-

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