An application of the theory of planned behaviour to truck driving behaviour and compliance with regulations

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Abstract
A questionnaire study was conducted with truck drivers to help understand driving and compliance behaviour using the theory of planned behaviour (TPB). Path analysis examined the ability of the TPB to explain the direct and indirect factors involved in self-reported driving behaviour and regulation compliance. Law abiding driving behaviour in trucks was related more to attitudes, subjective norms and intentions than perceived behavioural control. For compliance with UK truck regulations, perceived behavioural control had the largest direct effect. The differing results of the path analyses for driving behaviour and compliance behaviour suggest that any future interventions that may be targeted at improving either on-road behaviour or compliance with regulations would require different approaches.

1. Introduction
The importance of occupational health has increased dramatically in recent years, with growing public and political pressure for corporate and individual accountability (HSE, 2004). In countries such as the United States, Australia and the United Kingdom road traffic fatalities are one of the main contributors to work-related fatalities, leading to a significant cost at both an individual and societal level. For example, in the United States, fatal highway incidents have consistently been the leading cause of fatal work-related events over a 15-year period from 1992 to 2006, accounting for approximately one in four fatal work injuries (Bureau of Labor Statistics, 2007). In the UK alone, road traffic crashes during working hours account for the greatest number of work-related deaths per year (Clarke et al., 2005), with commercial vehicles involved in approximately 25% of all road traffic fatalities (WRSTG, 2001). Similarly, a quarter to a third of all road traffic incidents involve people at work at the time (HSC, 2001). In addition, road-traffic crashes during working hours affect not only company employees but the wider public (HSC, 2007), and the annual UK cost from fatalities and injuries on the road is estimated at £3.5 billion (TUC, 2004). As such, road transport is a major risk factor for organisations that requires effective assessment and management, and the challenge remains of how to reduce the number of road traffic crashes at work.

1.1. Truck crash involvement
The current study concentrates on factors relating to the crash liability of a sub-group of occupational drivers, namely drivers of large goods vehicles (LGV), defined as goods vehicles with a gross weight over 3500 kg. As a group truck drivers are distinguishable from other road users for reasons beyond vehicle type. For example, according to the latest UK statistics available, in 2005 the average annual distance travelled by vehicles over 3500 kg (53,000 km, DfT, 2006a) far exceeds the average annual distance travelled by cars (14,450 km, DfT, 2006b). Greater exposure might suggest that road traffic crash involvement would be greater for truck drivers than non-commercial drivers, but when mileage is taken into account truck drivers (42 crashes per 100 million kilometres travelled) are involved in fewer crashes than non-commercial drivers (71 crashes per 100 million kilometres) in the UK in 2005 (DfT, 2006c). However, despite lower crash involvement than other vehicle types, trucks are more likely to be involved in a crash that results in a fatality due to the weight and relative size of the vehicle compared to other road users, as well as increased length of stopping distances (Campbell, 1991; Chang and Mannering, 1999; Huang et al., 2005; Clarke et al., 2005; Björnstig et al., 2008). The fatal crash rate for LGV drivers is 1.8 per 100 million vehicle kilometres for LGVs, which is double the crash rate of cars (0.9 per 100 million vehicle kilometres) (DfT, 2006c). In addition, injury severity is worse if a...
crash involves a truck (Chang and Mannering, 1999). Finally, with regards to responsibility for crash-involvement Clarke et al. (2005) analysed over 2000 crash reports involving a range of work-related vehicles. LGV drivers scored highest among occupational drivers for ‘blameworthiness’ in their crash involvement (a ratio of ‘to blame’ and ‘partly to blame’ crashes compared to ‘not to blame’ crashes), with the casual factors of fatigue and vehicle defects most prevalent in truck crashes. Clarke et al. also found that trucks were the most likely work-related vehicle group to be involved in crashes where people were killed or seriously injured.

It appears that LGV driving shares some of the risks faced by other road users, but has its own characteristics and risks that require specific attention. It is clear that the consequences of a road traffic crash are more serious when it involves a LGV, but there has been relatively little examination of the human factors in truck driving compared to the substantial literature on the general driving population. While there have been several studies examining risk factors in truck driving, the majority have focused on the relationship between fatigue and crash involvement (e.g., Summala and Mikkola, 1994; Adams-Guppy and Guppy, 2003; Morrow and Crum, 2004; McCartt et al., 2000) with little or no focus on psychological and behavioural processes involved in truck driving. As such, there is a need to identify psychological precursors to behaviour in order to help inform future interventions with LGV drivers that are aimed at reducing risk and crash involvement.

Based on a review of the literature and detailed pilot work with the Vehicle and Operator Services Agency (VOSA), the regulatory body for the UK truck industry, and with UK truck operators and truck drivers, two primary factors were identified as connected to crash involvement within truck driving, specifically inappropriate driver behaviour and non-compliance with vehicle and driver safety protocols. For example, with regard to driver behaviour, previous investigations of aberrant driving behaviour in truck drivers have demonstrated that driving violations are significantly correlated with crash involvement in truck drivers (e.g., Sullman et al., 2002). Furthermore, in line with previous research on driving behaviour within car drivers (e.g., Parker et al., 1995a,b), driving violations by truck drivers were a significant predictor of crash involvement once annual mileage and other demographic variables (e.g., age) were accounted for (Sullman et al., 2002). Finally, research on US commercial drivers found that driving violations and prior convictions were significant predictors of crash involvement (Murray et al., 2006). Reckless driving and improper turns were the violations associated with the highest increase in crash likelihood (325% and 105%, respectively), and improper/erratic lane changes and failures to yield right of way were the convictions associated with the greatest increase in crash likelihood (100% and 97%, respectively).

In relation to the second factor, non-compliance with statutory regulations is an ongoing issue with LGVs. Over 465,000 roadworthiness tests were conducted on LGV vehicles in the UK in 2006–2007, with a failure rate of 22.1% (VOSA, 2007). The leading offences detected were driving hours and tachograph related offences, followed by overloading, driver and operator licence offences among others (VOSA, 2007).

1.2. Theory of planned behaviour

Research identifying underlying psychological factors involved in LGV driving behaviour has not yet been conducted. One social psychology model proposed to understand volitional and non-volitional human behaviour is the theory of planned behaviour (TPB, Ajzen, 1985, 1988). In short, according to the theory the best predictor of a person’s behaviour is their intention to perform the behaviour. This includes their intentions to commit violations, and their intention to perform safe behaviours that would avoid making errors. These behavioural intentions are determined by three preceding factors: the person’s attitude towards the behaviour (e.g., whether the driver believes the behaviour to lead to good outcomes); their subjective norms (their beliefs about the attitudes and behaviours of socially relevant others); and their perceived behavioural control (the degree to which they feel they can personally influence the behaviour in question). Perceived behavioural control can also directly influence the behaviour. If no opportunity is available to perform the behaviour, then a person’s attitude, subjective norm, and intention is rendered irrelevant. Therefore, if one is interested in understanding why drivers do or do not engage in risky behaviour, previous research shows that psychological antecedents of behaviour are good predictors of actual behaviour. As a consequence one can develop a greater understanding of behaviour by measuring drivers’ attitudes towards a behaviour, their perception of the social pressure associated with the behaviour, and the level of confidence they have in controlling that behaviour.

The conceptual framework of TPB, along with its predecessor the theory of reasoned action (Fishbein and Ajzen, 1975), has been applied to a wide variety of settings in order to account for and understand people’s behaviour, including healthy eating (Armitage and Conner, 1999), physical activity (French et al., 2003; Armitage, 2005), and pedestrian crossing behaviour (Evans and Norman, 1998). In the application of the TRA/TPB model specifically to driving, there has been a range of behaviours examined including committing driving violations (e.g., Parker et al., 1992a,b), speeding behaviour (De Pelsmacker and Janssens, 2007; Warner and Aberg, 2006; Letirand and Delhomme, 2005), seatbelt use (Thuen and Rise, 1994; Simsekoglu and Lajunen, 2008), and drink driving (Armitage et al., 2002; Sheehan et al., 1996).

1.3. TPB and driving behaviour

The utility of the TPB in accounting for a significant proportion of variance in driving behaviour has previously been demonstrated in the scientific literature. Parker et al. (1992b) first tested the applicability of TPB in explaining driving behaviour, finding that the model accounted for large and significant amounts of variance in intentions to drink and drive (42.3%), speed (47.2%), tailgate (23.4%), and overtake dangerously (31.7%). Attitudes and subjective norms accounted for one fifth to one third of the variance across intentions to commit violations, and the addition of perceived behavioural control significantly improved prediction of behavioural intention. Using the same sample of drivers, Parker et al. (1992a) found that drivers who had been involved in a crash in the previous 3 years were distinguishable from non-crash-involved drivers by measures of subjective norms only, with drivers involved in a crash generally perceiving significant others as more likely to expect them to commit driving violations. This suggests that crash-involved drivers might perceive less social pressure to avoid committing driving violations, or perhaps even a personality type that leads drivers to define themselves among their peer groups as ‘risky drivers’ in return for perceived social status.

Other research has supported the finding that attitudes, subjective norms and perceived behavioural control can independently account for variance in driving behaviour. These three factors have explained a significant proportion of variance in intention to comply with speed limits (Elliott et al., 2003) and intention to exceed the speed limit (Letirand and Delhomme, 2005), as well as variance in observed speed choice in a driving simulator (Warner and Aberg, 2006; Elliott et al., 2007). Strong correlations between self-reported and observed behaviour have also been demonstrated which suggests that self-report measures are a reasonably good surrogate for...
observed behaviour (Elliott et al., 2007), and support previous evidence of a strong relationship between externally observed speed and self-reported speed (Haglund and Åberg, 2000).

1.4. TPB and occupational driving

The aforementioned studies have demonstrated the utility of the TPB factors in accounting for variance in general driving behaviour, but not specifically for occupational driving behaviour. There has only been one previous study assessing the TPB model in relation to commercial drivers. Neumwan et al. (2004) investigated intentions to speed in a company owned versus personally owned vehicle. Contrary to expectation they found drivers had a lower intention to speed in work vehicles than in their own personal vehicles. Hierarchical regression analysis of TPB factors and anticipated regret (the contemplation of having possibly made the wrong choice) were more likely to predict intentions to speed in a personal vehicle (27%) than intentions to speed in a work vehicle (16%) after drivers’ age, gender and annual kilometres travelled had been accounted for. TPB factors alone accounted for a significant, but small amount of variance in intentions to speed in a personal vehicle (15%) and work vehicle (8%). It was also noted that safety policies and practices within organizations affected employee driving intentions, with drivers from the companies with more extensive safety policies and practices reporting greater perceived control over speeding in a work vehicle, and more feelings of anticipated regret after speeding in a work vehicle, than other companies with less strong safety cultures. This is supported by other research demonstrating the influence of a strong safety climate on driver performance. Specifically, Morrow and Crum (2004) found that perceptions of a strong company safety management practice among commercial motor-vehicle drivers accounted for significant variance in fatigue and near-crashes due to fatigue, although it did not explain variance in crash involvement.

1.5. Aims

Given the demonstrated success of the TPB model in accounting for variance in driving behaviour within the general population, the current study aimed to test the success of the TPB model in accounting for behavioural intention and self-reported behaviour of professional LGV drivers. To date there has been no investigation of LGV drivers using the model of the TPB to explain variance in driving behaviour. The model was applied concurrently to observation of road traffic laws (driving behaviour) and compliance with road traffic regulations (compliance behaviour). The application of a model that explained a significant proportion of variance in intentions and behaviour would assist in helping develop interventions to reduce risky behaviour, and ultimately crash involvement.

2. Methods

2.1. Participants

A total of 2943 questionnaires were distributed across a variety of outlets. Of the total figure, 2483 questionnaires were sent to drivers from three truck operators who agreed to participate in the study and distribute questionnaires to their fleet of drivers. The operators comprised of a waste management company (n = 1000), a dairy foods company (n = 1000), and a fleet management and logistics company (n = 483), and were primarily line-haul and long-haul operations. Furthermore, 460 additional questionnaires were distributed at a range of outlets frequented by LGV drivers, and an online version of questionnaire was advertised at several online truck communities for 1 week. A total of 232 drivers (225 males, 4 females, 3 missing) returned questionnaires, making the overall return rate 7.88%. Despite the initial levels of interest and enthusiasm shown by the operators, the response rate for questionnaires was very low, and less than other psychometric studies of truck drivers (e.g., Hakkanen and Summala, 2001; Sullman et al., 2002; Adams-Guppy and Guppy, 2003). This was in part due to considerable complications regarding distribution of questionnaires, as well as truck driving community resistance to outside interest. Unfortunately problems in distribution by the operators may have meant that more than 1000 questionnaires did not reach the drivers. This only came to light towards the end of the data collection period, allowing one further week to distribute the additional 460 questionnaires by hand before the competition deadline.

Though small in size, the sample for the current study appears to reflect the underlying truck population with regards to demographics. On average, drivers who took part in this research were similar to samples in other truck driving studies, aged approximately 40 years old (e.g., Adams-Guppy and Guppy, 2003; Sullman et al., 2002; McCartt et al., 2000; Walton, 1999), with an average mileage of around 50,000 miles per year (35,000–65,000 miles: e.g., Adams-Guppy and Guppy, 2003; Sullman et al., 2002; Walton, 1999). The level of crash involvement in this study (30%) was also equivalent to rates reported in the truck driving literature (Adams-Guppy and Guppy, 2003; Sullman et al., 2002; Hakkanen and Summala, 2001). However, due to the problem of low response rate it is important to treat these results with caution, as it is not possible to generalise the findings to the wider truck driver population.

2.2. Design and questionnaire development

The main questionnaire comprised of ten TPB items, five relating to adherence with road traffic laws when driving an LGV (driving behaviour), and five relating to compliance with LGV regulations (compliance behaviour), both expressed in general terms. LGV drivers were asked to rate the extent to which they agreed with the statements relating to driving behaviour and compliance behaviour on a seven-point Likert scale (1, ‘disagree strongly’, to 7, ‘agree strongly’). All five driving behaviour statements are detailed in Table 1, and all five compliance behaviour statements are detailed in Table 2.

Face validity was achieved through consultation with participating truck operators, driver trainers and truck drivers themselves. In addition several demographics and 60 context-specific questions were also included, but the analysis of these items is discussed elsewhere (Crundall et al., submitted for publication).

2.3. Procedure

Three truck operators were approached to take part in the research, and all three initially agreed to distribute questionnaires to LGV drivers within their company. Questionnaires were sent to a representative of each truck operator and then administered by hand to truck drivers by company trainers. Drivers were instructed to complete the questionnaire and return it in a postage-paid envelope. The instructions in the questionnaire assured drivers that their responses were anonymous in order to encourage drivers to answer honestly about their truck driving experiences rather than reporting what they think they ought to say. Furthermore, drivers were assured that neither their operator nor any other organisation would have access to their individual responses. In order to try and increase the response rate drivers were also given an opportunity to enter a prize draw to win £250 as an incentive to take part in the survey by writing their name and address on a separate competition slip. Upon return of the freepost envelope, questionnaires and competition slips were separated by a third party so that individ-
Table 1

Means (M), standard deviations (S.D.), and inter-item correlations for attitudes (A), subjective norms (SN), perceived behavioural control (PBC), intentions (I) and behaviour (B) for driving behaviour items (n = 226)

<table>
<thead>
<tr>
<th>TPB factor</th>
<th>Item description</th>
<th>M</th>
<th>S.D.</th>
<th>A</th>
<th>SN</th>
<th>PBC</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>It is important that I stick to all driving laws when driving an LGV at all times</td>
<td>6.15</td>
<td>1.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>Most LGV drivers I know would expect me to obey all driving laws at all times</td>
<td>5.16</td>
<td>1.86</td>
<td>0.386*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>I find it easy to stick to all driving laws at all times when I am driving an LGV</td>
<td>4.29</td>
<td>1.88</td>
<td>0.208*</td>
<td>0.205*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>When I am driving an LGV I intend to stick to all driving laws at all times</td>
<td>5.58</td>
<td>1.69</td>
<td>0.355*</td>
<td>0.372*</td>
<td>0.320*</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>I obey all driving laws at all times when driving an LGV</td>
<td>5.00</td>
<td>1.85</td>
<td>0.355*</td>
<td>0.335*</td>
<td>0.302*</td>
<td>0.468*</td>
</tr>
</tbody>
</table>

* Correlation is significant at the p < 0.01 level (2-tailed).

Table 2

Means (M), standard deviations (S.D.), and inter-item correlations for attitudes (A), subjective norms (SN), perceived behavioural control (PBC), intentions (I) and behaviour (B) for compliance items (n = 226)

<table>
<thead>
<tr>
<th>TPB factor</th>
<th>Item description</th>
<th>M</th>
<th>S.D.</th>
<th>A</th>
<th>SN</th>
<th>PBC</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>It is important that I ensure my LGV complies with all road traffic regulations at all times</td>
<td>6.46</td>
<td>1.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>Most LGV drivers I know would expect me to ensure that my LGV complies with all road traffic regulations at all times</td>
<td>5.83</td>
<td>1.63</td>
<td>0.342*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>I find it easy to ensure my LGV complies with all road traffic regulations at all times</td>
<td>4.94</td>
<td>1.80</td>
<td>0.286*</td>
<td>0.290*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>When I intend to make sure that I fully comply with all road traffic regulations for my LGV at all times in the future</td>
<td>6.04</td>
<td>1.42</td>
<td>0.343*</td>
<td>0.410*</td>
<td>0.328*</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>My LGV complies with all road traffic regulations at all times</td>
<td>5.57</td>
<td>1.64</td>
<td>0.356*</td>
<td>0.306*</td>
<td>0.546*</td>
<td>0.401*</td>
</tr>
</tbody>
</table>

* Correlation is significant at the p < 0.01 level (2-tailed).
3.2.2. Compliance

Path analysis of the TPB factors on the compliance of drivers’ LGV with UK regulations (compliance behaviour), as presented in Fig. 2, revealed that perceived behavioural control has the largest direct effect on compliance behaviour (0.43). This means that the more control a driver has over his work, the more likely his LGV will be compliant with road traffic laws. Unlike driving behaviour, there is no direct effect of subjective norms on compliance behaviour. Intention has a smaller direct effect on compliance behaviour (0.19). The greater the intention to comply with driving regulations the more likely the driver is to report compliance. Attitudes have a small but significant direct effect on compliance behaviour. Therefore, the better a driver's attitude is to ensuring his vehicle is compliant, the more likely his LGV will be compliant with the road traffic laws.

Compliance therefore appears to be predominantly about whether they feel that they can actually comply rather than what they think about compliance per se. As with driving behaviour, subjective norms, attitudes and perceived behavioural control are all positively related to intention to comply, as would be predicted by the TPB. Overall, 38% of the variability in compliance is accounted for by the specified paths.

4. Discussion

This study set out to increase understanding of risky behaviour among truck drivers using path analysis to assess psychological precursors to driving and compliance behaviour. Interestingly, there appears to be different underlying psychological motivators for rule following behaviour on the road and rule compliance regarding LGV regulations. Intentions appear to be best direct predictor of self-reported driving behaviour. Subjective norms and perceived behavioural control, in that order, have weaker direct links with driving behaviour. Attitude does not have a significant direct relationship with driving behaviour. In contrast, with respect to LGV regulations the strongest link to compliance behaviour is a direct path from perceived behavioural control, followed by intentions and attitude. In this case, subjective norm does not have a direct link to compliance behaviour. These results have implications for effecting behavioural change, with results suggesting that any future interventions that may be targeted at improving either on-road behaviour or compliance with regulations would require different approaches.

The differences between these two models no doubt reflect important differences in the way drivers approach driving behaviour and compliance behaviour. To increase appropriate on-road behaviour the results suggest one must direct any intervention at improving intentions since these have the strongest relationship with reported behaviour. One current method employed by psychologists to target intentions is to have participants create 'implementation intentions'. These are statements of intent that specify the circumstances in which responses are made in order to attain goals the person wants to achieve, and typically take the format of 'when situation x arises, I will perform response y' (Gollwitzer, 1999). In effect they are social contracts between the driver in the current time period and the same driver in a future time period. For example, if a driver wants to be less risky on the road, an implementation intention might take the format of "if other cars cut in when I am following at a safe distance from the vehicle in front, I will reduce speed in order to main-
tain a safe following distance”. Implementation intentions provide a specific behavioural strategy to attain desired goals rather than more vague goal intentions such as “I intend to take less risks when driving my LGV”, or even “I intend to maintain safe following distances when driving my LGV”, and are likely to result in more successful behaviour due to the predetermination of how (i.e., when and where) the goal can be achieved (Gollwitzer, 1999). Furthermore, the utility of implementation intentions on driving behaviour among the general population has already been demonstrated elsewhere in the literature (Elliott and Armitage, 2006).

Alternatively one may try to intervene in risky behaviour by targeting the components that feed into intentions, with the primary target being attitudes in this case. Subjective norms should also be targeted, as they had a small but significant direct effect on truck driver behaviour, as has been found in previous research on car drivers (e.g., Parker et al., 1992a). Interventions could be designed to challenge subjective norms by making it clear that not all drivers have negative attitudes to road laws, and that those who do are more likely to be involved in a crash.

The path analysis of compliance behaviour suggests a completely different approach to encouraging positive behaviour. As compliance is most strongly and directly affected by perceived behavioural control this suggests that appropriate levels of compliance depend more on whether they feel compliance is within their control. This relationship between PBC and non-compliance behaviour might not reflect the drivers themselves, but instead the circumstances they operate in. For example, there may be implications for the truck operators to allow enough time for drivers to check their vehicles. Even when there might be enough time for vehicle checks to be made, truck drivers might still perceive that they have not got enough time. Therefore an intervention designed to improve compliance rates could target operators in order to ensure they provide enough resources, information, and incentives to ensure that drivers not only understand that they should undertake certain behaviours (vehicle checks, taking adequate rest breaks, etc.), but also that there are no other pressures on drivers that may detract from such compliance behaviour. As previously mentioned, research examining the effects of organisational safety culture on driver behaviour has found that companies with more extensive organisational policies and practices positively influence drivers’ perceived control over their behaviour (Newnam et al., 2004). Additional research by Morrow and Crum (2004) also identified the influence of the operator on their drivers’ behaviour and compliance, with results demonstrating that safety management practice had an effect on fatigue and frequency of near-crash experience, but not on crash involvement. Evidence from the wider organisational psychology literature also suggests that a positive safety climate is dependent on shared perceptions and positive attitudes to safety at all levels of company hierarchies (e.g., Zohar, 1980; Clarke, 1999), with some evidence that a perceived lack of commitment to safety at a managerial level has a negative effect on safety behaviour lower down the chain (Clarke, 1996). As such, the influence of the operators on a more comprehensive range of driving behaviours and compliance behaviours among their staff warrants further investigation, as well as the effects of drivers’ perceptions of operator commitment to safety on their own attitudes and behaviour.

One interesting paradox is the comparison of results from this paper on general driving and compliance behaviour with that of the separate analysis conducted on demographics and context-specific questions (Crundall et al., submitted for publication). While the path analysis for general driving behaviour in the current study revealed the strongest links to be between attitudes to intentions to behaviour, the analysis on context-based items in the separate analysis showed that where differences were found between crash-involved drivers and crash-free drivers they were predominantly on PBC-based items. This may indicate that attitudes are the key factor for general intentional driving behaviour, but on the rare occasion that a crash occurs LGV drivers perceive that the events leading up to the crash are beyond their control. This is discussed in full in the separate analysis (see Crundall et al., submitted for publication).

Finally, in relation to self-reported behaviour, self-report scales have frequently been used in psychological research, including assessment of attitudes and behaviours in drivers. There is always a possibility of response bias or impression management when employing self-report measures. In order to minimize any possibility of these effects occurring, participants were not required to put their name on the questionnaires (only on a separate competition slip), thus making their responses anonymous. Furthermore, several studies have shown that self-reported driving behaviour is a sufficiently accurate proxy for directly observed behaviour (e.g., West et al., 1993; Haglund and Åberg, 2000; Elliott et al., 2007). In addition, the use of self-report measures to assess undesirable behaviour could be problematic in terms of the potential for response bias. However, there has been a positive association demonstrated between self-reported frequency of committing violations and crash involvement (see Parker et al., 1992a), and there is evidence that self-report of driving behaviour is not distorted by social desirability (Lajunen and Summala, 2003). Furthermore, McKenna (2002) emphasizes that while subjective self-report measures are by no means perfect there are situations where subjective measures can be more effective than objective measures (e.g., in assessing intentions within TPB research), and there is little or no evidence for social desirability having a moderating effect on the relationship between TPB factors (e.g., Armitage and Conner, 1999). It should be noted, however, that these studies were based on the general driving population and not occupational drivers specifically. As the current study focussed on truck drivers, who rely on driving for their livelihood, this could potentially have an effect on self-reported behaviour. Further research comparing self-reported behaviour of occupational drivers with non-occupational drivers would help address this issue.

In conclusion, there appears to be different underlying human factors for driving behaviour and rule compliance among LGV drivers. Separate interventions to tackle these behaviours are warranted, but the relationship between operators and drivers needs to be better understood before establishing interventions to reduce risk in LGV driving. For example, the current study found that drivers feel they have little personal control over compliance. Future research could directly address the constraints on driver behaviour created by the working environment imposed by their operator. If an operator has a poor history of driver hour compliance because of the pressure they put on drivers to meet delivery targets, interventions could be designed and evaluated to ensure that their drivers actually have the capability to comply with regulations (e.g., building in more time for drivers to take breaks).

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References


