



# Understanding commercial truck drivers' decision-making process concerning distracted driving



David I. Swedler<sup>1,a,b,\*</sup>, Keshia M. Pollack<sup>a</sup>, Andrea C. Gielen<sup>a</sup>

<sup>a</sup> Center for Injury Research and Policy, Johns Hopkins Bloomberg School of Public Health, Hampton House Rm 554, 624 N. Broadway, Baltimore, MD, USA

<sup>b</sup> Environmental and Occupational Health Sciences, University of Illinois at Chicago School of Public Health, Chicago, IL, USA

## ARTICLE INFO

### Article history:

Received 19 December 2014

Accepted 8 February 2015

Available online 27 February 2015

### Keywords:

Mixed methods

Occupational health

Theory of planned behavior

Texting

## ABSTRACT

A concurrent mixed methods design was used to explore personal and workplace factors, informed by the Theory of Planned Behavior, that affect truck drivers' decision-making about distracted driving on the job. Qualitative data were collected via semi-structured interviews with experts in truck safety and distracted driving, and quantitative data were collected via online survey of truck drivers in the United States. Findings from the interviews illustrated how drivers perceived distractions and the importance of supervisors enforcing organizational distracted driving policies. Survey results found that behavioral intentions were most important in regards to texting and crash and near-crash outcomes, while perceived norms from management best described the correlation between dispatch device use and negative crash-related outcomes. By using a mixed methods design, rather than two separate studies, these findings revealed nuanced differences into the influence of supervisors on distracted driving.

© 2015 Elsevier Ltd. All rights reserved.

## 1. Introduction

Distracted driving is increasingly becoming a hazard to drivers in the United States (U.S.) (Royal, 2003; Ascone et al., 2009; Centers for Disease Control and Prevention, 2013). Drivers are distracted from primary driving tasks by (1) visual distractions that take their eyes off the forward roadway; (2) auditory distractions that take their aural perception from relative driving cues; (3) cognitive distractions that take their mind off the driving task; and (4) manual distractions that take the driver's hands off the wheel (Ablassmeier et al., 2007; Governors Highway Safety Association, 2011). Although much of the increase in distracted driving is due to the use of cell phones and other electronic communication (Eby et al., 2006; Wilson and Stimpson, 2010), truck drivers face additional work-related distractions that stem from their occupational environment, including interacting with a dispatch device and writing notes or a log (Olson et al., 2009). When driving on the job, truck drivers are faced with work and time pressures that influence their decision-making about whether or not to undertake distracting tasks (Caird and Kline, 2004).

Research from the Virginia Tech Transportation Institute (VTI) has demonstrated how the odds for crashes and near crashes are increased when truck drivers are distracted (Olson et al., 2009). The authors found that for truck drivers, texting while driving increases the odds ratio (OR) for crash or near crash 23 times compared to when drivers are not texting (Olson et al., 2009). This study also found a significantly increased odds of crash or near crash for several activities including, interacting with the dispatch device (OR=9.9), reaching for an electronic device (OR=6.7), looking at a map (OR=7.0), and dialing a cell phone (OR=5.9) (Olson et al., 2009). Because motor vehicle crashes are the leading cause of occupational death in commercial truck drivers (Bureau of Labor Statistics, 2012), it is important to prevent crashes caused by distraction.

The purpose of this study was to gain insight into how commercial truck drivers make decisions concerning whether or not to undertake different distractions on the job. The research used quantitative and qualitative methods, and was guided by the Theory of Planned Behavior. The results will be useful in generating recommendations for prevention strategies for distracted driving among American truck drivers.

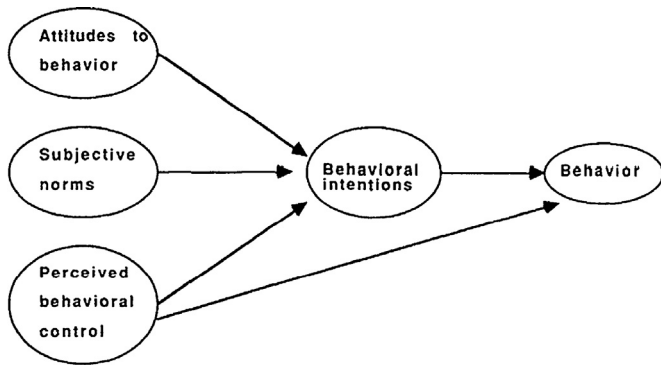
### 1.1. Theory of planned behavior

The Theory of Planned Behavior (TPB) (Ajzen, 2005) is a framework for understanding factors that affect individuals when they consider whether or not to undertake a given behavior. The

\* Corresponding author at: Center for Injury Research and Policy, Johns Hopkins Bloomberg School of Public Health, Hampton House Rm 554, 624 N. Broadway, Baltimore, MD, USA.

E-mail address: [swedler@uic.edu](mailto:swedler@uic.edu) (D.I. Swedler).

<sup>1</sup> Permanent address: 1700 W Summerdale Ave., Apt G, Chicago, IL 60640, USA. Tel.: +1 630 254 5560.



**Fig. 1.** Conceptual model of the Theory of Planned Behavior (from Parker et al., 1992).

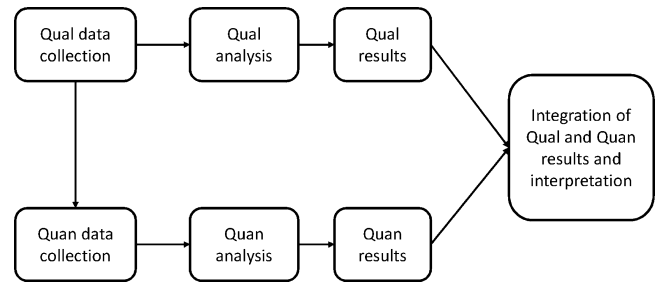
TPB, as shown in Fig. 1, seeks to understand how attitudes, perceived behavioral control (PBC), subjective norms, and intentions affect behavior performance (Parker et al., 1992; Ajzen, 2005). A study of truck driver safety in the United Kingdom by Poulter et al. (2008) used the TPB to understand what factors would be most effective in increasing “safe driving behavior” (not including distracted driving specifically) and compliance with safety regulations (Poulter et al., 2008). Poulter et al. (2008) found that while subjective norms affected safe driving behavior, truck drivers’ compliance with driving regulations (“rule compliance”) was more affected by PBC. As a result, the authors concluded that programs aimed at increasing safe driver behavior and rule compliance would require two different approaches (Poulter et al., 2008).

The TPB has been used to understand truck driver behavior and distracted driving in young drivers (Hafetz et al., 2010). Thus, we hypothesized that it would be an appropriate framework for examining distracted driving in commercial truck drivers. Prior investigations that used the TPB only included quantitative analyses; thus, they were only able to explore correlations between driver behaviors and outcomes. The current study used a mixed method design not only to examine these correlations using a quantitative analysis, but also explore why these correlations exist through qualitative inquiry (Howe, 2008).

This study examined the relationship of different components of the TPB to distracted driving on the job for commercial truck drivers. In addition, specific components of the TPB were examined to determine which were most predictive of unsafe driving behaviors across two different distracting activities (texting while driving and using dispatch devices). Although prior examinations of TPB and driving behavior mostly used quantitative methods, the current study relied more heavily on the qualitative methods. By including qualitative data, our study allowed for a more nuanced understanding of the effects of distraction on truck drivers (Howe, 2008; Mazzola et al., 2011), above and beyond what would have been captured by using quantitative data alone. This concurrent mixed methods study design produced qualitative and quantitative results of equal weight, giving us the depth and texture of qualitative analysis as well as the breadth and generalizability of survey analysis.

## 2. Materials and methods

This study employed a mixed methods concurrent design and analysis (Tashakkori and Teddlie, 1998; Onwuegbuzie and Johnson, 2008). In a mixed methods concurrent design, the qualitative and quantitative data are collected and analyzed separately. The results of each method are presented separately and then integrated for interpretation (Barg et al., 2006; Luzzo 2008). Fig. 2 illustrates how



**Fig. 2.** Visual diagram of the analysis of qualitative key informant interviews (Qual) and quantitative analysis of surveys (Quan). This visualization is based on Plano Clark’s and Creswell’s interpretation (Plano Clark and Creswell, 2008) of Luzzo’s mixed methods analysis (Luzzo, 2008).

the qualitative and quantitative results are triangulated in the current study, that is, how the results from the one method converge, correspond, or corroborate those from the other method (Greene et al., 2008). The methods section will first describe qualitative data collection and analysis, then the quantitative data collection and analysis. The Institutional Review Board from the authors’ university approved of all study procedures.

### 2.1. Qualitative data collection

Consistent with prior research using the TPB, we first conducted a qualitative elicitation interviews before the surveys. In a traditional quantitative TPB study, the purpose of these interviews would have been only to elicit the appropriate context for generating the TPB questionnaire (Montano and Kasprzyk, 2002). Usually, the goal of the elicitation interviews would be to construct a valid questionnaire for the theory-specific determinants of the behavior of interest; however, for this research the key informant interviews included additional items to gain a more in-depth examination of how each TPB construct could affect decision making across a broad range of potential distractions, include distractions that would not be on the survey.

Key informant interviews were conducted to elicit information on the four central TPB constructs – attitudes, intentions, norms, and PBC – as they described distracted driving in commercial truck drivers (Montano and Kasprzyk, 2002). A purposive sample of experts in truck driver safety or distracted driving were recruited from the list of attendees at the Symposium on Prevention of Occupationally-Related Distracted Driving sponsored by the Johns Hopkins Bloomberg School of Public Health Occupational Safety and Health Education and Research Center on April 18, 2011 in Laurel, MD (the symposium had 125 registered attendees) (JHSPH, 2011). Participants were selected from attendees at this symposium because of the organizations that they were representing as well as their interest in distracted driving. At the conclusion of each interview, participants were given an opportunity to suggest other individuals who were knowledgeable on the topics that the interview had addressed. This process of snowball sampling yielded seven additional participants (Lofland et al., 2006).

The interview guide was developed and refined by the study team, following the guidelines for TPB elicitation surveys (Montano and Kasprzyk, 2002). Beyond identifying appropriate distractions and social influences on truck driver behavior for the subsequent survey, the interview guide sought to elicit more detail about how the drivers would react to and interact with various potential distractions. The survey was finalized after pilot testing with an expert in the safety of commercial truck drivers who was also a former driver. Semi-structured interviews were conducted via Skype (Microsoft Corp., Redmond, WA) and were recorded using MP3 Skype Recorder v3.1 (voipcallrecording.com). Audio

Download English Version:

<https://daneshyari.com/en/article/572224>

Download Persian Version:

<https://daneshyari.com/article/572224>

[Daneshyari.com](https://daneshyari.com)