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# A framework for conceptualising traffic safety culture

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ABSTRACT

Traffic safety culture is a relatively new concept which has recently gained attention in the field of traffic safety. There is currently little consensus regarding the nature of the concept, nor how it should be defined. Preliminary definitions have typically focussed on specific road safety problems and the anticipated effect of a strong traffic safety culture. The literature to date has tended to emphasise how traffic safety culture might be created or shaped. However, without a better understanding of the nature and structure of traffic safety culture, discussions regarding changes to traffic safety culture are restricted. An examination of different conceptualisations and definitions of organisational safety culture provides a preliminary theoretical framework for traffic safety culture. Two high risk driving behaviours within the Australian context are compared to illustrate how key factors within this framework can be used to understand and improve road safety outcomes.



## 1. Introduction

In an AAA foundation for traffic safety workshop on traffic safety research needs, the concept of traffic safety culture (hereafter TSC) was identified as a priority for research in the United States (AAA (Ed.), 2007). Though the concept of cultural effects on driving had been introduced as early as 15 years prior to this workshop (Zaidel, 1992), TSC had received little, if any, scientific attention. Whilst safety culture is a common concept in organisational safety (hereafter organisational safety culture, OSC), the application of safety culture to traffic safety was new. Since this workshop, TSC has begun to receive attention within the literature, yet there is little consensus about the nature and content of TSC. It is also unclear (1) how TSC may differ from OSC; (2) of what components or factors TSC is comprised; and (3) to what extent it is possible to change a TSC. For TSC is to be of benefit to traffic safety, it is necessary to address these issues. Moeckli and Lee (2007) stated that the manner in which TSC is defined by the traffic safety community will dictate the "courses of action taken in the effort to decrease fatalities, injuries, and property loss" (p. 60). Thus, it is important to engage in academic discussion surrounding the nature of TSC in order to benefit future road safety initiatives.

## 2. Organisational safety culture

As TSC is an emerging concept, it is useful to first consider what has been learnt in the field of OSC and how this might be applied to TSC. Safety culture was first identified by the International Nuclear Safety Advisory Group (INSAG) in a report following the 1986 Chernobyl nuclear power plant disaster. Amongst other causal factors, INSAG reported that a lack of safety

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culture, both within the Chernobyl plant and nationally, contributed to the incident (INSAG-1, 1986, as updated in INSAG-7, 1992). Five years later, INSAG provided the following definition of OSC:

> "Safety culture is that assembly of characteristics and attitudes in organisations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance."
>
> [p. 1; INSAG, 1991]

Despite clearly labelling a lack of OSC as being responsible for the disaster, there was little academic background provided for the concept. Thus, researchers began to explore OSC, how it could be measured and, if possible, how it could be used to improve safety. Despite much research in the field, there remains to be a widely-accepted definition of OSC (Guldenmund, 2000; Hopkins, 2006). Guldenmund (2000) highlighted that this has led many researchers to re-define OSC in relation to their specific area of interest. Thus, a number of factors have been identified in the literature relating to OSC, including organisational management systems, policies and procedures, job design, work pressures, training, employee involvement in decision making, and perceptions and attitudes regarding the work environment (Arboleda, Morrow, Crum, & Shelley Ii, 2003; Choudhry, Fang, & Mohamed, 2007; Cox & Cheyne, 2000; Grote, 2008; Håvold, 2010; O'Toole, 2002; Parker, Lawrie, & Hudson, 2006).

Nævestad (2009) discussed two common approaches to OSC, the interpretive and functionalist approaches. The interpretive approach conceptualises OSC as shared patterns of meaning which influence safety. This approach advocates the use of qualitative research to understand the underlying cultural causes of behaviour. These cultural meanings typically encompass shared beliefs, attitudes and values, which may be directed to broad concepts such as the likelihood of incidents (e.g. fatalism or denial) and valuing personal experience over reported truths (Hopkins, 1999; Håvold, 2010). There is, however, very little literature which uses either this approach or qualitative research to study OSC (Glendon, 2008). The functionalist approach is the dominant approach in OSC practice and research. Functionalist researchers tend to identify shared behaviours and then use either safety climate (the aggregate perceptions of organisational safety structures and systems), or theories from social and organisational psychology, to identify organisational factors which influence these behaviours (Guldenmund, 2000; Nævestad, 2009). When shared psychological factors are considered by functionalist researchers, they typically use a narrow focus on attitudes directed either towards specific behaviours or organisational structures and systems. Functionalist researchers advocate changing these factors in order to create or improve an OSC. Thus, of the two main approaches used to understand OSC, one emphasises changing behaviour (or, as is commonly stated, 'changing culture') through the use of organisational structures and systems, while the other emphasises understanding deeper cultural meanings, beliefs, attitudes and values which are seen to motivate behaviour.

Despite different approaches, there is agreement that an OSC which positively influences safety is an organisational culture which prioritises safety-related beliefs, values and attitudes (Cooper, 2000; Guldenmund, 2000; Short, Boyle, Shackelford, Inderbitzen, & Bergoffen, 2007). Thus, OSC can be argued to be a product of organisational culture, and not a culture in itself (Antonsen, 2009; Choudhry et al., 2007; Guldenmund, 2000; Haukelid, 2008; Hopkins, 2006). Organisational culture, however, is often conceptualised in terms of views of culture found in anthropology and cultural psychology. Schein (1990) argued that any group with a significant shared history may have developed a culture and, as such, organisational culture is simply the culture shared by members of a given organisation.

In order to understand OSC, it is thus necessary to explore these traditional views of culture. Edwards, Davey, and Armstrong (2013) explored how traditional conceptualisations of culture have been applied within OSC. Three conceptualisations of culture, previously identified and reviewed by Brinkmann (2007), the normative, anthropological and pragmatic conceptualisations, were seen to have been applied to differing extents within the OSC literature. These conceptualisations roughly align with either the interpretive (anthropological) or functionalist (normative and pragmatic) approaches to OSC. Due to the different strengths and weaknesses of each conceptualisation, none provide a complete understanding of OSC. Therefore, it was argued that these conceptualisations could be viewed as facets of a single, larger conceptualisation of OSC (Edwards et al., 2013). Edwards et al. (2013) then proposed the "synthesised conceptualisation of safety culture", defining OSC as:

> "the assembly of underlying assumptions, beliefs, values and attitudes shared by members of an organisation, which interact with an organisation's structures and systems and the broader contextual setting to result in those external, readily-visible, practices that influence safety"
>
> [Edwards et al., 2013; p. 77]

## 3. Traffic safety culture

A number of similarities can be observed between OSC and TSC. First, despite driving culture (Zaidel, 1992) and organisational culture predating the emergence of these concepts, OSC first emerged from the Chernobyl disaster and TSC emerged from a perceived lack of priority placed on traffic safety within the United States (AAA (Ed.), 2007). Thus, both fields were initially born out of a problem, rather than from theory, requiring researchers to subsequently explain the theoretical nature of the concept. After the AAA workshop, the foundation engaged the traffic safety community develop a definition of TSC. This led to a compendium being published in 2007, which forms the bulk of the existing literature on TSC. In the preface

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