

The good the bad and the ugly: Perception as a key feature in road safety

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Abstract

Concern about the level of lawlessness and the lack of discipline among South African drivers is prominent among South African authorities, media and public. Although South Africa historically did conduct research into road user behaviour, most of it is irrelevant in the current context and one would argue that researchers in this field will have to return to the drawing board “to start all over again”. The objective of this paper is to assess the role that the psychological trait “perception” plays in road safety.

Research pertaining to human factors in crash causation is a relatively new field of research for specifically modern day South Africa. Research related to the psychology of road users and the influences thereof should be understood within a psycho-social and behavioural context. Only when root causes are understood can the information be used to inform, design and implement the use of “visible” approaches, such as traffic calming, enforcement strategies and education or mass media campaigns.

A literature study comprising of international literature formed the foundation of the theory as there are little traffic psychology research done in South Africa on this or any other road traffic psychology related topic. Features of perception include perceptions regarding credibility of speed limits, perceived level of law enforcement, perceived consequences related to traffic law violations as well as perceptions related to licensing; engineering and so forth. This paper considers the different aspects and the influence that features of perception have on key road safety problems and ultimately on road user behaviour in South Africa. This paper conclude with the fact that South Africa along with the rest of developing world is in dire need of research that probes road safety behaviour and psychology in order to inform and deliver unique and workable solutions to address the problems that result in the carnage on South Africa roads

Objective of the paper

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Defining perception

Perception is the process by which we receive and interpret information from the world around us. Perception is the process in which we attach meaning to world around us. Our world exists out people, experiences and objects that influence us in one way or another. We perceive our world by making use of our senses and the way in which we perceive the world is unique. Perception comprises of three psychological processes namely:

- ⌘ Selection-select senses to which we will attend
- ⌘ Organisation-mentally arrange the selected stimuli (information)
- ⌘ Interpretation In this stage meaning is attached to the information. This meaning is attached based on the individual’s value system, needs, self-concept as well as other personal factors.

Within the road safety domain the term “human factors” is mainly used to describe factors associated with driver actions that lead to conflict situations or crashes within a complex traffic situation. Mckenna (2007) argues that there is sufficient knowledge about broad underlying factors responsible for road traffic crashes, but that problem lies within the rest of society’s willingness to address the underlying factors sufficiently. If indeed society intervenes on some level, successful implementation revolves around the perception of how legitimate the particular intervention is seen to be. The NDOT indicates that efficient and safe operation of the traffic environment mainly depends on the performance of the users of the system, including both drivers and pedestrians. Road safety becomes a personal choice and is deeply rooted in on the one hand how norms and values of the social system is seen and on the other hand how well/safe a road user can behave in traffic

given his own beliefs of skill, experience and so forth. In the following paragraphs we will consider perception and the influence of perception on different aspects and problems that are experienced in road safety, not only in South Africa but on a global scale.

The global health problem emphasized

At a recent conference in Dar-Es-Salaam (July 2009) emphasis was again placed on the fact that: “Proportionally, African countries suffer most from road accidents. Annually, the continent records around 28 deaths per 100 000 populations, making it the highest in the world” (Hamdock: 2009). This conference also highlighted the fact that road crashes are commonly the second highest cause of death for the 5 to 44 years age group in Africa with pedestrians and young road users being highly vulnerable groups. This statement holds true for South Africa as well, with growing concern about the level of lawlessness and the lack of discipline among South African drivers. This growing concern is prominent and well documented in South African literature (Venter: 2009). The term “human factors” is used to describe the interaction of human beings with man-made objects, which includes all internal and external processes within the natural and man-made environment. One of these interactive processes within any human being is perception which is developed and formed based on interactions with the environment and the self. Different models explain different types of risk, for different road related situations. Vandelaar and Yannis (2006), states that behaviour risk models focus on problems experienced by road users when they have to perceive, accept and control road related risk. Methorst (18th ICTCT workshop) indicated that perceived road risk can be formulated as $\text{Road crash risk} = \text{Chance} \times \text{Severity of being involved in a road traffic crash}$.

Perception of health risk

There is no doubt that road traffic crashes is a global health problem. Globally road crashes are considered the number one killer of people under the age of 40 years (Hamdock: 2009; Mckenna: 2007). Although certain behaviour are associated with an increase of risk in traffic (speeding behaviour, young drivers, driving under the influence of drugs and alcohol)

research has found that although health behaviour is a major key factor for many researchers and policymakers working within the field of road traffic and injury prevention, for those who are actually partaking in the risk, health might not be such a prominent factor (Mckenna: 2006). In South Africa a great deal of money and effort is spend on the design and marketing of road safety messages. In a 2002 study a journey into 20 communities across South Africa explored what communities as target audiences perceive to be the problem in terms of pedestrian safety, to explore their needs, their thoughts, perceptions and recommendations with regard to community campaigns and the Arrive Alive campaign. Vermaak; Venter; Makhafola; De Beer; Van Niekerk and Mokone (2002) found that Arrive Alive messages did not yet “hit home” in as many communities as it was suppose to. One of the reasons that social marketing and behaviour change approaches don’t work might be because the relevant target audience at which messages is targeted does not feel that their health is in any danger.

Perception of risk: making choices in traffic

If I make a choice...can I support the full consequences of such a choice- road users are human being and do not operate or function in a vacuum? Rather the choices road users make on the road have certain consequences or reactions to the actions for other road users, family members society and even government. The complexity of the networks of relationships among people means that constraints are put on freedom. Powerful social ` constraints develop in potential dangerous social conditions –what individuals believe to be the norm has an important impact on their intentions. Mckenna (2006) states that although there is general agreement that driver behaviour is responsible for the vast majority of road traffic crashes, the counter measures that follows need not necessarily have to deal directly with road user behaviour per se’. It is for example possible to influence driver behaviour by applying engineering measures such traffic calming devices to influence driver behaviour indirectly. But why does this work, why do drivers slow down at a speed hump, or yield at a mini-circle?

Perception of “socially accepted behaviour”

According to Gary Ronald from the AA in a media interview following the implementation of new breathalyzer devices (Carte Blanche: 2008), South Africans perceive drinking and driving as socially acceptable. Sethi and Zwi (1999) observed that improving road safety in developing countries can only be possible when perceptions about aspects of road safety are changed and then only can change be facilitated through the organised efforts of society. The researchers continue to show that traffic fatality rates have fallen dramatically in higher income countries such as the United Kingdom, United States, Australia and New Zealand. These countries have less motorized transport but lower traffic fatality rates: something that researchers attribute to civil society pressures to change what has previously been accepted as socially acceptable (driving while under the influence of alcohol, speeding etc.) but now became a reflection of knowledge in terms of resource availability/scarcity for interventions, as well as an increasing recognition on behalf of the public of the economic burden that road traffic crashes place on individuals, health services and the economy.

Perception of traffic calming

Kennedy (2005) have included psychological traffic calming in his list of non-physical traffic calming measures which can be used to for example calm speed on residential roads. He states that these are ‘perceptual’ measures which are designed to convey a greater level of risk than actually prevails for example, visually narrowing the road carriageway through road markings or the use of coloured surfacing. The research done by Rospa (Kennedy: 2005) on this matter included a thorough look at psychological principles. The important cognitive mechanisms that can be applied in order to bring about traffic calming include:

- ⌘ More complex environments tend to be associated with slower driving speeds, the likely mechanisms being increases in cognitive load and perceived risk

- ⌘ Natural traffic calming such as a hump back bridge or a winding road can be very effective in reducing speeds, as well as being more acceptable to drivers
- ⌘ Carefully designed schemes, using the properties of natural traffic calming, have the potential to achieve a similar effect.
- ⌘ Emphasising changes of environment e.g. highway / village boundary can increase awareness and/or reduce speed
- ⌘ Enclosing a distant view and/or breaking up linearity can reduce speeds creating uncertainty can reduce speeds
- ⌘ Combinations of measures tend to be more effective than individual ones, but can be visually intrusive and may be costly
- ⌘ Roadside activity e.g. parked vehicles, the presence of pedestrians or a cycle lane can reduce speeds

Perceptual techniques which make the environment *seem* more complex or less safe and therefore have the potential for success. It is important to ensure that measures that increase *perceived* risk do not increase *actual* risk.

Perception of the credibility of speed limits on South African roads

Driver communications systems such as road signs, which include legislated and posted speed limits is an important part of our road network. Zakowska (2008) found that the only way to make these devices work properly is to insure that drivers fully comprehend the meaning of the devices and road users need to perceive road signs as credible given for the particular road environment. One of the reasons cited to influence adherence to speed limits is the fact that speed limits need to be credible, in other words should for the majority of the driving population be comfortable and safe on a particular stretch of road (Goldenbeld & Van Schagen: 2007). If a driver has the perception that he can drive faster on a particular stretch of road than what is legislated this perception is often rooted in previous experience where there were no consequences for violating the speed limit.

Perception of own ability as a safe road user

The AA Motoring Trust (1998) indicated that the “I am a good driver” philosophy tends to entail the difference in how a road user perceives a road safety measures when driving and when not driving. Previous positive outcomes for breaking the law or not getting hurt contribute to a person’s positive experience when negotiating a dangerous stretch of road. This along with the perception of one’s own superior ability (I am a better driver therefore I can safely negotiate the situation) to drive safely or a pedestrian quickly crossing a busy highway because he does so everyday becomes a dangerous habit rooted in the perception that ones has better skills than the next road user.

Perception of law enforcement and traffic violations

Where there is general acceptance and agreement that the posted speed limit for a specific road is reasonably correct it might be perceived as credible and the posted sign might informally facilitate more compliance with the rule. Again violating traffic rules and regulations becomes a personal choice, embedded in the perception of levels of law enforcement and the subsequent consequences of that law enforcement in South Africa (Venter: 2009).

Herbst 2008 stated that “compliance can be defined as “...a change in behaviour because of a direct request”. In her view implementation of AARTO would be this direct request to comply with law. She further stated that “It was clear that most drivers do not rate traffic violations as a criminal offence and that risky driving behaviour continues to be a significant challenge on South African roads. Traffic fines do not seem to deter infringers as most of them have the ability to pay the fine. They may only change their behaviour if they risk losing their licenses”. This again boils down to public perception regarding punishment. This perception is influenced by weighing up the benefits and consequences of particular road user behaviour.

Perception of road safety formed through the media

Media Tenor South Africa indicates that according to the Action Setting Theory, developed by Mcraw & Shaw in 1972, mass media sets the agenda for public opinion by highlighting certain issues. One of the issues that is

highlighted by the media in South Africa on a daily basis is the carnage South Africa experience on the roads. According to research done by Media Tenor, Mass Media influence and shape public perception with regards to events, especially those who are not directly involved in the particular events. In the instance of road traffic crashes involving large busses and trucks that was not properly maintained for example public perception has been influenced to such an extent by media publications that the majority of road users might feel negative towards the drivers of these heavy vehicles. Those who are directly involved with the road traffic crashes will know the facts with regard to engineering aspects, maintenance, EMS requirements etc. and might not be as easily influenced by media reports concerning these specific events. At the end of the day the relationship between reality and media reality sets the trend for public perception regarding a specific trend or occurrence in society. Public perception is influenced by three factors in the media namely:

- ⌘ Agenda Setting is the relationship between the salience of a story and to what extent people think this story is important
- ⌘ Agenda cutting refers to the selective nature in which media choose to publish stories, as the amount of exposure and media coverage a story enjoys tend to influence public perception of the particular problem
- ⌘ Agenda surfing relates to how the media follow trends and report on stories that they now know has become of public interest.

Road safety issues in South Africa definitely falls into this trend, although not to say that it is without merit. Either way the Media definitely shapes the way South Africans think about road safety.

Perception of traffic psychology research in South Africa

According to the Centre of Constitutional Rights in South Africa (<http://www.cfc.org.za>., accessed 29 July 2009) “the right to human dignity, along with equality and freedom, is one of the most basic rights enshrined in our Constitution and has repeatedly been singled out by the Courts as a fundamental right in our new democratic order.” According to the centre The Bill of Rights explicitly states that everyone has “inherent dignity and the right to have their dignity respected and protected. Road travel they argue is not a particularly dignified activity. “Dodging potholes, avoiding taxi wars and road-

raging motorists, swerving around or from intoxicated pedestrians and drivers on highways, lingering in traffic jams at rush hour and praying to reach one's destination intact, are not the stuff of a dignified road lifestyle." Researchers further argue that whilst the value system in place demands respect for and the protection of everyone's dignity, there is nothing dignified in dying a violent death in a collision, nor by sustaining serious injuries in something that could have been prevented from start.

According to the Centre of Human Rights, the government of South Africa is obliged under section.7 (2) of the Constitution to "respect, protect, promote and fulfil all human rights. Frome this angle, the perception seems to be that nothing is being done to improve road safety on South African roads.

The HSRC (Peltzer: 2008), revealed a number of perceived causes for the carnage on South African and Africa in general's roads. In support of Mckenna (2006) these include the known factors, such as human error, vehicle overloading and poor maintenance, bad roads and pedestrian negligence. The Centre for Human Rights refer to "the lack of proper maintenance of roads, the construction of roads with blind rises and other inherently hazardous design features and the serious shortage of effective law enforcers on the roads all serve to impair the freedom of movement to which we are entitled".

One of the more recent research studies that investigated perception of road traffic crashes in South Africa was an investigation into the psychosocial consequences and coping strategies among accident victims in South Africa, where psychological decline among those affected by road traffic crashes were investigated and found to rapidly decline after the event (Peltzer and Renner: 2004).

Perception of the cause of crashes mostly applicable in Africa is according to Peltzer (2008) witchcraft. In his research the following was cited:

“Witchcraft *I think that witchcraft is one of the factors that causes accidents in our roads. You may find that I buy a new car and my neighbours are not*

happy about that, they are going to bewitch me so that my car gets destroyed and may even kill me. Sometimes you may find some stick (dikotana) in the morning in the car and you get an accident the following day, it shows that they worked, those sticks so that you get involved in an accident.-Driver, South Africa. ...There are times when a driver can cause an accident claiming he sees a cow in front but passengers do not see that. Or a fly will just enter into the vehicle and even if you try to kill it (by doom and others) it will not die. It will go to the driver and start flying in his eyes and an accident may occur-Passenger, South Africa”

This study found that in terms of ‘African perception of road traffic risks and injury, is embedded in the ability to understand the cultural context of beliefs and perceptions. Only then can policy makers and practitioners be “able to adapt and apply prevention campaigns that have proved successful elsewhere”. Peltzer (2008) furthermore indicates that “cultural influences may contribute to risk perception” Here reference is made to South Africa where fatalistic beliefs were present in “16% of black and 21% of white drivers, and there was a significant relationship between a non-fatalistic attitude and seat belt use. South African taxi drivers showed largely fatalistic attitudes and expressed a high degree of risk-taking behaviour.” (Peltzer and Renner: 2004)

The responses that was given to by road users in order to explain why road traffic crashes are such a big problem in South Africa, very clearly shows how perceptions of individuals are influenced by experience, social interaction as well as morals, values and even believe systems. The uniqueness of perception and the role that perceptions play in forming collective and individual ideas and concepts that ultimately results in the behaviour we see on the road.

In conclusion

From the literature above it is clear that perception strongly shapes South African behaviour on different levels when it comes to road safety. Research pertaining to human factors in crash causation is a relatively new field of research for specifically South Africa. Research related to the psychology of

road users and the influences thereof should be understood within a psychosocial and behavioural context. In terms of behavioural risk

Only when root causes are understood can the information be used to inform, design and implement the use of “visible” approaches, such as traffic calming, enforcement strategies and education or mass media campaigns. This is therefore again an urgent request for the investment in traffic psychology research as practice for South Africa.

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