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PUBLIC ATTITUDES TO ROAD USER SAFETY: A REVIEW OF THE LITERATURE 2000-2009

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Abstract

This paper forms the first stage of a research project for the Department for Transport (DfT) that will inform the DfT's new post-2010 road safety strategy. The paper presents the findings from a critical review of 72 recent research papers, reports and journal articles examining public attitudes to road user safety, concentrating mainly on evidence from the UK dating from the year 2000 onwards.

The critical review exercise found that at the aggregate level there is high support from the public that behaving in a safe manner on the roads is important and that increasing safety through various interventions, including enforcement, engineering and education, is seen as generally acceptable. For example, there is generally a high level of understanding that faster speeds are linked to collisions and high support for drink-driving laws, 20mph zones in residential areas, traffic calming and speed cameras. However, closer inspection of the literature suggests some subtle differences both between and within individuals. Overwhelmingly, there seems to be a consensus that drivers and pedestrians see themselves as safe road users and other users of the road environment as more risky and dangerous. Hence, support for interventions is largely accepted as necessary for "other" road users rather than for themselves.

In addition, the public's conceptualisation of road user safety shows the social nature of appraising risk and the road user environment and consequently the impact of normative pressure, especially the influence of others, is evident in much of the research. Hence, distorted views on the behaviour of others towards safety and risk influence the public's own behaviour.

There are differences in road user safety attitudes amongst different segments of the population. Older and female road users have more safety orientated attitudes almost across all road user domains than younger and male road users. In addition, attitudes vary

depending upon the context of the research and of the researched. Hence, findings are different when investigating attitudes towards road user safety between a pedestrian and a driver. Implications for interventions are also discussed.

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Introduction

Road safety is a major public concern in the United Kingdom (UK). In 2008, 2,538 people were killed, 26,034 were seriously injured and 202,333 slightly injured as a result of a road traffic incident in Britain (DfT, 2009a). Road crashes were the leading cause of death for people aged between 15 and 24 (DfT, 2009a). In addition to the immense grief caused through loss of life, accident and injury, the economic impact of road traffic collisions is significant – estimated at over £12000m in 2005 (DfT, 2007a). In 2000, the Government's 10 year strategy Tomorrows roads – safer for everyone (DETR, 2000) set out a number of targets to improve road user safety, including a 40% reduction in the number of people killed or seriously injured in road accidents compared with the average for 1994-98; 50% reduction in the number of children killed or seriously injured and; 10% reduction in the slight casualty rate. By 2008, despite an increase in traffic of 16%, progress towards these targets had been substantial. Specifically: the number of people killed or seriously injured was 40 per cent below the 1994-98 average; the number of children killed or seriously injured was 59 per cent below the 1994-98 average and; the slight casualty rate was 36 per cent below the 1994-98 baseline (DfT, 2009a). However, much work needs to be done. A comparison of UK road safety performance with that of other European countries reveals that progress in the UK on reducing road deaths is slower than in other top performing countries (DfT, 2007b).

In order to inform future road safety strategy and to design successful and effective interventions, programmes and schemes to improve road user safety, it is important to focus on the public's conceptualisation of road user safety. It can be argued that the road and traffic environment is a social situation, with actors or agents that interact with one another (Haglund and Aberg 2000). For example, O'Connell (2002) states the design and construction of the road and traffic system "must not be based on an erroneous model of humans as abstract rational actors, isolated from their social context and operating on purely "objective" criteria" (pg. 201). In specific relation to this, road user safety can be viewed as not just being skills-based and rule-governed but also in terms of being an expressive activity (Reason et al., 2001). Hence, for a full understanding of road user safety and for interventions to be successful, the social nature of the road user environment must be taken into account and the attitudes of road users examined.

This paper presents the findings from a critical literature review on the public's attitudes to road user safety. It was the first stage to a project which also involved re-convened deliberative focus groups and was commissioned by the Department for Transport (DfT) to inform the development of their new post 2010 road user safety strategy.

Methodology
Definitions and scope

There are a variety of means of interpreting the concept of "attitude", including straightforward appraisal of an entity, as seen in opinion polls, to more structured definitions based on theory (Goodwin and Lyons, 2009). Attitudes can be defined as "...a positive, negative, or mixed reaction to a person, object, or idea" (Brehm et al., 2002, p. 179) and "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour." (Eagly & Chaiken, 1993, p. 1). Therefore, attitudes can be seen to be an evaluative reaction to a concept, such as road user safety. It must be noted that attitudes towards a concept may be mixed and not necessarily be consistent within the individual. In addition, psychosocial variables relating to attitudes such as social norms, risk, impression management, social identity, prosocial behaviour, habit and personality are also related to the concept of attitudes and hence are included within the definition of attitude for this paper.

There is a vast amount of literature on attitudes to road user safety, dating back many years. In order for the review to be relevant and up-to-date a variety of criteria were employed to manage the literature to be reviewed. The highly contextual nature of road use and attitudes towards road user safety means previous research that has focussed on road user safety regardless of geographical, cultural or social context could be considered too generic. As

such studies involving data on attitudes from the UK population was used as the initial focus. Other relevant and important studies from the international literature were also included but contextual differences noted. Public attitudes across the population and relevant sub-groups vary over time. In order to inform the DfT's post 2010 road user safety strategy an up-to-date knowledge of such attitudes was required. Hence, a theoretical cut-off of literature post the year 2000 was presented to assume highest relevance of findings. Nevertheless, changes over time, where appropriate are noted, insofar as they create knowledge on patterns of attitudinal and behavioural change. In addition, seminal pieces of research pre-2000 are included where theory and debate still have an impact on data and framework of the research to date.

Procedure

Databases, relevant journals and conference proceedings were searched using key words that addressed attitudes and associated variables including specific attitudinal theory (e.g. theory of planned behaviour), acceptability of legislation and interventions, identity and impression management, risk, social norms, prosocial behaviour and habit. In addition, road user safety involved a variety of elements to be searched including: Interventions (engineering, enforcement and education.), policy, pedestrian, drivers, cyclists, motorcyclists, children (up to 16), adolescents/youth (17-21), older people (60 years and over), those driving for work, black and minority ethnic groups (BME) and residential deprivation. Articles with the highest relevance were then subject to critical review which involved analysis of key points including identifying gaps and important issues and debates.

A total of 238 articles were found of which 72 were selected for in-depth critical review. Of those selected, 57 contained primary pieces of research (39 used quantitative data, 10 used qualitative data and 8 had a mixed approach) and 15 were reviews of previous literature.

Findings

Building upon work carried out reviewing the literature for the DfT, this paper presents a further in-depth critical analysis of the findings centred around 3 main categories all of which have implications for the framing of policy or interventions – (1) the difference between attitudes about an individual's own road user safety compared to attitudes about other people's road user safety; (2) the (perceived) normative pressure of other's behaviour and attitudes and; (3) variations in attitude amongst the population within and between individuals and over time.

Individuals' attitudes about their own road user safety are different to their attitudes of other people's road user safety

People tend to believe that they themselves are safe road users. One explanation could be that this conceptualisation arises out of an underestimation of the likelihood of causing or being involved in a dangerous road user incident, an overestimation of their road user skills and ability, an illusion of control and a feeling of invulnerability (Reason et al., 2001; Silcock et al., 1999; Svensson, 1981). That said, the public know that using the road is dangerous and that human error is the major cause of road collisions and incidents (Cauzard, 2003). However, there is a tendency for individuals to believe it is other people, not themselves, that are responsible for danger on the roads (King and Parker, 2008).

Across all driving groups there is extreme confidence from the driver themselves about their own driving ability (Silcock et al. 1999; Svensson, 1981). On the whole, drivers believe that they themselves are safe behind the wheel, with 80% stating that they feel very safe and only 3% indicating that they do not feel safe (RAC, 2007). By contrast, only 41% feel very safe "driving on the roads today" (20% state feeling unsafe). It can be argued that the difference must be made up by perceiving other drivers as contributing to an unsafe road environment significantly more than they are doing so themselves. There is, of course, a problem with having to answer a generic question on how safe an individual feels, since the concept of safety is something that probably varies within and between journeys and to give an overall impression misses out some of the variability in feeling.

Despite individuals claiming to understand the direct correlation between an increase in speeds and an increase in accidents (Higginson, 2005; Quimby, 2005), this is not seen when

asking individuals about their own driving behaviour. Figure 1 shows that 14% of drivers state they are faster than other drivers (graph a), but only 3% state they feel they are more dangerous (graph b), leaving a gap between reportedly going faster than others and believing they are more dangerous than others (graph c) (Fuller, Bates et al., 2008; Quimby, 2005). The pattern is far more marked for male drivers and is especially linked to age for male drivers, with younger drivers less likely to believe their faster driving makes them more dangerous then others (Fuller, Bates et al., 2008).

Figure 1 – The relationship between the percentage of drivers stating they drive faster than other drivers and the percentage of drivers stating they are more dangerous than other drivers (after Fuller, Bates et al., 2008)
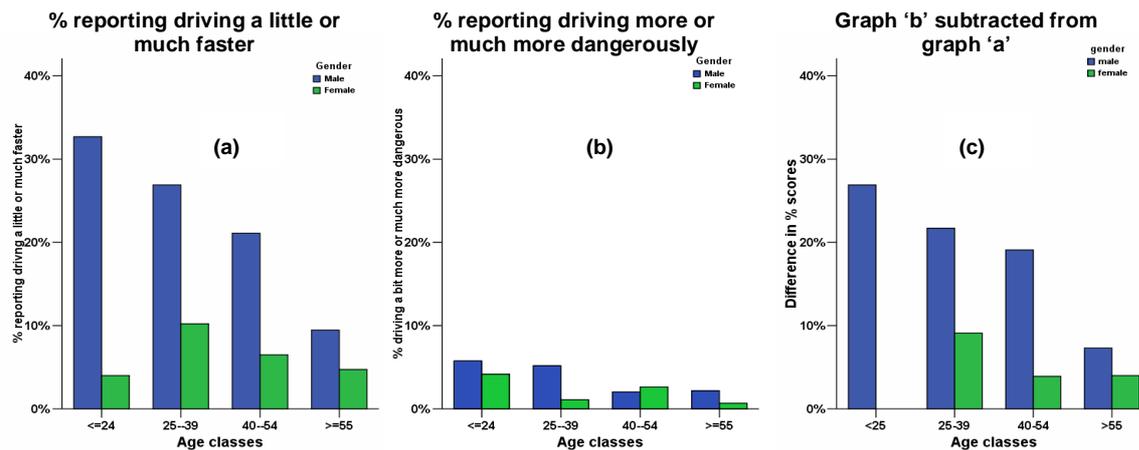
O'Connell (2002) suggests that a 'fundamental attribution error' leads people to overestimate the impact of situational or environmental factors on own behaviour, while underestimating the impacts of the same factors on the behaviour of others. 'Actor-observer differences' might explain why how an individual's own bad driving is perceived as a result of situational factors leading to it, but they are more critical and less forgiving about others drivers behaving in the same manner which is perceived to be the result of personal factors. This can be seen in excuses for driving with excess speed and dangerous behaviour such as noting speeding as unintentional by themselves but deliberate by other drivers (Holder, unpublished).

Actor-observer differences' may explain the tendency to support strict enforcement and a hard line in punishing those who drive dangerously and violate traffic regulations. There is high support for drink-driving laws, which has remained fairly constant over recent years (Higginson, 2005). It is well known that drink driving is a major cause of road collisions, with 91% stating they acknowledge this (Cauzard, 2003; Fuller, Bates et al., 2008). In addition, three-quarters of the public feel other road users are unable to judge how much they can drink before they are over the limit, although almost all individuals feel they are able to judge their own drink-driving tolerance well (DfT, 2008). So, again there is an us and them situation, where individuals can judge for themselves how much they can drink and drive but feel other people are unable to do so.

Not all the evidence is confined to driver behaviour; older children and adolescents think they themselves have a good attitude to road safety but believe others do not, especially members of their own peer group (Tolmie, 2006). In addition, parents think their own children have good road safety skills, but other children do not (Scottish Executive, 2004).

Normative Influences
The power of norms (unwritten rules of behaviour) has long been seen as an important determinant of behaviour. Although 90% of the British population agree it is important that people drive within the speed limits (British Attitudes Survey, 2005 in DfT, 2008) and 39%

state it is dangerous to drive over the speed limit at all (Angle et al., 2007), statistics show that 49% of drivers continue to drive over the speed limit in 30mph zones, and 49% of drivers drive over the speed limit on a motorway. (DfT, 2009b). There seems to be some ambiguity over the definition of speeding amongst the public and what constitutes speeding is different for different people (Cauzard, 2003; Higginson, 2005). In Higginson (2005) for example, 33% think "speeding" is 1mph above the speed limit, whereas, 33% think it is 5mph above the speed limit and a further 33% think it is 6mph or above the speed limit. Corbett (2001) suggests that drivers tend to define speeding at around 10mph above the speed limit.

Almost all drivers consider themselves to be law abiding. For example, in the RAC report on motoring, 94% consider themselves law abiding drivers (RAC, 2007). However, Molller (2004) suggests that driver's perception of law abiding does not take into account driving over the speed limit. A driver can still consider him or herself to be law abiding and drive up to 10mph over the posted speed limit. Hence, there is a disparity between driving over the speed limit and belief that one is speeding and breaking the law, which means the driving over the speed limit continues to occur despite the negative connotation of speeding and breaking the law.

Connelly and Aberg (1993) described the social comparison or contagion model which suggests drivers adopt a speed according to comparisons made with the speed of others on the road. However, since drivers overestimate the speed of other drivers and then number of speeding drivers this results in distorted norms (Aberg, et al., 1997; Fuller, Bates et al., 2008; Fuller, Hannington et al.; 2008; Fylan et al. 2006; Holder et al., unpublished; Silcock et al., 1999; Stradling and Campbell, 2003). Younger drivers are more likely than older drivers to perceive other drivers as speeding (Yagil, 1998). This is also true of faster drivers who are more likely to perceive others speeding (Aberg et al., 1997; Fylan et al., 2006; Haglund and Aberg, 2005 in Fuller, Bates et al., 2008). In line with believing other drivers are more dangerous, drivers can distance themselves from key road user safety messages. The belief seems to be that it is OK to speed as everyone else does it and everyone else does it more than me and since I am a safer and a better driver than others then interventions aren't aimed at myself.

Passengers have been found to both negatively and positively influence risky driving, depending on the age and gender of driver and passenger (Conner, et al., 2003). Thomas et al (2007) reviews the evidence on younger drivers and suggests some passengers (e.g. parents) tend to reduce risky driving, whereas others (e.g. peers) might encourage more risky driving. In addition, if there was a social expectation that an individual would drive riskily, then it was more likely that they would do so. The majority of those surveyed in Silcock et al. (1999) admitted driving differently with passengers in the car. This varied by sex, and particularly by age. Three-quarters of young males reported that they drive differently with passengers, especially when with friends which results in faster and more risky driving. In other cases the tendency was to drive more slowly, especially with children or parents in the car. These findings suggest that immediate peer pressure is an important factor in speeding behaviour for some groups, young males in particular (Silcock et al., 1999). They also suggest that there is an awareness of risk which does modify behaviour, for example to protect a child in the car (Silcock et al., 1999; Thomas et al.,2007)

Some evidence examining children's active travel suggests similar influence of peers. Adults and parents believe that road user skills deteriorate as children get older, largely attributing this to peer group pressure (Dragutinovic and Twisk, 2006; Martin, 2006; Scottish Executive, 2004; WHO, 2007).

Among the attitudinal barriers to cycle helmet use, Towner et al. (2002) suggest peer pressure (helmets are seen as ugly by young people, but a person is more likely to wear one if friends wear them), and parental influence (especially with younger children). Towner et al. (2002) highlight the importance of parents' and friends' positive image and opinions about bicycle helmets in increasing cycle helmet use amongst children. Finnoff et al. (2001) suggest that peer helmet use significantly influenced cycle helmet use amongst all ages of cyclists (including adults). Towner et al. (2002) and Thomas et al. (2007) suggest that

children would be viewed negatively by friends and peers if they were seen wearing a cycle helmet, with great concern being expressed about the potential for being teased.

**Individual differences and perceptions of road user safety**
In line with previous research examining public attitudes (see Goodwin and Lyons, 2009; Owen et al., 2008), the findings from the critical literature suggest there is no such thing as a singular public view, hence the concept that "the public think that" is not possible. This is illustrated further when examining differences between different groups of individuals and their attitudes.

Gender differences
There is overwhelming evidence that females compared to males hold far less risky attitudes towards driving (Angle et al., 2007; Fuller, Bates et al., 2008) and show far more concern for the potential to harm someone else while driving (Fuller, Bates et al., 2008). Females were more likely to express concern for the concept of breaking the speed limit and for performing risky overtaking behaviour (Dahlstedt, 1994; DfT, 2004) and are better informed of potential road hazards and were more likely to rate the dangers of risky road user behaviour higher (Dahlstedt, 1994). This sex difference is prevalent from an early age and is present in pre-drivers where boys (aged 11-16) feel driving violations (deliberate dangerous driver errors) are more acceptable and have a greater enthusiasm for speed (Waylen and McKenna, 2008) and in 15-19 year olds where girls expressed safer attitudes (O'Brien et al., 2002).

Females have a stronger moral obligation to obey the law and evaluated traffic laws more positively (Yagil, 1998). In addition, females think penalties for speeding are over lenient (Stradling and Campbell, 2003) and there is more support from female drivers than males for speed cameras (British Attitude Survey 2007 in DfT, 2008). A study of 1,000 Scottish car drivers found 82% of female and 68% of male drivers were strongly in favour of speed cameras with 4% of females and 17% of males against them (Stradling and Campbell, 2003). Proportions in favour of speed cameras grew with age with 17-24 year old males being around 46% compared to 96% of females over the age of 65 being in favour (Stradling and Campbell, 2003; see figure 2)

Figure: 2 Percentage of the public supporting speed cameras by gender and age (after Stradling and Campbell, 2003)
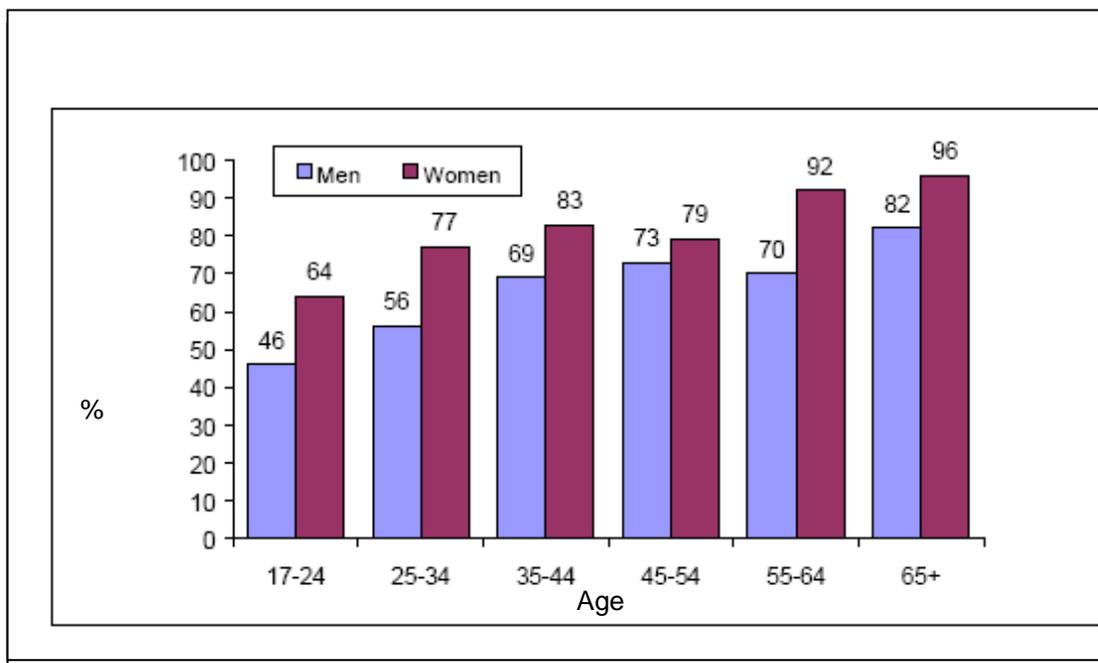
Age differences
Age is another factor that has a strong effect on attitudes to road user safety. Although there is some variation, on the whole older drivers have less risky attitudes to road user safety (Angle et al., 2007). This translates into behaviour with older drivers (age 50 years and over)

displaying less violations with regards to driver behaviour, especially aggressive violations, suggesting deliberate risky behaviour is far less prevalent amongst this age group (Parker et al., 2000). Older drivers show more support for interventions aimed at improving road user safety, for example, as mentioned above, support for speed cameras increases with age (Stradling and Campbell, 2003; see figure 2). Younger people "like" and "prefer" higher speeds, especially males (Meadows and Stradling, 2006) and younger drivers are more likely to deliberately intend to speed when driving (Lawton et al., 1997).

Role differences
Not only is there variation between people, there is also indication that people's attitudes vary intrapersonally, that is within people themselves depending upon what role they are playing or what "hat" (e.g. motorist, resident, cyclists etc.) they are wearing. An example of this is evident in responses to the 2003/4 and 2004/5 British Crime Survey which asked individuals their perceptions of anti-social behaviour at a local level. The most widespread perceived problem was speeding, with 45% agreeing it was a very big or fairly big problem (DfT, 2008). This was viewed as serious by more people than viewed a problem with cars parking incorrectly or illegally, teenagers hanging around, rubbish and vandalism (DfT, 2008). Hence, it is no surprise that the majority of respondents support tougher enforcement of speed limits and in favour of reducing speed limits in certain areas (Higginson, 2005). In general the public want slower speeds near schools and in residential areas (Holder et al., unpublished). For example, 70% are in favour of stricter enforcement of 30mph in residential roads (Higginson, 2005), 89% support 20mph zones outside schools (BRAKE, 2004) and 77% support 20mph speed limits in general on all residential roads (British Attitude Survey, 2007 in DfT, 2008). Given the prevalence of driving over the speed-limit of around 49% (DfT, 2009b), these findings seem unusual. Perhaps, in the incidences noted in this paragraph, it could be that individuals are answering as a resident, hence their view of stricter enforcement is perceived as being for other road users, rather than themselves and may change if they were answering in the context as a driver. This has implications for the design and framing of data collection tools and the importance of understanding the perspective of the participants.

Variations in attitude to road user safety interventions over time
Attitudes of the "public" do not stay static across time. This is best shown through examples of support for interventions or technology aimed at improving road user safety. For example, support for 20mph zones has remained constant around 77% between 2000 and 2007 (DfT, 2008), although amongst Scottish drivers support for 20mph zones has risen from a mere 22% in 1991 to 86% in 2002 (Stradling and Campbell, 2003). This is also shown in growing acceptance and support for Intelligent Speed Adaptation which continues to grow year on year, moving from initial resistance to increased acceptance (Jamson et al., 2006 in Stradling, 2008). In addition, support for speed cameras is shown to be increasing over time. Generally, there is quite high support for speed cameras amongst the public (Higginson, 2005; British Attitude Survey 2005 in DfT, 2008), varying from around 70% to 85% (Corbett and Caramlau, 2006; Stradling, 2008). DfT (2008) looking at the British Attitude Surveys between 2004 and 2007 suggest that there is a growth in support, with less people agreeing year on year that speed cameras are there to make money (58% in 2004 agreed, down to 50% in 2007). Qualitative research suggests support for speed cameras is because they are viewed as equitable – they catch all or no-one without discrimination (Silcock et al., 1999). However, negative views for speed cameras suggest it is the lack of a human-element that could make a judgement on the context of speeding which makes such cameras unfair (BRAKE, 2004). Most drivers believed that speed cameras caused drivers to slow down and then speed-up again afterwards reducing their effectiveness and reducing support for speed cameras (Silcock et al., 1999; Stradling and Campbell, 2003). Indeed, some research suggests support for speed cameras is falling (BRAKE, 2004; Cauzard, 2003; Higginson, 2005). The Brake report (BRAKE, 2004) suggests that 50% of drivers support speed cameras in 2004 which is down from 74% in 2003. In addition, it states that 30% of drivers have no support for speed cameras in 2004 an increase from 14% in 2003. Higginson (2005) states the reduction in support for speed cameras is due to a growing number of people who think speed cameras primary purpose is to generate revenue and a lower number who believe they are there to reduce accidents, though offers no suggestion as to how these views were conceived.

Differences between differing segments of the population

Since *a-priori* variation between individuals can reveal differences in attitude, it is worth exploring whether categorisation or segmentation based on attitude *post-hoc* can help further explain differences in attitude and behaviour. For example, qualitative interviews with 57 individuals and a survey of 1656 drivers suggests that different categories of driver may approach engineering interventions differently (Musselwhite 2004; see table 1). Four categories of driver were identified amongst the population based on their stated attitudes to risk and these were (1) continuous risk taker (consisting mainly of younger male drivers who perform risky behaviours throughout their driving on a regular basis), (2) calculated risk takers (take risks when they feel it is safe to do so); (3) reactive risk takers (take risks when under stress or pressure) and; (4) unintentional risk takers (took few if any deliberate risks while driving) (see Musselwhite, 2006). The continuous risk takers tend to have negative attitudes towards all engineering interventions, except black box technology. This was attributed to being rewarded for performing safer driving behaviours through reduced insurance premiums, for example, rather than being punished for the absence of safer driving behaviours. Speed humps and Intelligent Speed Adaptation (ISA) that stops the driver being able to drive over the speed limit and with no ability to turn it off (Mandatory take over ISA) were seen negatively by all groups of drivers except those in the unintentional risk taking category, the safest category of drivers who already perform little or nor risky driving behaviours. Hence, it could be argued that such engineering interventions will only be accepted by those already having very safe attitudes. This has implications in that if technology systems are introduced and are voluntary they will only be used by those already fairly safe and that speed humps will be avoided if possible by faster more dangerous drivers. Adaptive Cruise Control (ACC) had positive views throughout, except continuous risk takers. It was felt such technology allowed most drivers to display the behaviours they feel most comfortable with and that calculated risk takers (take risks when they feel it is safe to do so, not when the law allows) and reactive risk takers (take risks when feeling stressed, angry or annoyed) were able to use the system to their advantage to display more risky driving behaviours when they choose to and it would help unintentional risk takers take less risk. Continuous risk takers required a system that would give them more control over driving than ACC would allow.

Table 1: Driver segmentation and attitude towards speed reduction intervention (after Musselwhite, 2004a,b):

Driver segmentation	Speed Humps	Mandatory Take Over ISA	ACC	Black Box Technology
Calculated	Very Negative	Negative	Positive	Positive
Unintentional	Positive	Positive	Positive	Positive
Continuous	Negative	Very Negative	Negative	Positive
Reactive	Negative	Negative	Positive	Negative
Overall	Negative	Negative	Positive	Positive

Table 2 shows results of Blincoe et al. (2006) where drivers caught speeding by a speed camera, were placed into categories based on how they approached the speed cameras. A total of 33% of drivers were manipulators (who slow down for speed cameras but speed up afterwards), 31% were conformers (people who nearly always adhere to speed limits), 27% were deterred (who have reduced their speed since cameras were introduced) and 9% were defiers (are drivers who speed most of the time). Table 2 shows their attitudes to speed cameras given in an open question for comments on speed cameras following being caught by a speed camera. Hostility to speed cameras is similar across all groups (around 2 or 3%)

except defiers who show no hostility at all. Support is seen most by those who are deterred by speed cameras (11%), followed by manipulators (8%) and conformers (6%). Defiers show no support at all. Reasons for being caught were addressed: conformers are more likely to state they were speeding by mistake and defiers see the speed limit as inadequate, Both defiers and the deterred are more likely to see their future behaviour changed as a result of being caught by a speed camera. Conformers and defiers are more likely to think the penalty for speeding is too harsh. Almost a quarter of manipulators believe dangerous driving is increased at speed cameras (22%), followed by 17% of conformers, 14% of defiers and 15% of deterred.

Table 2: Public attitudes to speed cameras given in response to an open question completed after being caught for speeding by a speed camera (after Blincoe et al., 2006)).

	Conformers, people who nearly always adhere to speed limits	Deterred, drivers who have reduced their speed since cameras were introduced	Manipulators, are drivers who slow down for speed cameras but speed up afterwards	Defiers, are drivers who speed most of the time
N	133 (31%)	117 (27%)	143 (33%)	40 (9%)
Profile	Most driving experience, oldest group, fewer pts on licence	Least likely to have had accident in previous 3 years	Least driving experience	Youngest group, almost exclusively male
Hostility towards cameras	3%	2%	3%	0%
Support for cameras	6%	11%	8%	0%
Accidental speeding	17%	8%	8%	10%
Fixed speed limit inadequate	6%	4%	13%	29%
Dangerous driving increased at cameras	17%	15%	22%	14%
Penalty too harsh	14%	8%	6%	19%
Change future behaviour	2%	11%	3%	10%

Discussion and conclusion

The critical review of the literature shows the social nature of people's conceptualisation of road user safety. Their attitudes are shaped by other peoples and vice versa. People are over optimistic about the outcomes of their own risky behaviour and under optimistic about the outcomes of other people's risky behaviour. People's attitudes do not stay the same and seem to vary over time, tending to becoming more safety orientated with age. In addition, attitudes vary depending upon what "hat" an individual is wearing and are more road safety conscious when thinking as a resident compared to as a driver.

On the whole, the public want to be seen as safe law-abiding road users. However, many individuals continue to take deliberate and wilful risks, especially when driving. The social motivation for both being safe and taking risks cannot be overlooked and the dissonance is

solved by various logical and calculated justifications, for example stating that driving over the speed limit is not illegal and taking such risks are acceptable at certain times and in certain situations. Hence, the risks they take they believe to be calculated (Musselwhite, 2006). Driving up to 10mph over the speed limit could be seen as a risk worth taking as it is subject to wide-scale approval, it is not seen as illegal and there is a belief everyone does it.

Interventions need to take into account the social nature of the conceptualisations of risk and road user safety. Engineering and enforcement solutions alone are unlikely to tap into the social nature of the public's conceptualisation of road user safety. Growing support for engineering and enforcement solutions largely occur with education and changing social norms aimed at the wider social support mechanisms of aberrant behaviour. Hence, to reduce speed, norms associated with speed and risk need to be challenged and the concept of the illegal nature of driving over the speed limit reinforced. Similarly to reinforce the speeding law the negative social connotations and consequences associated with loss of driving licence need to be reinforced.

The concept of self as safe and others as dangerous has far reaching consequences with regards for the effectiveness of interventions. A campaign targeted at revealing the danger in the road may have limited impact if the public have shifted the danger away from themselves. Essentially people may view such campaigns as not speaking to them, but other more dangerous drivers. Indeed, campaigns that target one high-risk group (e.g. young male drivers, white-van man) driving dangerously may result in individuals justifying their own risky behaviour if the group is part of the individual's out-group. For example, individuals believe "there is danger on the road, but it is others not me".

Campaigns that looked at the collective responsibility of road users and that highlight the 'reciprocity norm' - where people helped by others do the same - could provide a different tack from traditional government communications that have relied on guilt and fear to motivate. A campaign that made safe driving socially acceptable and easy and fun to perform would begin to address wider social issues associated with road user safety conceptualisations.

One of the major assumptions of this paper is that it is important to study attitudes as they have a bearing on actual behaviour. Concluding the empirical evidence from the literature, it may be argued that while road users' attitudes towards safe behaviour is an important determinant of behaviour, it does not provide by itself a full explanation of that behaviour. Hopefully by taking a wider view of attitudes and incorporating other psychosocial variables as this paper does, it hopefully gets closer to understanding the social context within which behaviour is influenced by a multitude of interacting variables. Hence, to understand how an individual's attitude affects her or his behaviour, then the social context within which the attitude is shown must be taken into account including social norms, impression management and identity**.**

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