Understanding the Public Attitudes to Road User Safety: A review of the literature 2000-2009

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Abstract

This paper supports the conclusion of stage one of a project that will provide the Department for Transport (DfT) with an in-depth understanding of how the public engage with the issue of road user safety, to help inform development of the Government's Post-2010 Road Safety Strategy. It presents an in-depth review of 72 research reviews, reports and journal articles relating to public attitudes to road user safety, concentrating on evidence from the UK dating from the year 2000 onwards.

At the aggregate level there is high support from the public that behaving in a safe manner on the roads is important and 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, increasing 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. A prevailing theme throughout this review has been the notion of a difference between the road user themselves and "other" road users. Overwhelmingly, there seems to be a consensus that drivers and pedestrians see themselves as competent and 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. Another prevailing theme that emerges from the literature to date is that attitudes towards road user safety seem to vary within individuals over a period of time. Older and female road users have more safety orientated

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attitudes almost across all road user domains than younger and male road users, for example. 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. However, it must be remembered a driver can also be a pedestrian, cyclist or motorcyclist at other times. Research needs to understand road user attitudes in the context of an individual. Gaps have been identified for further research to be addressed at the latter stages of the research project.

Introduction

Road safety is a major public concern in the United Kingdom (UK). In 2006, over 3,000 people were killed and over 28,000 seriously injured on Britain's roads – of which approximately 3300 where children aged 0-15 years (DfT, 2007a). Road crashes were the leading cause of death for people aged between 15 and 24 (DfT, 2007a). Overall there were over 258 000 reported casualties (DfT, 2007a). 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, 2007b). Making Britain's roads safer is of major strategic importance for the Department for Transport (DfT) – with strengthening the safety and security of transport one of its four core departmental objectives. In 2000, the Government's 10 year strategy *Tomorrows roads – safer for everyone* (DETR, 2000) set out a number of public service agreements to improve road safety, including: 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, expressed as the number of people slightly injured per 100 million vehicle kilometres. By 2006, progress towards these targets had been substantial. Specifically: the number of people killed or seriously injured was 33 per cent below the 1994-98 average; the number of children killed or seriously injured was 52 per cent below the 1994-98 average and; the slight casualty rate was 28 per cent below the 1994-98 baseline (DfT, 2007c). 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, 2007c). Data from 2006 (EU's Eurostat project) put the UK in sixth place in Europe for road deaths per million population. The same study reported that

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the numbers of drink driving deaths in the UK have remained high over the last decade and have actually risen in relation to other deaths. These issues were also reflected in DfT's second three year review of road safety (DfT, 2007c) – which also highlighted that speeding and seatbelt wearing remain key issues; with motorcyclists, young drivers and those who drive for work are more likely to be at risk of traffic collisions.

To understand road user safety behaviour further, 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). Attitudes are therefore at the heart of such a social and irrational context. This paper aims to systematically review recent UK-based literature examining attitudes to road user safety and identify pervading themes and note any gaps in knowledge.

Methodology

Definitions and scope

There are a variety of means of interpreting "attitude", including straightforward appraisal of an entity, as seen in opinion polls, and 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). Hence, 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. For the scope of the project, it was proposed that attitudes are investigated in relation to other related psychosocial variables including social norms, risk, impression management, social identity, prosocial behaviour, habit and personality.

The literature on public attitudes to road user safety is vast and dates 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 future 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

Using the framework, a trawl of the literature was undertaken, addressing a number of different databases, reports and journals. Searching for articles included looking for key words and elements of the article that addressed attitudes and variables known to be associated with attitudes 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 - seat belts; enforcement – speed limits, drink driving; infrastructure - traffic calming; education – adverts, campaigns, initiatives – Think! Brake, Neighbourhood Road Safety Initiative etc.), 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. Once searching commenced all found articles were collated and then articles with the highest relevance were subject to critical review. The critical review involved analysis of key points including identifying gaps and key issues to inform the methodology of the project at subsequent stages.

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 15 had a mixed approach) and 15 were reviews of literature.

Findings

The critical review of the literature revealed a number of key themes including the concept of self and others with regards to road user safety, the influence of normative pressure, and variance of attitudes between and within individuals. Each of these will now be examined in turn, followed by gaps identified in the literature.
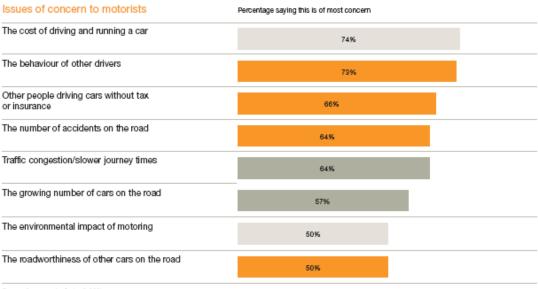
Self and other road users

A prevailing theme throughout the literature under review has been the notion of a difference between the road user themselves and "other" road users. Overwhelmingly, there seems to be a consensus that individuals see themselves as competent and safe road users and others as more risky and dangerous. It is clear that the public know that human error is a major contributory factor in almost all road user accidents (Cauzard, 2003). However, there is the perception amongst individuals that it is "other" drivers and "other road users" not themselves that are the risk (King and Parker, 2008).

The majority of the evidence to support this claim is seen in the attitudes of drivers to road user safety, which is a key concern of motorists. Of the top eight concerns mentioned by motorists in the latest annual RAC survey of 2,209 motorists, six are related to safety and four of these directly relate to safety. It is noticeable also that three out of the four direct safety concerns involve "other" drivers (see figure 1; RAC, 2007). When asked specifically about drivers' concerns about road user safety in the same survey it is found that most common concerns are about "other drivers" and include (in order of percentage of motorists agreeing):

1. other motorists driving under the influence of illegal drugs: 76%
2. other motorists driving over the legal alcohol limit: 74%
3. other motorists driving too fast or speeding: 71%
4. other road users not paying attention: 62%
5. other motorists' aggressive driving: 61%
6. car crime: joy-riding, vandalism, theft, etc.: 60%

7. other motorists' ability to drive in bad weather/ poor visibility: 54%

Figure 1: Issues of concern to motorists (orange: directly related to safety; dark grey indirectly related to safety) (RAC, 2007)

Across all driving groups there is extreme confidence from the driver themselves about their own driving ability (Flamingo Research, 2008; Silcock et al. 1999). This was well researched by Svensson (1981) and is linked to self-enhancement bias theory. On the whole, drivers believe that they themselves are safe behind the wheel, with 80% stating that they feel very safe and only 3% indicated that they do not feel safe (RAC, 2007). It would be interesting to note who these 3% are, though no details are given. By contrast, only 41% feel very safe "driving on the roads today" (20% state feeling unsafe), with the assumption being that the difference must again be made up by perceiving other drivers as dangerous (see figure 2; RAC, 2007). 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.
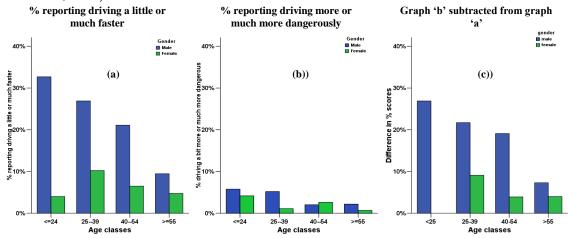
Figure 2: Attitudes towards feeling safe on the roads, as a driver and in general (RAC, 2007)

The self and other divide is further emphasised in findings from research involving 1,000 interviews carried out by Silcock et al. (1999), where discussion on speeding suggested a belief that driver's own speeding behaviour is safe whereas other driver's speeding is perceived as dangerous. Dangerous speeding is often linked to stereotypes of which the driver themselves does not belong – hence dangerous speeding is seen in "boy racers" or "company-car drivers" (Silcock et al., 1999).

The stated knowledge of the relationship between speed and collisions is even less clearly evident when drivers are asked separate questions on their driving speed and how dangerous their driving is relative to others. Figure 3 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 not 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 (Fuller, Bates et al., 2008).

Figure 3 – The relationship between the percentage of drivers stating they drive faster than other drivers and % of drivers stating they are more dangerous than other drivers (Fuller, Bates et al., 2008)

The fact that individuals do not believe they are dangerous, coupled with the belief that others are, has implications for how they view the collision-risk relationship. Many drivers believe collisions happen outside their vehicle and outside of their own control and not to themselves (2CV, 2008). This is further explained in Flamingo Research (2008) where drivers put themselves at the centre of the risk-collision relationship. Hence they feel in control of their own safety but perceive collisions to be out of their own control and hence a feeling of "collisions are unlikely to happen to me and since they are out of my control there is little point in planning to avoid them". The distancing of the self from others in respect to interventions is termed the third-person effect, where people believe interventions are aimed at other people and as such react in a way to which they perceive the message has effected others (and hence may conform to this or go against it) (see Davison, 1983).

O'Connell (2002) suggests that a 'fundamental attribution error' leads people to overestimate the impact of factors in the environment or situational influence on own behaviour, while underestimating the impacts of the same factors on the behaviour of others. 'Actor-observer differences' might explain why while our an individual's own bad driving is perceived as a result of situational factors leading to it, they are more critical and less forgive about others drivers behaving in the same manner as their behaviour 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 drvers (Holder, unpublished). For example, in a study of drivers caught doing 36mph in a 30mph zone by a speed camera, 54% of drivers claimed they didn't realise they were "speeding" (Blincoe et al., 2006; Corbett and Simon, 1999). In addition, research notes that drivers often view the cars as too comfortable and people do not realise they are speeding:

"Modern cars are moving further and further toward being high-speed living-rooms." (Fuller, Hannigan et al., 2008).

'Actor-observer differences' may explain the tendency to support strict enforcement and 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). The RAC report on motoring suggests the recent clamping down on drink-driving is positively perceived by drivers and is a significant contributor to better safety (RAC, 2007). There is support for harsh penalties too, with 72% of the public believing that anyone caught drink-driving should be given a ban of 5 years (DfT, 2008). It is well known that drink driving is a major cause of road collisions, with 91% stating they acknowledge this (Cuazard, 2003; Fuller, Bates et al., 2008). There is also good knowledge that alcohol can last in the body from one evening to the next morning (Higginson ,2005). In addition, individuals state they know how much they can drink and would never drink-drive but around three-quarters of respondents feel other road users are unable to judge how much they can drink before they are over the limit, although 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 have a good attitude to road safety but believe others do not, especially members of their own peer group (Tolmie, 2006).

Normative Influence

Norms, speeding and the law

Since speeding is seen a key risky road user behaviour for drivers, it is important to give it closer attention. Although 90% of the 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) it is clear the majority continue to "speed". 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. Through discussions with younger drivers the majority perspective was that the laws and rules of driving were things to be followed not for their own sake, but only if they were judged to be genuinely relevant to the safety of driving and if they coincided with what were believed to be the norms of driving as a social activity and in order to avoid penalties (Christmas, 2007).

Almost all drivers believe other drivers speed (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). 92% think other drivers break the speed limit (Holder et al., (unpublished)). UK data from the SARTRE project (Cauzard, 2003) suggests 93% of UK drivers think other drivers speed. This is a higher percentage than any other EU country (Quimby, 2005). The belief that most other drivers are speeding influences individuals own choice of speeding behaviour, the more likely they are to perceive others speeding the more likely they themselves are to speed (Fuller, Bates et al., 2008). 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 in Fylan

et al., 2006; Haglund and Aberg, 2005 in Fuller, Bates et al., 2008). In line with believing other drivers are more dangerous drivers (see section on self and other road users), the belief seems to be that it is OK to speed as everyone else does it and everyone else does it to a greater extent than myself.

Hence the public believe a certain amount of speeding, within limits that vary between people, above the speed limit is normal, acceptable not linked to law-breaking and that everyone is performing the behaviour.

Influence of passengers: social facilitation and inhibition

The presence or absence of other people influences driving behaviour. Thomas et al (2007) reports a good review of this for younger drivers. Some passengers (e.g. parents) tend to reduce risky driving, whereas others (e.g. peers) might encourage more risky driving. Young men were more likely to take risks than young women. Young people stated that they judge the degree of acceptable risk depending on the situation and they were more likely to drive riskily when driving alone or late at night when the roads are quieter than during the day or when they were responsible for others in the car. Some young people felt they 'grew out' of risky driving as they got older with more expensive cars and family responsibilities. They also said that the social expectation that they would drive riskily made it more likely that they would do so. In addition Silcock et al. (1999) suggests that the effect is there for all ages of driver but is more pronounced for younger male drivers. 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. They tend to drive faster when they were with friends. 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 for some groups, young males in particular. They also suggest that there is an awareness of risk which does modify behaviour, for example to protect a child in the car

It would be interesting to observe whether the theory of social facilitation can be extended beyond the concept of passenger effects into the wider social world of the driver. Could it be

that social facilitation creates a sense of being watched by significant others outside of the vehicle (e.g. by other drivers or pedestrians) for some or all drivers or indeed by translated into other road user behaviours? Further research is needed in this area and how this might link into social identity and the use of driving and the car as an expressive activity.

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 Social Research, 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 helmet 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.
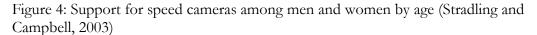
Differences between different groups of people

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. There are, instead, a range of different views, especially noticeable are differences between gender and age.
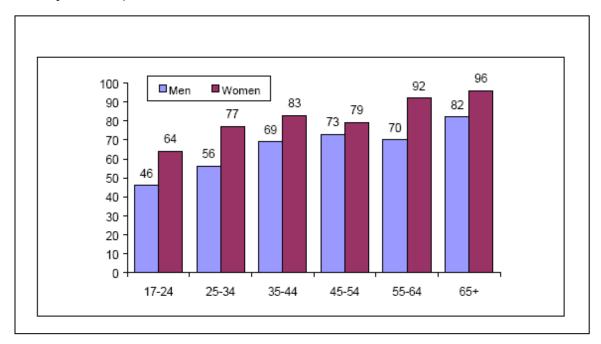
Gender

Attitudes involving risk are not displayed equally across the population. For example, there are gender differences in risky driving attitudes. 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). In addition, reported road user safety skill increases with measured femininity (as measured using the Bem Sex Role Inventory). (Ozkan and Lajunen (2006) in Fuller, Bates et al. (2008)). This sex difference is prevalent from an early age and is present in pre-drivers where boys (aged 11-16) feel driving violations are more acceptable (Waylen and McKenna (2008) and in 15-19 year olds where girls expressed safer attitudes (O'Brien et al., 2002). Similarly, in a study with children aged 11-16, boys have a greater enthusiasm for speed (Waylen and McKenna, 2008). This peaks at around 14 years for boys and 13 years for girls, and remains constant for boys but tails off for girls (Waylen and McKenna, 2008).

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). It is unsurprising, therefore, that 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 (Stradling and Campbell, 2003) 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. Proportions in favour grew with age with 17-24 year old males being around 46% up to 96% of females over the age of 65 being in favour (see figure 4)

Figure 4: Support for speed cameras among men and women by age (Stradling and Campbell, 2003)

Again, the pattern is typical for non-driving situations, where boys compared to girls show greater risk in crossing behaviour (see Dragutinovic and Twisk, 2006). Alongside the effect of peers, there is evidence of sensation seeking amongst adolescent children with regards to road user safety (Dragutinovic and Twisk, 2006; WHO, 2007), this is more marked for boys than girls (peaking at around age 14) (Waylen and McKenna, 2008).

Age, attitudes and road user behaviour

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). Younger people "like" and "prefer" higher speeds, especially males (Meadows and Stradling, 2006). Younger drivers intend (Lawton et al., 1997) and accidentally speed more than older drivers.

Older drivers show more support for interventions aimed at improving road user safety, for example support for speed cameras increases with age (Stradling and Campbell, 2003).

Trends over time

Attitudes of the "public" do not stay static across time. This is best shown through examples of support or acceptance of 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). The SARTRE data suggests support in 2003 for speed cameras in the UK was around 78%. Stradling (2008) reports that there is around 70-80% support for speed cameras amongst the UK (average across 6 surveys is 74%). Stradling (2008) reports a study by Corbett and Caramlau (2003) that found that 85% of London motorists agreed that speed cameras are there to encourage compliance

with speed limits, with 87% stating that speed cameras were there to reduce accidents and 91% stated they believed they were there to save lives. A total of 46% agree that speed cameras save lives, 50% agree that speed cameras are mostly there to make money and 46% agree there are too many speed cameras. 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; see figure 21). 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 they are there 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.
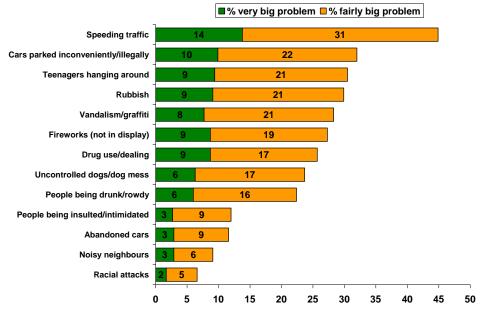
Differences within people

Not only is there variation between people and between times, 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); see figure 5). 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). There is also very low support for higher speed limits in the UK, in fact one of the lowest amongst all European countries (Quimby, 2005). However, the vast majority of drivers admit to driving over the speed (BRAKE, 2004; Fuller, Bates et al., 2008; Silcock et al., 1999; Stradling, 2007). In addition, the SARTRE data suggests drivers in the UK do not drive any slower despite having higher knowledge of speed-collision risk compared to many other EU countries (Quimby, 2005). It could be they are answering the question as a resident (as the frame for the British Crime Survey would suggest – all other items on the questionnaire would require an answer as a resident) rather than a motorist? Is it again, a individual's own speed that is OK, and other people's speeding behaviour that is dangerous, so the reduction in speed is supported for "other" more dangerous drivers? More research examining this dissonance is required.

Figure 5: Proportion of the public perceiving very or fairly big problems in their local area (British Crime Survey 2004/5; after DfT (2008))

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 2004a, b; see table 1). The most dangerous category of driver, termed continuous risk takers (consisted of mainly younger male drivers who perform risky behaviours throughout their driving on a regular basis), 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 ISA that took over the speed of the vehicle without any voluntary setting 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: Different categories of driver have different attitudes (Musselwhite, 2004a,b):

Category of driver	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 speed limit as inadequate, Both defiers and 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: attitudes to speed cameras given in response to an open question completed after being caught for speeding by a speed camera (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, conclusions and directions for further research

Overwhelmingly in the critically reviewed literature there seems to be a consensus that drivers and pedestrians see themselves as competent and safe road users and others as more risky and dangerous. Individuals see themselves as law abiding and if they take any risks they do so within their own judgment of safety. Hence, they freely admit to speeding safely, and that it is other drivers who speed unsafely. The concept of self as safe and others as

dangerous may explain the reason why there are high levels of support for stricter enforcement of speed-limits and harsher penalties for dealing with poor road user behaviour, as individuals view such interventions as being aimed at other road users. Increasing support for speed limiters and black box technology is found – probably for other road users. Such an attitude has far reaching consequences with regards for the effectiveness of interventions. A campaign targeted at revealing the danger in the road would have an effect if an individual had just distanced themselves away from the danger. However, they have shifted the danger away from themselves and onto others. Hence, campaigns revealing danger are viewed as not for them but for other more dangerous drivers to take note from. Such campaigns may further increase the distance by giving self-confident drivers an excuse for their risk taking behaviour, in the belief that it is others who are risky, not themselves. In addition, control of the risk is in the hands of the individual, which further emphasises the distance between self and those elements out of control, such as other drivers and collisions. An assessment of risk puts driver themselves at centre of equation – "I am in control therefore any collision is out of my control" and "It is unlikely to happen to me" (slide 28; Flamingo Research (2008)). Drivers emotionally detach themselves from collisions even if they have been involved in them – hence there is a chasm between risk of collision and effect on self. The concept of self and others does not just reside within an individual and is seen with regards to group behaviour. Hence, people on the road identify with a particular in-group, all of who drive safely and an out-group all of who drive dangerously. This is seen when individuals view dangerous drivers as out-groups such as company car drivers, young drivers, school run mums etc (for example, older drivers viewed themselves as a heterogeneous group of individuals all with good skill but a variety of ways of displaying such skill and younger drivers as a homogenous group of individuals all with equally poor ability skill and inappropriate attitudes). In further research it will be important to establish both how the distance between the self and others is formed, maintained and justified. It is suggested that qualitative group work is ideal to explore the concept of self and others further as it will be in the presence of both the "self" and the "others".

Normative pressure can be described in two different ways. First, social norms appear to influence road user safety behaviour through the exchanging of attitudes. In speeding, for instance, it is often viewed that many drivers speed which offers a justification for such

behaviour. Other heuristics maintain such behaviour with various rules of thumb applied to justify similar behaviour such as tolerance thresholds being over the speed-limit or the belief that drivers will not be caught for speeding. Peer pressure is especially evident amongst driving behaviour for youngsters (especially immediate passenger effects, adolescent pedestrian behaviours and children's cycle helmet use. However, it would be interesting to explore peer pressure at other ages and for other types of road user behaviour. In addition, besides peers what examples of others are influential - is it all others, significant groups like themselves, champions, peers? How do car adverts, emphasising speed and aggressive driving influence the norms of driving behaviour? How are such themes maintained by the press, television and other popular culture? How do these normative influences affect own norms and values and what happens with normative influence from others is not consistent with each other or with the individual own views?

A study of the individual differences at a disaggregate level is required to understand attitudes and road user safety. Much of the work to date has ignored interesting outliers and tends to try and treat the road using community as a homogenous group. Where research has looked for differences between groups, it tends to have used background details, such as age, gender, driving experience and socio-economic groups to show differences between attitudes. Some studies have used post-hoc categorisation (Blincoe et al., 2006; Fuller, Bates et al., 2008; Musselwhite, 2004a,b) based on clusters of similar attitudes or behaviours in order to explain differences. This segmentation approach could have merit in targeting specific interventions, hence similar approaches in analysis are suggested for future research here.

The literature reviewed has typically investigated the attitudes of one aspect of road user behaviour, so they study attitudes of drivers, or of pedestrians, with little regard for the concept that drivers are also pedestrians and may at other times by cyclists or motorcyclists. The research that found greater empathy towards motorcycles by car drivers who were themselves motorcyclists or had motorcyclists in their close family or friends, suggests this theme could be taken further for other road user behaviour (Crundall et al. 2008). Research needs to understand road user attitudes in the context of an individual; how do attitudes towards road user safety vary within individuals depending upon the context?

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Another prevailing theme that emerges from the literature to date is that attitudes towards road user safety seem to vary within individuals over a period of time. Older drivers have more safety orientated attitudes than younger drivers for example. It is suggested this study addressed at what stages in life do such changes take place and are there triggers for such changes? Further research should also ascertain how far are the attitudes an example of changes over time or due to cohort differences

More research is needed on a variety of road user attitudes that have not been well covered in the past. In particular it is suggested that research is needed examining the attitudes of pedestrians (especially adults), motorcyclists (of all ages) and cyclists (especially adults). In addition, public attitudes towards new initiatives like shared space concepts and psychological traffic calming would be useful. Links between attitudes for other concepts linked to transport and road user behaviour would be interesting to study, not least attitudes to the environment and attitudes to road user safety; do those who think green, drive safer, for example in order to save fuel? Finally, something is needed amongst all the variables on the role of habit in maintaining some of the behaviours in order to reveal conscious and subconscious decisions in aberrant road user behaviour.

It is proposed that a second stage to the research aims to uncover more detail on the above areas of interest and contention. A wholly qualitative approach is planned targeting specific individuals in social workshop settings using a deliberative approach, in order to gain insight and depth in a social context.

Acknowledgements

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