Report on school based interventions to delay uptake of driving licence

for Adrian Davis and Mike Baugh,
on behalf of NHS Bristol

Sara Bird
12th August 2011

Sara Bird, M.A.
4 Wellington Lane, Montpelier, Bristol BS6 5PY
T: 07919 416375 **E:** sarabird1@me.com

Summary

This report has been prepared by Sara Bird, a member of Bristol Social Marketing Centre at University of the West of England, a previous associate of the National Social Marketing Centre and ex-account director at advertising agencies McCann-Erickson and Swordfish Advertising Ltd.

It reviews the evidence for social marketing and other approaches to encouraging voluntary delays in training for and attaining a UK driving licence at age 17, and delaying car ownership. The benefits of this would be manifold: reducing the disproportionate injury and mortality associated with young drivers, reducing air pollution and congestion on the streets of Bristol and beyond, reducing carbon emissions, and improving fitness and reducing obesity amongst UK teenagers.

Messages, media and tone are considered as we learn from effective, and ineffective, interventions in driving and other socially important activities such as smoking, alcohol and drug use, and sexual health. Marketing tools that have benefited commercial organisations are applied to these health and social contexts with proven benefits, and techniques such as segmentation and cocreation are reviewed. Proven marketing, social marketing, behaviour change and transport theories are also considered and translated into practical recommendations.

We conclude that cocreation, use of a range of emotions and task, and high student participation are key characteristics of successful school-based interventions. The effects of this can be enhanced with other media within the school such as posters, leaflets and school websites. Casting our net wider, local media may offer useful support for minimal cost through incentives such as competitions and discounts. Role models, such as celebrities, paramedics, firefighters and peers also have their parts to play but parents may hold the key to reinforcing this intervention at home. They influence on when young people learn to drive, and then whether they own a car, have access to a car and how and when they drive.

Contents

1. Background

Teenagers generally aspire to learn to drive and to own their own vehicle as early as possible. We will look at why in far more depth; by generally cars and mobility represent autonomy and adulthood to young people who have had little true independence until this point. Yet, car accidents are a leading cause of death and injury amongst adolescents (Beck et al., 2006). Cars also contribute heavily to congestion, air pollution, climate change and the obesity epidemic affecting all age groups.

Drivers aged 17 to 21 years make up 7% of driving licence holders but 13% of drivers involved in road traffic crashes resulting in injury in the UK (DETR 2000). While the twin factors of youth and inexperience are difficult to isolate, inexperience alone does not account for the disproportionate number of adolescents involved in car accidents. Even when driving experience is taken into account there is a clear link between youth and accidents, where individuals who begin to drive at younger ages are far more likely to be involved in a crash (Jonah, 1986; Levy, 1990; Ulmer et al. 1997).

Why are young people so at risk of car accidents? Compared to older drivers, *"younger drivers demonstrated lower risk aversion, and higher propensity for taking accident risks, as well as stronger motives for risky driving in relation to experience-seeking, excitement, sensation-seeking, social influence, prestige-seeking, confidence/ familiarity, underestimation of risk, irrelevance of risk, "letting off steam", and "getting there quicker""* (Hatfield & Fernandes, 2009, p.25). Clearly there are subgroups, for instance 'excitement-seeking' adolescents are more likely to engage in risky driving practices (Machin & Sankey, 2008), and males more likely to drive is a risky fashion than females (Arnett et al., 1997), however there is also evidence that conservative drivers also put themselves at risk. Recent evidence suggests that this may be an inevitable element of growing up, and we look at this in the next section.

Graduated licensing schemes with curfews and prohibitions on carrying passengers have been shown to be successful in the US but are beyond the scope of this intervention, however there are alternative approaches to reducing car use in this age group. For instance, Wright & Egan (2000) suggested 'demarketing the car' through a number of strategies:

- Discouraging travel (by any mode, including the car)
- Discouraging people from buying cars
- Discouraging people from using their cars

We suggest a fourth approach - delaying licensing through voluntary cooperation with teenagers. Hartos et al. (2001) concluded that being older at licensure might be an effective way to curb young driver's risky driving behaviours, and, in a review of graduated licensing programmes McCartt et al. (2010) concluded that, in the US, *"the longer the permit age was delayed, or the longer the licensing age was delayed, the lower*

the estimated fatal crash rates among 15- to 17-year-olds" with up to 30% reduction in fatal crashes. Yet there are no documented interventions in the UK or elsewhere that attempt this approach, inviting a pilot study to assess the viability of voluntary licence delay.

This is an alternative approach to the usual interventions for this age group, which tend to focus on reducing collisions *after* licensing through highlighting crash risks (see Deighton and Luther's 2007 review of such interventions for the UK Department of Transport for summaries of these), or using pre-driver training to reduce post-qualification accident rates. An extensive Cochrane review concluded that there is no evidence that pre-driver training had any effect on reducing accident rates, and that pre-driver school-based training may well have the opposite effect because it encourages young people to get licences as soon as possible (Roberts & Kwan, 2008). We therefore argue that this alternative approach of attempting to delay licensing warrants investigation.

Social marketing has been suggested as part of the range of interventions to achieve this. Sitting between education and policy, social marketing is supported by authors such as Senserrick (2006) who argue that more should be done by road safety campaigners to emulate successful social marketing campaigns such as the US "Truth" campaign, which has helped reduce teenage tobacco use.

Existing road safety approaches tend to focus upon preventing accidents through measures that are often restrictive for, and critical of, adolescents and their behaviour. These interventions are focused upon the problem behaviour itself rather than the reasons behind the behaviour. For many teenagers, the natural response is to rebel, or to ignore interventions from authority groups who they feel do not understand their lives or are trying to stop them having fun.

While education and law are important strategies, social marketers approach the question from a different angle: we consider the issue from the perspective of the target audience i.e. adolescents. We take the same approach as commercial marketers attempting to sell products to teenagers and learn from these successful strategies. Such approaches include segmentation of target audiences into homogenous groups, identification of each group's key motivations and steps to effectively design a 'product' to achieve these. As Noar (2006) argues, across health mass media, those attempting to change behaviour have increasingly adhered to principles of effective campaign design, segmenting further, using integrated strategies and learning from the commercial sector.

We do not advocate 'mass-media' campaigns that attempt to target many audiences with one message, as Strecher et al. (2006, p.5) neatly summarises, "One-size-fits-all mass media interventions that run independently of other strategies have demonstrated little or no behavioural improvement".

Instead we look at what media the target audience is using, who they listen to, what they want and how they want it - and adapt our offering to suit. Interventions may include advertising, but can also be forms of public relations, personal selling, price

promotion, distribution strategies and other direct communications, as well as changing the nature of our 'product' to appeal to the target audience.

Social marketing also draws heavily on behaviour change theories and this report breaks these down and looks at what they contribute to the intervention.

We look at what they aspire to and what pressures teenagers are under, and consider licensing and driving from their perspective. We also look at how they see the alternatives, such as public transport, walking and cycling. Our philosophy is that people cannot be coerced into sustainable behaviour change, but can be convinced when more desirable alternatives are offered.

So in this report we consider

- Why do young people aspire to drive, and to achieve a licence as early as possible?
- What are the credible alternatives to this behaviour?
- What do you young people want – both from the transport options and more generally?
- How can we make transport alternatives more attractive, based upon these desires? And how can we make early licensing and car driving less desirable in this context?
- What strategies can we best use to communicate this?

These findings can be used to improve the existing pilot intervention, and to guide future interventions. We also consider alternative strategies which could be implemented earlier to achieve the same desired effect, and evaluate comparable strategies for the same age group in driving, alcohol moderation, tobacco cessation and sexual health, to learn what we can about communicating effectively with this group.

2. The Context of Adolescence

The teenagers who will qualify for provisional licenses in the coming school year were born in 1994-1995. These are the very tail end of 'generation Y', born between 1977 and 1994, but more characteristic of 'generation Z', born in the 1990s/early 2000s. Also known as 'Generation M (for Multitasking)', the 'Net Generation' or the 'Internet Generation', this age group are highly connected, born after the first commercial availability of the internet in 1991, into an era of MP3 players, mobile phones, smartphones, SMS, MMS, instant messaging, and social network sites (SNS), earning them the nickname 'digital natives'.

These teenagers are coming of age in an uncertain world: recession, the threat of climate change, globalisation and international unrest, and, on the their doorsteps in Bristol, issues of looming unemployment and civil unrest. However they are still teenagers, and the possibility of driving is as alluring as it must have been to teenagers since the 1950s. Here we go on to explore background issues of adolescence, before addressing specific aspects associated with licensing, driving, mobility and alternative transport options.

2.1 Adulthood

The responsibilities of a 16-20 year old have changed significantly over the last few decades. In the 1960s people would have married earlier, had children earlier and been expected to work earlier. Education was not so prolonged, which leaves a gap where it is not entirely clear whether teenagers are expected to be an adult or a child, or somewhere in between (Arnett, 2000). No longer are there clear age delineations (leave school at 16/18, get married by early 20s, have children mid-20s), instead there are indicators of adult 'competence' (Jones, 2005b).

Gaining a driving licence is a significant rite of passage for young people and such an indicator of competence, symbolising adulthood and freedom from parental control (Clifton, 2003). Consuming 'adult' products such as tobacco, alcohol and cars are important signals of adult status (Morrow and Richards, 1996), and associated autonomy from parental control (Thomson et al., 2004).

What is clear is that young people in this age range consider themselves to be undergoing the transition from 'teenager' to 'adult'. But what does being an adult mean to them? A number of studies have identified the top three criteria for the transition to adulthood as:

- accepting responsibility for one's self
- making independent decisions
- becoming financially independent

(Arnett, 1997, 1998; Greene et al., 1992; Scheer et al., 1994).

Driving and the car are emblems of this. They represent the responsibility of being permitted to drive on public roads with passengers, while expanding the distance that can be travelled and the places that can be visited without permission or oversight of parents, and the symbolism of a car as wealth and independence. Contrast this to the bus or bicycle, which are seen as childish in comparison.

This early adulthood is also an era of 'identity exploration' (Arnett 2000) where one can play with one's identity and start to work out who one wants to be as an adult. Experimentation includes going out with different people, trying different jobs, hanging out with different social groups – and also the exploration of driving. These are important stages in development, which enable us to become responsible and competent adults.

However, if you combine this experimental adulthood with biological imperatives associated with immaturity, there can be a 'gap' where childish 'fun' is exaggerated before the adult 'sensible' side is fully matured. Combine this with the ability to earn money, be independent and own a car, and there are potential issues for road safety.

2.2 Risk-taking and sensation-seeking

Jones (2005a) frames the gap between adolescence and policy well when she says:

"While success in policy terms may be defined in terms of increase in qualifications and staying on rates, decrease in teenage pregnancy rates, etc., it should be remembered that

these are indicators of success for policy initiatives, rather than for young people." (Jones, 2005a, p.12).

What *we* may see as risks, *teenagers* may see as vital elements of remaining part of their social group while becoming an adult. The policy goals above postpone teenage concepts of adulthood by delaying autonomy, economic independence and sexual maturity. Driving is considered an important element of each of these concepts.

Indeed, risk-taking is a natural part of adolescence: leaving home, leaving school, starting college or a job, and establishing new social connections are all risks – and it would be the same whether you are an adolescent human or a lion leaving the pride or a chimpanzee ousted from the troupe. Therefore it is thought that teenagers, especially males, have adaptive traits that embrace risk-taking, as they are pushed out of family territory and forced to establish their own, and compete with others for resources to defend that territory.

The neurological underpinnings of this are seen in the adolescent brain: there is a documented gap between when emotional 'reward' sensing matures and when the rational cognitive processing element matures (Albert & Steinberg 2011). The early maturity of the socio-emotional system is linked to a rapid increase in the number of dopamine receptors in the related areas of the brain, versus the relatively late maturity of cognitive processing system achieved by gradual synaptic pruning and myelination which stabilise that system. It is thought this accounts for the observed adolescent preference for immediate rewards that gratify emotional centres, over delayed rewards that would be a better rational choice. Hence, the immediate thrill of a risky overtaking manoeuvre is preferably to the long-term reward of being safe.

This gap is not associated with hormones and puberty, which have often been held responsible for teenage impetuousness. What puberty does contribute is a surge in the oxytocin system, which drives the desire for closer bonds with friends and potential sexual partners, and amplifies perceived peer pressure. Therefore emotional rewards are also amplified by the feeling of being a valued member of a peer group.

These neurological and hormonal influences affect teenagers at the very age that they qualify as drivers, resulting in a high focus on the social and emotional rewards of driving. Both the observed neurological changes and their effects are more pronounced in males than females (Albert & Steinberg 2011) and are higher in adolescence than adulthood (Arnett, 1994; Zuckerman et al., 1978).

These observations would account for the documented sense of 'invincibility' of young people, where injury and subsequent long-term consequences or death are considered likely to happen to 'old' people but not themselves (Monneuse et al., 2008). In one study, only 22% thought that accidental injuries were always preventable (Jonah, 1986) and teenagers consistently underestimate risk (Shope, 2006; Elliott et al., 2002; Williams et al., 1983). They rationalise this by assuming that youth and agility will help them overcome the effects of poor driving conditions and intoxication, and when asked about media reports of motor crashes involving young people they described them as 'mostly freak accidents' (Monneuse et al., 2008).

Some young people, mostly male, score much higher on aspects of 'sensation' seeking than others, and this is correlated with risky driving practices such as speeding, driving while drunk, and passing in no-passing zones (Arnett, Offer & Fine, 1997; Zuckerman and Neeb, 1980). This may be a basis for segmentation as this group tends to respond differently to the 'average' teenager to interventions, generally being observed to be more resistant to behaviour change for social good.

This would indicate that, for these high-risk individuals, we need to appeal with alternative methods of sensation seeking, or by showing how car stands in the way of sensation seeking e.g. it's a burden, takes the money you could otherwise spend on fun etc.

3. Learning to drive

For many teenagers, learning to drive is an automatic decision unless they face hurdles of parental resistance, cost or access to a car (Taylor et al., 2007). Seeing older peers achieving this rite of passage is a clear influence:

"I wouldn't even think about [learning to drive] I just I wanted to do it, probably because my older sister and friends were learning. It was just natural for me to want to do it as well" (Female, 23, urban area).

Driving lessons and L-plates are a common 17th birthday present, signifying the transition to adulthood that is so important to this age group (Taylor et al., 2007). Individuals feel left out socially if their friends are learning to drive, but there are also perceived practical advantages (Taylor et al., 2007). Parents were often found to cajole their offspring to drive early, as it removes them from their role of chauffeur, and adding another driver to the family increases flexibility (Taylor et al., 2007).

Barriers to taking the test were the cost of lessons, the perceived impracticality of the time taken to take lessons and finding the theory test daunting (Taylor et al., 2007). Parents sometimes resisted because of fear of letting their teenager drive, but also making the family car available to them and it being too big or powerful for teenagers to handle (Taylor et al., 2007).

Owning a car was subject to similar issues of cost and parental influence but was strongly desired because of unlimited access to their own 'escape machine' (Taylor et al., 2007).

4. Perceived Characteristics of the Car, Public Transport and Cycling for Adolescents

A large UK qualitative study (12 focus groups comprising 98 young people aged 16-25 plus 36 interviews) found that the default mode of transport was the car, whether as a passenger or driver (Taylor et al. 2007). Local journeys of 5 minutes or less may be undertaken on foot, but a car was frequently used. Public transport was not considered an option for regular trips, and only for irregular trips, such as football matches or where congestion or parking would be an issue, in 1999 a survey of 582 UK

adolescents (age 11-19) showed minimal use of cycling (Stafford et al. 1999). Taxis were not even mentioned, and have not been covered in the literature picked up for this review.

The reasons underlying these figures are both emotional and practical, and in this section of the report we look at the meanings and implications of the car, public transport and cycling/walking to adolescents.

4.1 Mobility and independence

Many teenagers would argue that they *need* a car to get around: a rational argument for the value of a car over public transport. Mobility for teenagers is a much-researched area, though much of that research comes from the US where mobility is a more significant issue because of sprawling urban developments and large rural areas.

Mobility is a deeply desirable aspect of driving for adolescents. Boyd (2008) describes the adult control over home and public spaces, which a car allows teenagers (especially in the heavily urbanised US) to escape. To many, a car stands for autonomy (Stradling, 2002), and offers the opportunity to be spontaneous (Taylor et al., 2007).

"I just like doing me own thing and not having to rely on anyone else. But it's like ... if I had a phone call tonight from a mate saying 'Look can you come over?' I could just jump in my car and go. So that's what I like about it."
(Female, 21, rural area, in Taylor et al., 2007)

As US teenagers age, they achieve more independence in their mobility, because they gain access to cars and abandon walking and public transport (Clifton, 2003). In UK urban areas, however, where a car is costly and inconvenient, public transport can be perceived to offer more options and independence: however it needs to live up to high standards of availability.

"We've got the [light rail service] five minutes away, we've got the bus five minutes away, we've got the train five minutes away. So in that sense it's very good and I would say probably just using these three services you can pretty much go every - anywhere and everywhere" (Male, 20, urban area. in Taylor et al., 2007)

Others feel a distinct lack of control on public transport: unpredictable services and journey times were frustrating, and traffic jams provoked particular feelings of lack of control (Taylor et al., 2007). We suggest that taxis are more flexible, but are expensive for this age group, especially for journeys alone.

The phenomenal success of social networking sites amongst teenagers is partially attributable to its role in replacing face-to-face contact in a world of increasingly protective parents, the 'demonisation' of teenagers hanging out in public spaces, large distances between households and a car dominant society that makes cycling or walking unattractive, therefore reducing mobility (Boyd, 2008). Unlike telephones in parental homes, the internet provides a largely unregulated and adult-free space where teenagers can congregate at any time, even while sitting physically in an adult-

regulated space. However the car is the real-life enactment of this, and an opportunity eagerly anticipated by teenagers.

4.2 Significance of 'the car' as space to adolescents

While young people will quickly cite the perceived practical advantages of a car to justify driving and ownership, the social meanings of a car and driving are perhaps more important.

As in studies with adults the car is an important space: a territory, often personalised and sometimes fiercely defended in cases of road rage. As we saw in the Active Bristol study, the car was considered a cocoon, shielding its occupants from crime, harassment and weather. Scottish teenagers see cars as offering 'privacy' (McWhannell and Braunholtz, 2002).

Bain (2003), in her US study on US teenage girls, defines these spaces for teenagers as 'retreat' and 'interaction' spaces, with 'liminal' space where these overlap. Retreat space allows introspection, alone or with a few, select friends, and opportunities for developing self-identity. A teenager's bedroom would have fulfilled this role previously, however parents generally have access to the space or are at least within earshot. A car takes teenagers out of the parental home and to places where no one knows where they are: something they may never have previously experienced. The car is popularised as a means of escape, and often a destination in itself where young people can experience time truly alone, particularly when upset. Young people reported using the car to escape after rows at home or because of ongoing stress (Taylor et al., 2007). In contrast public transport can be seen as a disadvantage because of the encroachment of strangers (Taylor et al., 2007).

Interaction space is where adolescents act out their public lives, amongst peers, family and others. The car is such a space for 'road trips' and driving around with friends, but also provides access to other such spaces: out of town cinemas and shopping, and trips to beaches, remote parties and theme parks. Public transport can also be interaction space, where friendship groups can travel together (Taylor et al., 2007).

Bain also saw an overlap of these spaces, where social interactions take place in private spaces, or private interactions in public spaces, such as dating and sex. Clearly the car is characterised as such a liminal space in popular culture, almost vital to any teenager (particularly males) wanting a dating and sex life, as a symbol of masculinity, as space for exploring sexuality, and as a means of mobility to access dating opportunities. The car is commonly depicted in the media popular with adolescents, for example films (e.g. Transformers) and soap operas (e.g. Hollyoaks), as central to the lives of teenagers, as retreat, interaction and liminal spaces.

Bain (2003) concludes that "a driver's licence and use of a car give teenagers a sense of freedom, mobility and independence" inspired by the media. She goes on to quote Michelson et al. (1979), who argued even then that access to a car "at the earliest legal age is considered highly desirable by teenagers, if for no other reason than that they cannot fulfill their lifestyle expectations without getting away from home" (p. 461).

Clearly asking British teenagers to give up not only a licence and a skill, but also the space, independence, freedom and implicit 'adulthood' of a car is a tall order. The alternatives would have to be very attractive indeed.

4.3 Other meanings of the car and driving

Driving is itself imbued with much social meaning. UK studies show that car use is far more socially desirable than public transport use (Stafford et al. 1999), and this can often be attributed to how car drivers are perceived.

"People who drive are busy people, they need to get around…they have a good job and money to buy a car" (young man at Bradford secondary school, Stafford et al., 1999).

Some of the reasons for this are described in the above 'adulthood' section, as the car tends to represent autonomy and freedom and therefore being an adult. However Taylor et al.'s (2007) extensive qualitative study for the Department of Transport found that there is a spectrum of opinion about cars amongst young people in the UK, from enthusiasts to sceptics. Young people are not entirely driven by social pressures, and practical benefits can be used to convince many to switch to public transport (Taylor et al., 2007).

Attitudes to transport change with age: a report for the Scottish Executive found that 12-14 year olds think public transport is 'exciting' and 'fun', and they enjoy the view and the journey (McWhannell and Braunholtz, 2002). By the time they reach 17, freedom and independence mean something different – staying out late and in new places without parental knowledge. Once able to gain a licence, the image of public transport deteriorates further and the only advantage is cost (McWhannell and Braunholtz, 2002).

Cars are perceived as generally 'cooler' than public transport (Cain, 2008). While some users of public transport could defend their use as an option that allowed them to talk to friends on a phone, read magazines (or in more recent times, use social networking sites), bus users were generally perceived as low-income, 'captive' riders from bad areas of town. Rail users escaped such negative characterisation. Cars provided freedom and independence. Transit operators reported image issues as being the major barrier to adolescent use of public transport, with users seen as lower class.

The Horspool (2006) study of New Zealand tweenagers (age 12-14) showed that 70% claimed not to care what their friends thought about them riding a bicycle, though older girls cared more about this (34% thought their friends would think it uncool to cycle to school) than younger ones (7%) (10% vs. 3% for boys). Socially desirable responding (wanting to appear independent) may be an issue here but the study was not powered to explore this, furthermore if this trajectory is seen over 2 years from age 12 to 14, it could be predicted to be exponential by age 17.

UK teenagers are also widely differentiated in the time that they spend as 'young adults' i.e. without heavy responsibility but with increasing adult independence. For middle class teenagers this can be an extended period over sixth form and university, while working class teenagers may assume early financial responsibility for themselves and others (Bynner, 2002; Holdsworth, 2004). Therefore the role of the car

will alter accordingly. What may be a luxury to some is essential to others, and what may be a gift from parents to some will be unattainable to others. There may be ethical implications of discouraging some groups from driving which offers access to jobs, education, health services, leisure activities and good quality food shopping (Social Exclusion Unit, 2003).

Despite these differences, on the whole adolescents feel intense pressure to conform to social norms, as depicted by the media and their peers. Underage binge drinking is an example where the benefits are both social and physical (to a point). Drinking facilitates social situations, helping individuals integrate into a social group through conformity and intoxication, while providing a 'buzz' (Coleman and Cater, 2005). Driving can be argued to provide similar social lubrication, helping to integrate with friends practically, conforming to social norms of being an adult, and providing the thrill of speed and independence. The common media portrayal of car drivers as 'cool' is likely to completely undermine efforts to change cultural norms.

Social comparison theory (Festinger, 1954) describes how individuals compare themselves to others, whether peers or role models. So, individuals compare themselves to their peers, and those who have cars are seen to mirror these characteristics of power and independence. Individuals also compare themselves to people they do not have direct contact with, but admire, for example females compare themselves to idealised images of models in fashion and cosmetic ads (Richins, 1991). It would be reasonable to suggest that current advertising media portrays drivers as socially desirable stereotypes: males are masculine, powerful and attractive, while women are independent, fashionable and often wealthy and successful (see http://carcatalog2.free.fr/ch.htm for examples if interested: an interesting view on the research car companies must have conducted and the evolution of women as consumers of car advertising).

4.4 Safety

Parents and adolescents have strong perceptions of the relative safety of public transport and private car driving, though this varies widely. In the UK, teenagers were concerned about safety on buses and trains but highly concerned about waiting alone for public transport and being harassed by other youths or drunk adults, with 46% of over 15 year olds feeling 'uneasy' or 'very unsafe' at a bus stop after dark (Stafford et al., 1999; Taylor et al., 2007). Girls felt particularly unsafe, suggesting this issue may be a strong motivation to drive for females, while men are more concerned with image issues (McWhannell and Braunholtz, 2002).

Cain (2006) found some parents felt public transport was risky while others perceived driving as more risky: all groups and teenagers felt that using public transport after dark was risky. This is an activity that is likely to increase sharply after age 18 when the legal drinking age is reached.

The Taylor et al. (20078) study found a small group of young people who were sceptical of car safety:

"We had these lessons from the police and they taught you about drink driving and stuff, and that really put me off because they kept showing car accidents and stuff. I think it's too dangerous and I don't think I'd be a very good driver either" (Male, 16, rural area).

Clearly an intervention has had an impact here!

Young people in Scotland were worried about being passengers while their peers drive, and felt unsafe, especially with young, male drivers:

"I'm not being funny but I would have more confidence to jump in a car with my mum and dad than I have with one of my friends who's 17.

You wouldn't think twice about jumping in your mum's car but you would with your friends.

When you go in to someone's car and they've just got their driving licence you don't feel that safe. They've just started to drive and they don't know what they're doing."
(15-16 year old, girl, Edinburgh, quoted in McWhannell and Braunholtz, 2002)

Scooters/mopeds are widely perceived as dangerous by both users and non-users (Taylor et al., 2007). They are also associated with sub-cultures that some teenagers do not want to be part of. Some females also considered them unsuitable for women. Taxis are not discussed in the transport literature reviewed but I suspect young women travelling alone may find them threatening, but would be fine in groups.

Addressing safety concerns about public transport (will local figures support this?) and emphasising the risks of driving are important, both to adolescents themselves and their parents.

4.5 Cost

"even paying for the car, petrol and everything, I think it's still a lot cheaper than going by public transport everywhere"
[young man at Bristol training centre, Stafford et al., 1999].

Taylor et al. (2007) found that UK teenagers do not have a clear idea of how much they spend on public or private transport, and that parents financially supported all types of transport. The perception of transport of any kind as an 'essential' expense meant little attention was paid to it (Taylor et al., 2007). In contrast, Scottish teenagers were acutely aware of costs (McWhannell and Braunholtz, 2002).

Glazebrook's work in Sydney, Australia (in press) shows motorists believe it costs about 13 cents per passenger per kilometre to use the car (including petrol, tolls and parking). The actual cost (including insurance, registration, maintenance, and wider costs to society from congestion, accidents and air pollution) is closer to 81 cents per passenger per kilometre.

The perceived cost of catching a bus was 22 cents per passenger per kilometre, and 10 cents for the train - primarily the cost of the fare. The cost of using public transport

(taking into account congestion, pollution and government subsidies) is actually nearly half as much as using a private vehicle - 48 cents for the bus and 40 cents for a train (2006 prices).

UK teenagers perceived public transport as expensive and staffed by people with 'poor attitudes' to young people, with low levels of convenience, comfort and cleanliness which offered poor value for money (Stafford et al., 1999; McWhannell and Braunholtz, 2002). In contrast, Cain (2006) found that US teenagers saw public transport as cheaper than cars, especially with insurance costs of a private vehicle. Discount programmes for teenagers increased this perception, and they actively saved money from these schemes to spend on other purchases. It is likely taxis would be perceived as even more expensive though less often used.

There is an argument that the costs need to be broken down and made clear, however, even if a car *is* perceived as expensive, it is likely that young adults will go as far as taking on extra employment to finance it – as found in a dated study that still sounds plausible today (Gurin, 1976).

"driving a car may be a waste of money, but it's fun to do"
[boy at North Somerset school, Stafford et al., 1999].

4.6 Access

In the UK, Stafford et al. (1999) and Taylor et al. (2007) found young people considered public transport unreliable, infrequent and inconvenient, especially at weekends and at night, when they are most needed by older teenagers. Access to a car was a key concern for teenagers in the Cain (2006) study. Parents had control over the family car and often imposed curfews (a successful strategy for reducing accidents) and cost was a barrier to purchasing, maintaining and insuring their own vehicles. Parents could also choose to prohibit buying a car.

A New Zealand study found that 75% of teenagers owned bicycles, and while only of 12 year olds rode them regularly this fell to 3% by age 14 (Horspool, 2006). Here access is not the issue, but safety was a perceived issue and the social acceptability of a bicycle appeared to be a key factor.

4.7 Knowledge of timetables etc.

A key barrier to use of public transport amongst UK teenagers is lack of knowledge of available routes and timetables, or how to use it (Taylor et al., 2007). Expanding use of smartphones is likely to help change this and should be used to drive access.

4.8 Reliability and convenience

Public transport is perceived as unreliable: breakdowns, accidents and congestion are felt to affect buses more than private cars and in the existing environment of perceived time constraints, cars are preferred by teenagers for their reliability (Cain, 2006; Taylor et al., 2007). If buses had dedicated roadways and consistently reached their destination faster than a car, teenagers preferred to use them. 62% of a small sample (n=49) of Scottish teenagers strongly agreed or tended to agree that they would use

the car less if the bus service was better, and 63% thought improvements in public transport would positively impact upon their social lives (McWhannell and Braunholtz, 2002). However 66% valued having a car for the independence it offered.

However the King County Metro Transit company cocreation initiative with local teenagers also found that time spent in traffic in a car, lack of parking, and cost of travel made cars inconvenient at times (see Figure 4-1). This is one area where bicycles may have an advantage over relatively short distances.

Figure 4-1 Barriers to Teenage Mobility Identified by the Youth Transportation Action Council in Washington State (cited in Cain and Sibley-Perone, 2005)

Barriers to Alternative Modes of Transportation							
Money Spent on Transportation	**Alternative Options Unavailable**	**Fear, Approval and Public Safety**	**Limited Availibility of Transportation**	**Traffic Wastes Time**	**Parking is a Hassle**	**Unwilling to Travel Physically**	**Distance**
high price on gas	no bike lanes	safety of area you are going to	no adult available = no driver	rush hour traffic	access to parking	Too tired to travel/move	too much space between you and destination
not enough gas	no bus service	not a safe place (destination)	limited car access	streets too busy	no parking	don't want to walk/bike	too far away
cost of gasoline	no buses available	parancia (of parents)		takes too much time to get there			how far to travel
cost of travel (gas, tickets)	more carpool lanes	parents permission		what time you leave			distance from house to event
	no bus-only lanes	weather and time of day		too much traffic			
				time consuming			
				time as in traffic			

Emphasising the unreliability of cars (especially the second hand ones available to most teenagers), issues of congestion and lack of parking can help offset the perception that cars are more reliable. Taxis may offer a viable alternative based upon convenience alone.

4.9 Interaction with 'officials'

Bus drivers and public transport officials were widely perceived as being hostile to young people, discouraging them from using public transport, as in this quote:

"A bus driver took my bus pass off me, because I'd dyed my hair blonde. I mean, the picture, it was like mousy brown [laughs] and he, he just had this issue with it, and it was like, it's not you. I'm gonna take it, and he took this bus pass off me. And then, like, my, my mum rang up the, the depot garage and then this bus driver had said that I'd been really abusive to him, and that's why he took it. And I was, like [laughs] that's not like me at all. So, yeah, I suppose that didn't really leave me with a good impression of public transport." (Female, 23, urban area, in Taylor et al., 2007)

It's fair to say others established good relationships with drivers on regular routes, but this was not the norm and other studies have echoed this point.

4.10 Congestion

Congestion was cited by Scottish teenagers as a downside to car driving, however others pointed out that a bus gets stuck in traffic *and* stops all the time (McWhannell and Braunholtz, 2002).

4.11 Habit

The Horspool study reinforced findings from Verplanken and others that emphasise the importance of habit. Habits are adaptive as they minimise cognitive processing, repeating behaviours with little or no thought or effort (Bargh, 1997; Verplanken et al., 1994; Verplanken et al., 1997). Of those 12-14 year olds that never cycled to school, 62% said it was because they never had cycled to school: they had always been driven by parents or walked. Compare this to a Dutch study where habit strength becomes the strongest predictor of bicycle use for transport as habit is established, compared to intention (of Theory of Planned behaviour) when habit is weak (deBruijn et al., 2009).

Following Fujii and Gärling's (2005) theory, unless changes in travel options are highly salient, change will not occur.

We would hypothesise that a long-term decrease in teenage driving would be spurred by reducing car use as a passenger when 16 years old and younger, establishing independent travel habits that are more socially acceptable as teenagers age. However parents may be a barrier to this, as we saw in the Active Bristol study, as they like to know where their children are and that they are safe. Independent travel by bicycle or bus removes the child from the adult-regulated environment of parents. Basically, the earlier sustainable transport habits are established, the less likely fast licensing and car ownership will occur at 17. For instance, teenagers whose parents use public transport seem more likely to do so themselves (McWhannell and Braunholtz, 2002).

Another opportunity is life change points which disrupt habit: a change to sixth form college, starting work or university, starting using a new sport or leisure venue, or moving into their own homes would be key times to target transport modes and offer sustainable alternatives (Verplanken and Wood, 2006; Taylor et al., 2007). This suggests that upstream interventions should be delivered through schools/colleges, leisure and work places, which should be equipped to do more to proactively encourage and enforce alternative transport with new students or employees.

4.12 Alcohol

If going out to drink alcohol, Scottish teenagers reported opting to use public transport rather than nominate a driver to stay sober: or get a parent to pick them up (McWhannell and Braunholtz, 2002).

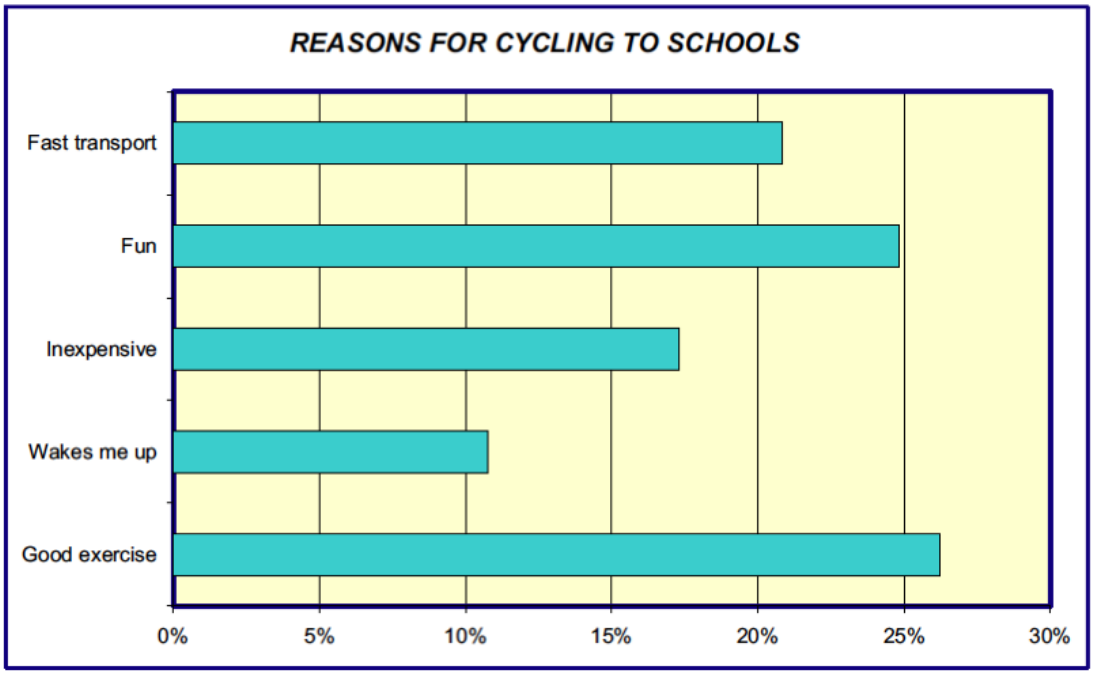
4.13 Fitness

In the New Zealand study, those children that cycled to school cited fitness, fastness and fun as the three top reasons (Figure 4-2).

Fitness is an acknowledged benefit of cycling for young people, as well as a means to avoid congestions, and the opportunity for private physical and mental space (Taylor

et al., 2007). However, many counterarguments also exist: exposure to bad weather, safety and issues with expensive clothing (Taylor et al., 2007). The same study suggested that adolescents place cycling in the same category as 'childhood': a direct contrast to the role of the car described above.

Figure 4-2 New Zealand 12-14 year olds' reasons for cycling to school



(Horspool, 2006)

Fitness is problematic: while teenagers want to be fit they don't want to exercise, however this is a useful additional message for delaying licensing.

4.14 Environment

"I think about pollution, but I think they are on the brink of curing it, there's electric cars and solar power...by the time we are driving, it won't be a problem"
[girl at North Somerset school, Stafford et al., 1999]

While young people may be aware of environmental issues, few are highly concerned: they lack conviction in the value of individual action and perceive limited realistic alternatives to the car. Even if they are concerned this rarely translates into action, which McWhannell and Braunholtz (2002) consider a result of the play off against the independence and convenience of a car. Taylor et al. (2007) argue that short term monetary gains are more important to young people, and environmental concerns need to be embedded in culture on a longer-term basis. We could not find evidence that issues such as climate change would be motivating to the majority of teenagers.

5. Influencers of Teenagers

The above associations and meaning of cars and driving and licensure are constructed by young people from the messages and meanings collected from their key influencers. For young people these are parents, peers and the media, and here we consider the existing influence of each and how it could be harnessed to improve this intervention.

5.1 Parents

Numerous studies have demonstrated the importance of parents in the driving styles of the adolescent offspring (e.g. Beck et al. 2002a; Hartos et al. 2004; Preusser et al. 1985; Simons-Morton et al. 2000; Simons-Morton et al. 2003; Simons-Morton et al., 2004). A study by Hillman in 1990 showed that parental sanctions on young people's mobility in the UK were much greater by the 1990s than in the 1970s, with restrictions on going to places other than school on their own, coming home from school alone, going out after dark, using buses, and cycling on main roads. These sanctions depend upon age, sex, and local traffic conditions, with mobility increasing with age and boys given more independence than girls (Tranter and Pawson, 2001). This suggests that girls may have even more reason to seek independence through driving and having a car.

High levels of parental monitoring and driving restrictions are correlated with lower accident and violation rates (e.g. Hartos et al. 2000; Hartos et al., 2001; Hartos et al. 2002). Note cause is undetermined, it may be other factors of parenting style. However, some kind of agreement between parents and their offspring about when, where, and with whom the teenager may drive the car is effective in reducing subsequent risk (Beck et al. 2006).

Hartos et al. (2001) also found that parents exercised control in delaying licensure until they thought their offspring were ready and Simons-Morton et al. (2008) recommend this as a key strategy but call for systematic programmes to educate parents and give them tools to effect delay. This also suggests that parents have influence over licensing, and may be useful allies in delaying licensing, as suggested in the Active Bristol study where some parents admitted the would rather their teenage sons be on a bicycle (which they saw as dangerous) than driving their own cars, because of even greater accident risk.

These findings indicate that one key way to bolster the effectiveness of either the pilot or long-term intervention would be to involve parents, to offer training to parents about the risks of driving and how they could reduce these risks for their offspring, and providing support for them to carry parental involvement through.

5.2 Peers

Peers are a major influence during adolescence, assuming greater impact versus parents as teenagers age. For instance, a study of clothing brand choice by 12-18 year olds showed that the influence of peers outweighed any other influence including parents (Lachance et al., 2003). Clothes are a highly visible material asset and social signal: much like a car and the ability to drive.

Young people's social networks act as social capital, which can be translated into cultural and economic capital (Putnam, 2000; Bourdieu, 1986). There are two types of social capital – bonding and bridging social capitals (Putnam, 2000).
The close networks within social groups where friends are long established are a source of bonding social capital, while those that provide access to new networks are bridging social capital. At this age some move from bonding to bridging as social networks expand and provide opportunities, though middle class families have more bridging social capital and working class ones more bonding.

However, networks can act as both opportunities and barriers to becoming successful adults (Jones, 2005a). For instance bonding social capital can be binding, as individuals become more embedded in their networks and their bridging opportunities diminish. So where young people are high in bonding social capital as part of a highly influential but static group, the need to stay in that group is high and therefore peer pressure is very high. In such cases it will be harder to break out of social norms dictated by peers.

Driving is an indication of all 3 commonly referenced types of capital: social, cultural and financial. Socially, driving allows individuals to access social opportunities and establish better friendships through the medium of a car. Culturally, be able to drive is a useful knowledge required by some employers and indicative of a role on modern culture. Financially, a car and the inherent costs represent an asset and an indication of wealth.

Interestingly, in a highly cited paper Kaufman et al, (2004) suggest mobility in itself is a form of capital, as it has a structural influence on society. It links with, and can be exchanged for, other types of capital. As we've read elsewhere, differences in mobility results in social inequalities due to access to jobs, leisure venues, choice of food and social opportunities. In most cases, being able to drive and having access to a car are the strongest indicators of mobility, and therefore 'motility capital' (Kaufman et al., 2004).

Peers are therefore a key source of information about social norms, for instance about driving, and the influence of peers at this time of high social uncertainty and when hormonal changes encourage close friendship bonds, should not be underestimated. One of our key challenges will be attempting to change the social norms around driving and alternative transport options amongst these peer groups.

5.3 Media

As mentioned in section 4.3, drivers are commonly depicted as 'cool' in the media, and the media exerts significant influence over this age group. A parallel example is tobacco smoking in films, which has a dose-response relationship with adolescent smoking behaviour, i.e. the more smoking there is on a cinema screen the more young people smoke (Charlesworth and Glantz, 2005). The authors of this comprehensive review conclude that the media portrayal of the adult behaviour of smoking is idealised by teenagers: something that driving is likely to emulate.

As the influential market research agency, Nielsen, describe – we tend to think that teenagers are using new media at the expense of all traditional media. This is not true.

Traditional media

These digital natives are indeed immersed in new media and highly conversant with the internet, apps, laptops, mobiles, smartphones, tablets, MP3 players, and all forms of new media, however television, radio and print media still occupy most of their time, and in fact radio use has increased. This explains the enormous power that traditional media still holds, with shows like Top Gear and even 'Next Top Model', which offers cars as prizes.

The difference is that teenagers can seamlessly integrate these media: using a tablet to look up a web link that was on a TV show that they heard about from their friend via a text message. Hence integration of campaigns is becoming ever more important. Furthermore, teenagers access traditional media via the internet e.g. iPlayer for television and digital radio.

Interestingly, because of school and after school activities, teenagers can have *less* access to the internet that office based workers in the older generations – confounding the idea that they are constantly online (Nielsen, 2009). Relative to older groups which are increasing their use of social media, there has been a 10% *drop* in use of Facebook by under-25s in the UK, though across the board time spent social networking has increased 113% between 2008 and 2010 (Ofcom, 2010). Furthermore, those from more deprived backgrounds may lack home access because of lack of a broadband connection and laptop computer, though this had driven the use of smartphones in this group, a perhaps surprising phenomenon.

However they are very comfortable with these new media and fail to see the distinctions between media that older people often do.

Internet

Social media are discussed in detail below, but the internet has been shown to be a core medium for these 'digital natives' with teenagers seeking "the use of celebrities, prizes with competitions, and teenage- rather than health- oriented sites" for social marketing issues such as sun care (Peattie, 2002, p.210). However, there needs to be a mechanism, to drive teenagers to the internet as they will be unlikely to be actively seeking information on the topic of delaying licensing.

Use of Social Media

Older adolescents, particularly females, are motivated to use social media to communicate with peers (Barker, 2009). Females are often highly motivated to use social network sites (SNS) such as Facebook and MySpace by to contact existing friends and reinforce their group values, but also to pass time, and seek entertainment (Barker, 2009). Those with low collective self-esteem tended to use SNS to compensate for poor friendships, and generally social media open up an alternate social space that, to a certain extent, compensates for lack of mobility.

"These communities tend to be large, dispersed in space and time, and closely knitted, with members being heterogeneous in social characteristics, but holding homogeneous attitudes. These communities are drawn together through mutual interest, without physical constraints…there is no parental supervision, they are able to move anonymously if desired, and thus feel they are in control." (Lee and Conroy, 2005).

This variety of media present opportunities to communicate with young people through sources they actively seek out and find credible. Advertising is not the only option, and is too expensive, but there may be opportunities to work with local media and use public relations methods to embed messages and have them endorsed by credible sources.

5.4 Role models

Role models are defined as anyone the individual comes in contact with who can potentially influence the consumer's consumption decisions (Bandura, 1977). Mostly seen to be those with whom the individual has direct contact, such as parents, peers and teachers however Lockwood and Kunda also looked at "individuals of outstanding achievement can serve as role models to others," 1997, (p. 91) and their impact on the self-views of young adults. These role models act as socialisation agents, affecting the career aspirations, educational choices, and the self-views of young adults

As Martin and Bush so eloquently conclude:

"Like it or not, mothers, fathers, famous athletes, and entertainers are perceived as important role models to our teenagers today. It is extremely vital that marketing managers consider building awareness and gaining support of these important individuals, as they can do a great deal to help influence our youth of today. Business organisations and policy makers can make significant strides in reaching our youth by partnering with these very influential role models" (2000, p.450).

The 'match-up hypothesis' proposes that the physical attractiveness of the celebrity endorser may only enhance product- and ad-based evaluations if the product's characteristics "match-up" with the image portrayed by the celebrity (Kamins, 1990). So a role model promoting alternative transport must have characteristics compatible with that transport, such as an interest in the environment or using a bicycle for fitness.

We suggest that the use of credible role models, whether peers, parents or in the media, would substantially contribute to the success of any intervention.

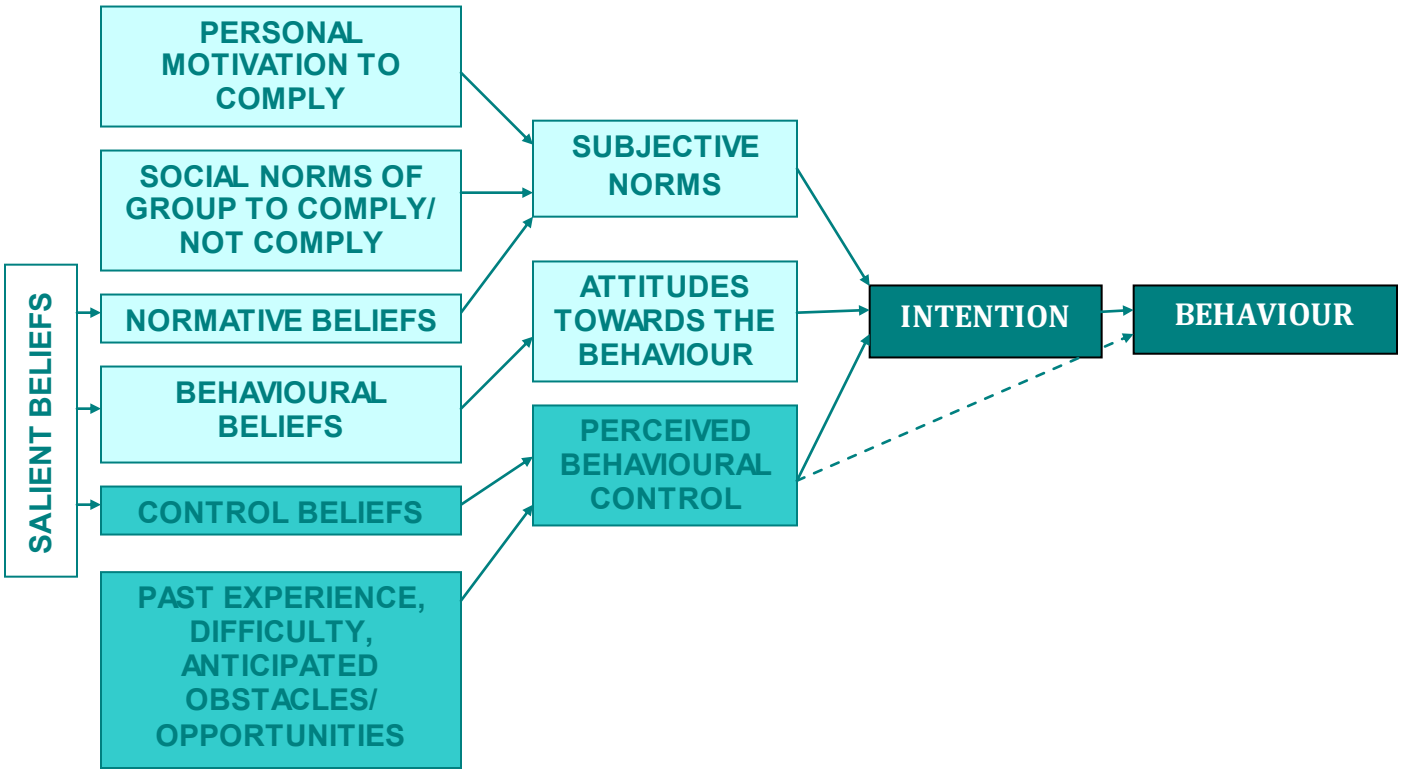
6. Theoretical contributions

There are a number of different theories that can be used to rationalise young people's decision-making processes and contribute to developing interventions.

Social learning models, based upon Bandura's (1977) Social Cognitive Theory posit that behavioural, personal and environmental factors contribute to rational decision-making, and are reciprocal, interacting determinants of each other.

One of the many theories developed from this is the Theory of Planned Behaviour (TPB) (Ajzen, 1991), which has been used extensively in driving safety interventions. The TPB explains behaviour change as the outcome of behavioural intention, and behavioural intention as the outcomes of social norms and an individual's attitude to the behaviour. Social norms represent an individual's beliefs about what is normal or acceptable in their social environment of significant others, while personal attitude towards the behaviour consists of beliefs about that behaviour. If both are positive, the behaviour is more likely to be performed, however negative beliefs, low motivation or negative social norms can undermine perceived norms and attitude, and hence intentions. Social environment consists of significant others such as spouse, peers, family or role models. This theory also includes the element of perceived behavioural control (PBC) to account for variance in behaviours with incomplete volitional control i.e. where individuals lack complete control of the behaviour See Figure 6-1 for a pictorial model.

Figure 6-1 The Theory of Planned Behaviour (Ajzen, 1991)



This theory suggests that, to encourage voluntary delay of licensing, we should:

- provide personal motivations to use alternatives forms of transport and avoid car driving – both practical and emotional
- drive social norms towards driving being unusual or strange, and alternative forms being acceptable and desirable
- providing information to make alternative methods of transport easier to access and more rewarding to access
- making alternative methods of transport seem viable for the individual, or cars and unviable and 'difficult' option, this may be practical support such as vouchers, knowledge such as how to use local transport, or psychological support such as addressing concerns about safety
- change 'past experience' i.e. before teenagers get close to licensing age, already have highlighted alternative opportunities versus cars, and make these habits
- provide incentives/disincentives at the intention stage to carry through the desired behaviour, and defer driving behaviours

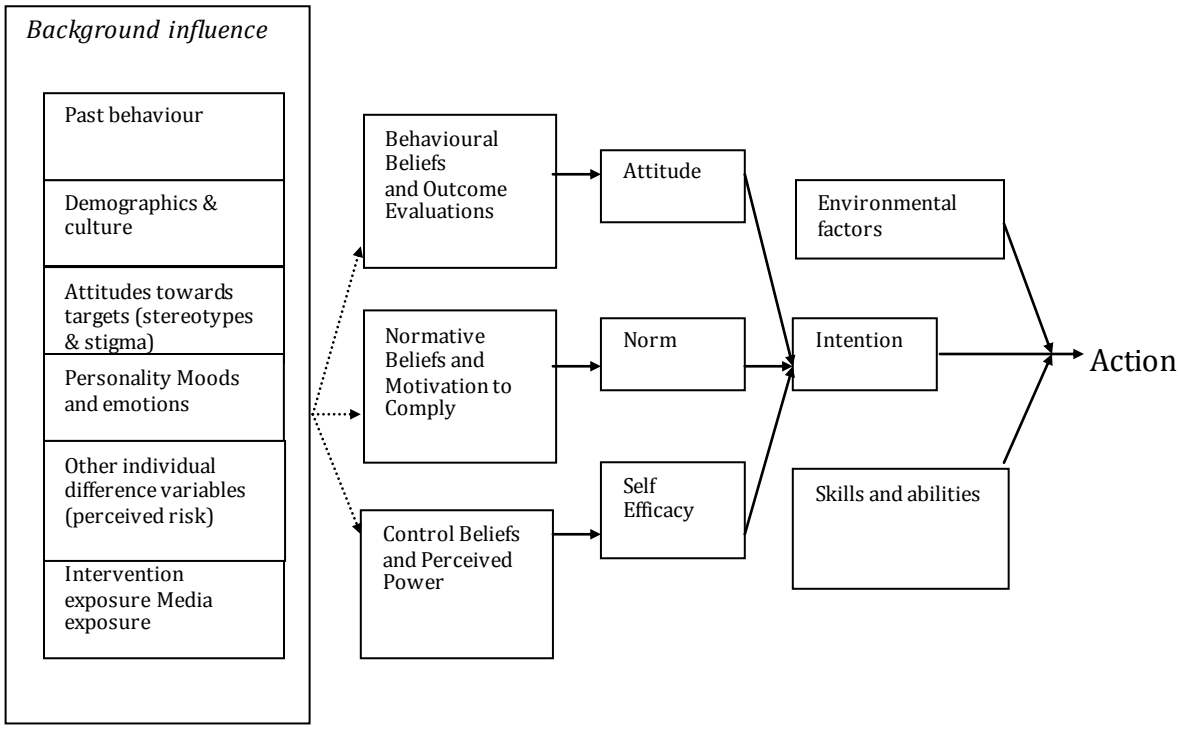
Despite the fact that the TPB is one of the most commonly used models in driving safety, there is a more recent version that acknowledges that beliefs and intentions must be supported by the skills and abilities to perform the behaviour, and an environment that is conducive to the behaviour, for behaviour change to occur.

Fishbein (2000) reviewed many other behaviour change theories, and concluded that certain variables were common to many. He went on, with Capella, to combine these theoretical perspectives into the integrative model shown in Figure 6.2. The authors highlight how different behaviours use different elements of the model. For instance, for adults aged over 40, intentions to get a colonoscopy would be under normative control (i.e. what is normal for that culture), while intention to exercise is related both to attitude to exercise and self-efficacy, so interventions for either would look markedly different. Therefore this model is useful in guiding early exploratory research to identify which factors are at work for a particular behaviour, and to then determine how to develop interventions that work at the right level, with the right characteristics, and promoted by the right messages and media if appropriate.

In the case of delaying licensing, we can use existing literature to suggest that the following elements of the integrative model are important:

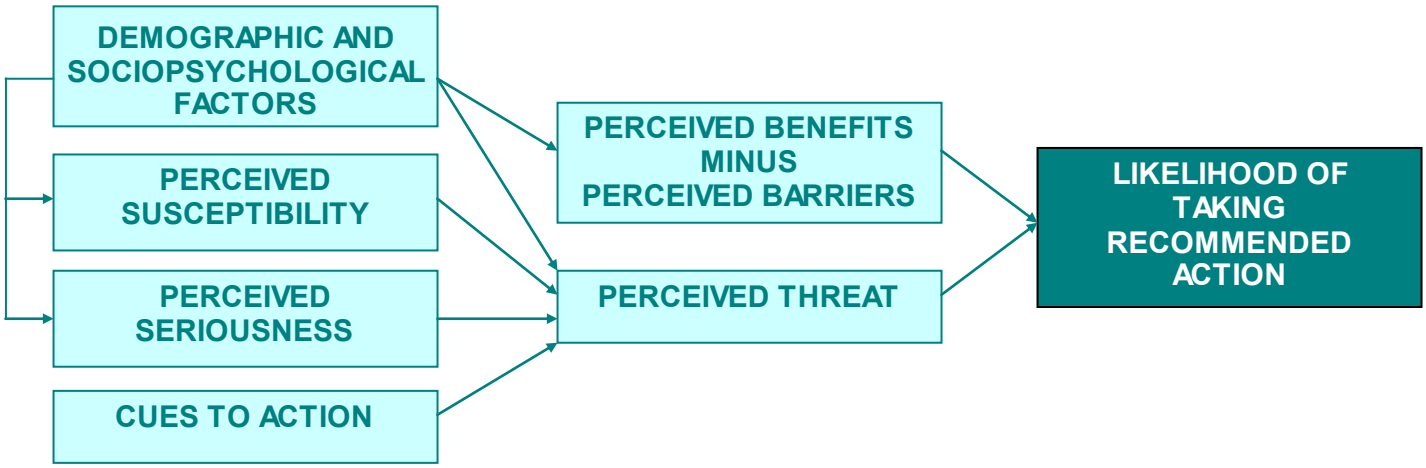
- past behaviour i.e. if a car-passenger habit is already established, individuals are more likely to become car reliant once they can drive themselves
- demographics and culture i.e. some groups far more 'car orientated' than others and some geographically isolated groups need a car more
- attitudes towards targets i.e. car drivers are perceived as 'adult' and 'independent', while public transport users are 'poor' and 'lower class'
- Perceived risk e.g. there is low personal perceived risk of car driving but people worry about standing alone at bus stops, and the social risk of public transport is higher than that of a car
- Role of media i.e. car driving is not only portrayed as unproblematic and ubiquitous, but also fashionable, and socially desirable.

Figure 6-2 An integrative model of behaviour change (Fishbein & Capella, 2006)



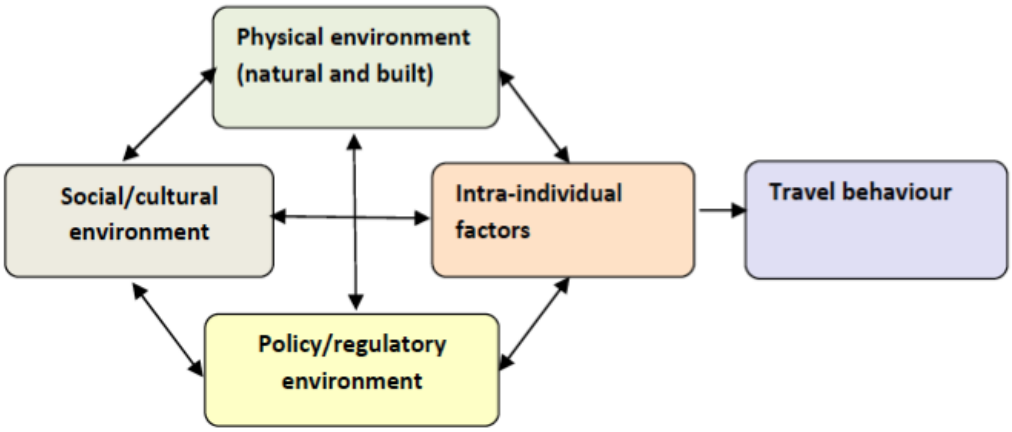
Another useful theory to use in this situation is the Health Belief Model which helps understand how young people may construct the risk ratio of car versus public transport (Figure 6-3) (Rosenstock, 1974). As we seen in Monneuse et al.'s (2008) study, young people believe they are highly unlikely to have an accident in a car (low perceived susceptibility) AND they believe they would survive pretty much unscathed if they did (low perceived seriousness), indicating why there is such a low perceived threat from a car accident, and hence low likelihood of delaying driving.

Figure 6-3 The Health Belief Model



It is clear to see that many of these theories overlap and the common construct can be identified, however these are mostly social/cultural elements and intra-individual (i.e. psychological) factors. As Figure 6-4 below suggests, there are elements such as environmental factors and influential others that contribute to the full picture of how people reach travel mode decisions.

Figure 6-4



Environmental influences on children's active travel behaviour
(Adapted from Gebel et al 2005)

Gärling & Fujii, 2009 proposed the following conceptualisation of behaviour change which, while we think it a useful broad model, lacks some of the specific insights of previous models (see Figure 6-5). However here they identify the importance of influencers and the practical considerations of travel that other models exclude, and which we have included in this review to inform our intervention.

Figure 6-5 A conceptualisation of behavioural change (Gärling & Fujii, 2009)

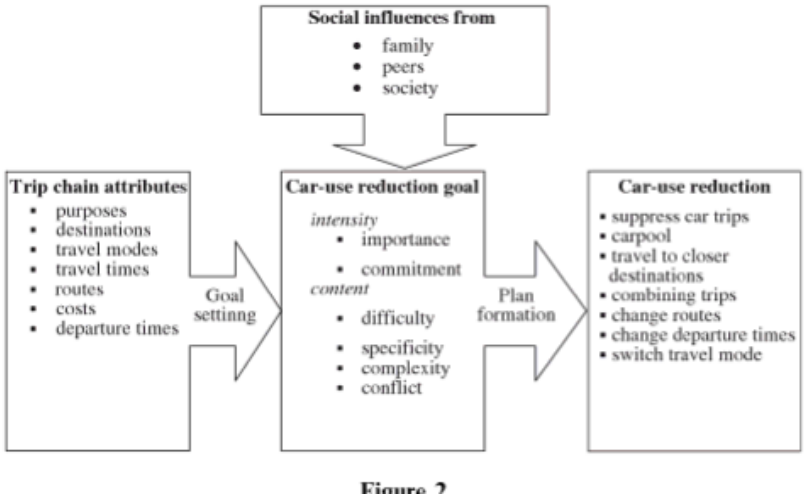


Figure 2

In marketing terms, this model translates into the following factors:

Segmentation may depend upon
- true necessity of car (e.g. for work or family commitments)
- the viability of public transport alternatives in the area
- class and income as determinants of cost concerns.

Interventions can be improved by
- using family, peers and society (e.g. role models and media) appropriately
- tailoring interventions to above groups i.e. some will require information about ease of public transport, others will be more cost centric
- using measures to increase emotional intensity e.g. issues around safety or other factors strongly important to individuals, to drive importance and commitment
- making issues with existing or proposed modes explicit and addressing perceived complexities of public transport, and highlighting perceived ease of car use.

Further to the rational decision making models described above, which can be seen as 'risk learning' models, Pechmann (2001a) proposed a theory that explains many of the phenomena described above: the influence of media and peers, and the issues of cultural/social norms. Stereotype priming suggests that we use short cuts to judge who would do what and how, by developing "knowledge structures linking a social group to a set of traits or behavioural characteristics" (Hamilton & Sherman, 1994, p.3). This suggests that messages need to make salient positive stereotypes about people who behave as advocated and/or negative stereotypes about people who fail to do so (Pechmann, 2001a).

This is also a technique already used in driving safety: the Australian campaign that depicted women waving a little finger to indicate why some men drove fast or dangerously is an example. This undermines the stereotype of these men as 'masculine daredevils' and creates an alternative one of 'men that have to compensate for something'.

With licensing, the current stereotype is that people with a licence are socially advanced, adult and independent. An alternative suggestion is that this group are financial slaves to their car and always looking for a parking space instead of spending time with their friends. Alternatively we need to challenge the existing stereotype of public transport users.

Pechmann sums the differences between these two approaches as:

"In sum, risk learning messages address the question: If you behave in this way, are you going to hurt or kill yourself? Stereotype priming messages address a very different question: If you behave in this way, what will others think of you, and how will you feel about yourself?" (Pechmann, 2001a, p.7).

One cannot create utterly new stereotypes, but build upon existing ideas: so a risk-learning based campaign that establishes ideas of stereotypes may lead naturally into a stereotyping priming campaign that reinforces these. See Box 6-1 for an example.

Box 6-1 Example of stereotype priming combined with risk-learning messages

A successful campaign that seems to have combined the risk learning and stereotype priming approaches is the California antismoking ad campaign. When it has been adequately funded, it has reportedly led to a significant steepening in the decline in smoking in that state (Pechmann & Reibling, 2000; Pierce, Gilpin, & Emery, 1998). A major thrust has been to teach people about the health risks of second-hand smoke, consistent with a risk learning approach. However, many ads portrayed smokers as thoughtless individuals who carelessly pollute the air and cause innocent people to suffer. A negative stereotype of smokers was likely conveyed, consistent with stereotype priming. Once this stereotype took hold in people's minds, the ads may have continually primed it, causing people to view smokers in an entirely new light.

A similar, but positive, campaign is that of the U.S. Milk Council. It features famous celebrities and other powerful, attractive, and well-respected adults drinking milk. These individuals proudly manifest milk residue on their upper lips. The initial goal may have been to create a positive image of milk drinkers where perhaps none existed; the predominant image may have even been negative (i.e., that drinking milk was for babies and sissies). Subsequent ads may have primed the positive stereotype, causing adult milk drinkers to be viewed more favorably.

(From Pechmann, 2001a, p.16)

In our recommendations we will draw together the findings of all these models into practical recommendations for improving the existing intervention.

7. Characteristics of successful interventions for adolescents

This section considers the elements of a range of successful interventions used with adolescents to achieve similar outcomes to those of delaying driving licensing, i.e. more socially desirable behaviour. We have focused on driving related interventions, but we have also looked at alcohol, smoking and sexual health related interventions, which tend to have made more use of social marketing.

We break these characteristics down into messages, message framing, and delivery methods in order to isolate out motivating elements that may be useful to our intervention. Note however that interventions are a mix of all these elements and it may be difficult to isolate out successful elements from not so successful ones, and success may be achieve by combined elements.

7.1 Messages

'Messages' are the key points that interventions seek to convey, evidence from anti-tobacco interventions is unclear about what messages are best, or even if content matters versus exposure, i.e. does it matter *what* you say or how *often* you say it (Farelly et al., 2003)? However the following options have proven successful:

Emphasis on short-term consequences

In this age group, perhaps for the developmental reasons described above and the consequent focus on short-term emotional rewards, short term consequences, such as cosmetic and health impacts, tend to be more successful in a large scale review of health campaigns than long-term consequences such as chronic illness or death (e.g. Reister and Linton, 1998). Most driving campaigns focus on long-term consequences such as these, and short-term issues such as money, socialising, fitness and time online may be more motivating. In marketing terms this is a transactional view rather than a relationship marketing view, and in this case, with a one off intervention, this should also be more promising.

Adjusting perceived social norms

Social norms are the perceived normal and accepted behaviours within a society or group. Generally, individuals overestimate the prevalence of many undesirable behaviours amongst their peers e.g. alcohol use (e.g., Borsari & Carey, 2003; Prentice & Miller, 1993) and smoking (McKenna et al., 2000), and base their own behaviours on these perceived norms, measuring themselves against their peers (e.g., Baer, Stacy, & Larimer, 1991; Clapp & McDonell, 2000).

Social marketing approaches based upon social norms attempt to expose the realities of behaviour, and to redefine and establish socially desirable social norms amongst groups.

Another example of this is a Norwegian campaign that tried "girls are stupid because the more we know about the health hazards of smoking, the more Norwegian girls start to smoke". These approaches are attempting to make young people feel exploited, and that it is not 'normal' to smoke, and to assert their intelligence. Others tried messages of young people lacking self-control if they smoked.

While we can find examples of the use of social norms in changing behaviours related to drink driving, we cannot find anything for risky driving or delaying licensing in young people. However there may be mileage in showing that only half of young people do get a licence straight away and that these figures are falling, and that it is not 'normal' to get a car straight away.

Challenging teenage invincibility

As Pechmann and Reibling (2006) found for smoking and Monneuse et al. (2008) for injury, young people responded to imagery and direct accounts of the negative impact of smoking/driving/accidents on *people like themselves*. The tendency to think that only 'old' or 'stupid' people have accidents needs to be challenged with real-life evidence that this untrue, with visits to A&E or dialogue with actual victims/friends or family of victims having been shown to be effective. Video accounts would substitute. This ties in with messages about safety.

Impact on friends and family

Teenagers care deeply about their social and family networks, and Monneuse et al. (2008) found that the potential impact of their own actions on friends and family was of high concern. However this is also a long-term and remote consequence of actions, so efforts must be made to make this more emotive.

'Victim of big industry manipulation'

The anti-tobacco Truth campaign aimed to develop a perception of 'industry manipulation' by 'big tobacco' amongst teenagers in Florida, and has been highly successful. However some observers suggest that this would only work in that area (Teenage Research Unlimited, 1999), and evidence suggests that eliciting strong emotions of disgust and a focus on young victims was more successful elsewhere (Pechmann and Reibling, 2006) as described above.

There is a potential option to portray 'big oil' as taking advantage of drivers through high prices despite the effects of air pollution and climate change, while doing little to invest in alternative technologies, however this seems complex and not in tune with the lack of environmental concern evident in many young people.

Knowledge

It is not explicit in the literature that any intervention needs to be backed up with practical advice and knowledge to facilitate the desired behaviour: if we are advising young people to use alternative transport we need to give them information about how to access public transport easily, or how to find out about bicycling routes and facilities.

7.2 Message framing

Message framing is the tone and general approach (rather than specific messages) of a communication: on the whole any of the messages above could be framed in any of the following ways.

Emotional appeals

In a review of road safety campaigns, those that were deemed most successful were generally those that elicited the strongest emotions: disgust and fear, as opposed to positive emotions (Farelly et al., 2003). Emotions such as disgust and anger appeal to

this emotionally driven age group and are likely to have impact, given the tools to effectively address the given threat. Disgust that provoked anger at, say, big tobacco, was particularly effective. There is potential to create anger at 'big oil' but the issues are far less personal than with tobacco and we find it difficult to find a comparable substitute with driving.

Interestingly, risk-taking, high "sensation seeking" teenagers appear more responsive to messages with intense, emotionally laden imagery than messages with lower sensation value (Donohew et al., 1991; Palmgreen et al., 2001). The CDC reported that ads that "graphically, dramatically, and emotionally portray the serious consequences of smoking" were more effective (Teenage Research Unlimited, 1999).

Fear

Fear appeals are a topic of much debate: while they have been overwhelmingly the most utilised strategy in road safety, there is mixed evidence as to their success. Pechmann and Reibling explicitly reject fear as a useful emotion, which backs up our previous recommendations. Fear tends to paralyse, alienate and disengage most groups, and also has ethical and practical implications for its ongoing use (Hastings et al., 2004).

As mentioned above, Farelly et al. (2003) found fear elicited a strong emotion, shown to be effective when tested. This is often judged on 'perceived effectiveness' rather than actual effectiveness and fear approaches remain controversial. The use of laboratory environments to test ads, rather than real world feedback, is notoriously inaccurate and the ethics of their use dubious (Hastings, Stead and Webb, 2004). Fear campaigns also often result in reactance: defense strategies used by individuals to negate the fear campaigns, such as ignoring communications, rationalising that they are not personally at risk, or even laughing at campaigns (Hastings, Stead and Webb, 2004).

Generally, to be effective a fear appeal must:

- describe the threat suggesting the severity and vulnerability of the audience (i.e. severity, personal relevance, vulnerability)
- make the threat personally relevant
- offer specific and achievable recommendations should be given about how to reduce or prevent the threat (Wundersitz et al., 2010).

For example, Tay & Watson (2002) examined drivers' reactions to fear-based advertisements provided with and without coping strategies. They found that including coping strategies in high threat messages increased perceived efficacy and consequently increased the likelihood of message acceptance more than fear alone.

Existing road safety campaigns have also tended to rely on physical threat, which has been shown to be one of the weakest tools for encouraging young people to change behaviour.

Social threat

Social threat has consistently been shown to be a greater motivator to behaviour change than the physical threat that teenagers do not believe they are susceptible to. For instance, a study of 371 students showed that social threat was more persuasive than physical threat in attitude towards the communication, attitude towards drug use

and behavioural intention to use drugs (Schoenbachler & Whittler, 1996). Furthermore, they demonstrated that social threat was also shown to be more persuasive for the hard-to-target, sensation-seeker audience. Similar results have been shown by Tanner, Hunt & Eppright (1991) for encouraging safe sex, and by Pechmann (2001b) for smoking prevention.

Of seven anti-tobacco ads tested by Pechmann et al. (2003) three approaches showed promising effects and all held aspects of social threat:

1. The 'refusal skills model' shows attractive role models rejecting offers of cigarettes and expressing social disapproval of smokers. In the case of licensing, role models could reject licensing because they are too busy to study for the theory test, have all those lessons, and then be weighed down by the responsibilities of a car.

2. The 'smokers negative life circumstances' approach suggested that, rather than helping young people achieve the trappings of adulthood, smoking would actually stand in the way, by using 'graphic and gross' imagery of people who smell and have bad teeth. Comparable messages for driving would be that people who insist on having their own car have no money to actually go anywhere and do anything (they drive their friends to the cinema but have to rely on them to actually buy the tickets), or while all their friends who came by bus and had fun on the bus have gone into the club, they're still looking for a parking space.

3. The 'endangers others' approach suggests that young people's second hand smoke endangers their family, coworkers and peers. This is easily and believably translated, for driving, into the scenario of a young person scaring their friends as they show off in their new car.

The alternative and positively framed approach is to make alternatives 'cool'.

Positive appeals

It seems intuitive that fear and threat campaigns should be more effective however evidence suggests positive emotional approaches can be more effective than negative fear based approaches for males (Lewis, 2008). For instance the University of Texas-Houston (2001) campaign described below frames non-smoking as 'cool'.

Humour has been shown to be an effective alternative in commercial advertising, and even used occasionally in road safety messages, though there is limited research investigating its effect. It is not clear how this could be used in advertising, but in school interventions gentle humour about things such as what teenagers would spend money on, what they 'get up to' in cars or the influence of friends could help to make messages more palatable. Evidence from public health suggests that humour can be more persuasive than non-humorous appeals for males when addressing AIDS and sunscreen use (Conway & Dubé, 2002; Struckman-Johnson et al., 1994).

7.3 Delivery and development methods

There is evidence of many public transport providers developing campaigns for young people to drive less and use public transport more in the UK and US. For instance South Tyneside Council ran "The Real Costs of Travel Campaign" in the 1990s, promoted

through leaflets, a report and the Council's website (Stafford et al., 1999). As a marketer, this sounds pretty dispiriting for teenagers.

South Yorkshire's "MegaTravel" campaign, which provided discounts on transport fares, rebranded the unpopular photo ID cards that London Transport had trialled to also offer discounts at shops and venues in the local areas. This was supported by a quarterly magazine, local radio support and an annual open-air music event (Stafford et al., 1999). Again, results are lacking but this sounds more promising.

A targeted media campaign in Delaware, US, used radio, television, internet and billboards to illustrate alternative choices to a private car for transport. The ads focused on affordability and safety of public transport. The review of the campaign in Cain and Sibley-Perone (2005) is very basic and we cannot find evaluation reports, though it was deemed a success.

Their existing website (Figure 7-1) features stories of teen accidents as well as resources such as forms, laws and videos.

Figure 7-1 Delaware's 'Teen Driving' website (accessed 1st August 2011)

Social marketing theory would suggest this would not be successful: teenagers tend to think they are better drivers than those involved in such accidents, and fear campaigns have had little success especially with the sensation-seeker groups who are most at-risk of accidents. Furthermore the site is hardly engaging, featuring text heavy and poorly designed materials and clearly being a small part of a State of Delaware site mostly for adults.

The site also features a video 'Alex Brown Texting Tragedy' with a news featurette for parents and teenagers, about Alex's parents B.U.S.T. campaign asking Teenagers to Buckle up and Stop Texting. The attached YouTube videos feature comments asking teenagers to 'pledge' to not texting and driving – the pledging phenomenon is a

common US response to teenagers appearing to lead their own campaigns e.g. for celibacy, ethics for business students etc.

After reviewing the above campaigns, Hain and Sibley-Perone (2005) concluded that:

- campaigns need to use images and media that speak to young people, including celebrities
- use of imaginative proof of age cards that avoid the stigma of existing cards and 'reduce friction between transport staff and young people'
- integrating messages about safety and security into campaigns
- avoid lecturing or stereotyping young people.

There are few well-evaluated campaigns for transport options, however it is often difficult to identify the successful elements of campaigns. For instance, Bauman et al. (1991) found that a mass media anti-tobacco campaign was not successful in changing smoking behaviour – and some mass media interventions have thought to have failed because of lack of school-based interventions (e.g. the $7.2 million 6 year anti-tobacco campaign in Minnesota, US (Murray et al., 1994)), however anti-tobacco school interventions to this age groups have generally been more successful when supported by mass media advertising (Farelly et al., 2003). For example, Flynn et al. (1992) measured a 34-41% drop in tobacco use amongst students exposed to an in-school intervention and 4 year advertising campaign (messages of which were reviewed above).

Chain reaction (Washington DC), a series of classes in skills like bike safety and maintenance, with the incentive of a free bicycle at the conclusion of the programme. The programme was later shortened to reduce attrition. It has expanded into a bike shop recruiting young mechanics, however we cannot find data regarding its success.

In terms of successful teaching methods, it's worth noting that schools have high standards of technological support and that presentations will need to look 'slick' and take account of this.

Cocreation

An alternative approach, proved successful with physical activity for young people (VERB campaign) is cocreation - the process of allowing people to develop their own interventions. For instance, in St.Lucie County, Florida, US, local youth were educated on local transport issues and then encouraged to develop their own campaign to improve use of the services (cited in Cain and Sibley-Perone, 2005). Most of the development panel were aged 16 and 17, and up to 400 young people took part over the two-year span of the campaign.

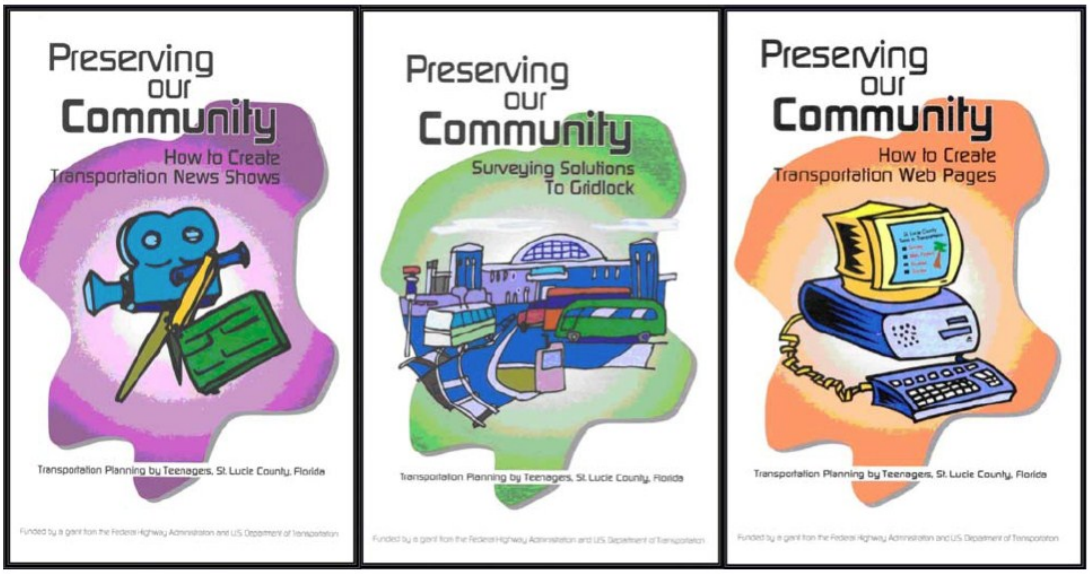
The system of education sounds like enquiry-based learning: although primed with lectures from guest speakers, students read around the topic themselves and interviewed transport experts. They conducted their own survey to understand transport needs and concerns in the local population. The students then worked in groups to develop a long-term transportation plan, and developed a series of 8 videos, a website and 3 booklets (Figure 7-2) to support it. The students recommended a local tax to fund services, which was opposed by local officials. The students used their evidence and transportation plan to convince local government of the tax – which was

implemented and used to retain local services and implement three much needed fixed routes.

In UK schools, a similar project could be developed as a means of teaching other skills: maths, communications, graphic design, research skills and group work are all required. However funding was essential to facilitate students' efforts: computer and video equipment, field trips, scriptwriters and production managers, and website developers supported the development of credible materials.

King County Metro Transit company took a similar approach, recruiting a Youth Transportation Action Council (YTAC) of 14 teenagers from three middle schools and three high schools in the local cities. The YTAC group met with staff from Metro Transit, Issaquah Youth Center and the City of Issaquah Parks & Recreation to discuss local transportation and design a project to create awareness about transportation alternatives.

Figure 7-2 Booklets developed by students in St.Lucie country



Early meetings focused on identifying the various transportation barriers facing teenagers. The students designed a booklet that provided local travel information and explained the different options available. This was supported by a website, posters, book covers, t-shirts, pencils, pens, clip magnets and carabineers, all featuring the Move It! branding (see

Figure 7-3) and distributed through local events.

Figure 7-3 King County Move It! materials

Over 3,000 promotional items and 1,200 booklets were distributed, and there were over 500 hits on the Move It! website. The programme is hailed as a success but considering the breadth of the campaign these are not high figures, and there is no clear data for its impact upon use of public transport by young people. However the approach seems appropriate.

A further advantage of cocreation campaigns is word-of-mouth and the potential for public relations through local media. A cocreated campaign should be much more credible than a paternalistic national or local government campaign, and word gets around the peers of those immediately involved. The novel approach is also attractive to the press, and ideally the media used by young people locally.

A Texas anti-tobacco campaign designed by teenagers themselves focused on the role of 'cool' in smoking, featuring animated ducks one of which did not smoke and was cool – and one that did smoke and also had lots of other 'foul/fowl' behaviours (their joke not mine) (University of Texas-Houston, 2001). The programme was trialled with a combination of a mass media campaign, law enforcement, and school-community programmes across all groups and 5 options:

- 35% in areas with no media or low level media and no programmes or single cessation or enforcement programmes
- 44% in areas with no or low media and school–community programmes or multiple programmes
- 24% in areas with high media and no programmes or a single cessation or enforcement programme
- 60% in areas with high media and school-community programmes or multiple programmes.

Basically the conclusion from this and other programmes is that the more integrated and long-term campaign you have, with opportunities for monitoring, feedback and improvement – the more likely it is to succeed,

Integrated campaigns tend to have been more successful, i.e. those that use both community/school interventions and larger scale advertising. For instance, Lantz et al.'s (2000) review of smoking cessation programmes concluded that school and community based programmes were most likely to be effective, especially if coordinated with integrated activities. They also recommended changing the environment to make smoking less attractive and possible. For us this would mean delivering school interventions such as this, but also changing school and local environments to make driving difficult and alternative transport options easier.

While others disagree on the long-term impact of school interventions, in this case we desire a relatively short-term impact of 6 months to a year, which makes school delivery a promising and cost-efficient tool.

Deighton & Luther (2007) reviewed a number of pre-driver attitude change studies and concluded that interventions with the following characteristics are more likely to be successful:

- active participation
- use of personal experiences
- reflective thinking and self-evaluation
- use of emotions
- providing information about peer behaviour
- using a range of interventions
- parents and other community leaders should be involved in delivery
- embedded within the curriculum if in schools
- over several sessions
- including a debrief of key messages.

Monneuse et al., (2008) found that injury interventions that challenged perceptions that 'these kind of things don't happen to young people like us' were far more effective than didactic, one-way teaching which was considered the 'least enjoyable, least engaging and least effective' element of the intervention. For instance, there was a trip to a local trauma (A&E) centre, and when peers who had been involved in accidents led sessions there was an effect six months after the programme. Self-reflection and thinking that led teenagers to critique their own long-held perceptions were thought to be effective in the Monneuse et al. (2008) study.

The use of social media and other new media has not been evaluated extensively, however commercial marketers have learned that these spaces are used primarily for *social* purposes, and that a hard sell can be rejected. Embedding messages in other content is a better alternative for this age group (Smith, 2006). In this case, this could be school curricula, favoured media and out-of-school activities.

7.4 Conclusions regarding characteristics of successful interventions

The truth is that there is such confusion about how to attribute real world success or failure to campaigns that have multiple messages, media, target audiences and design/production/delivery elements that it is nigh impossible to draw meaningful conclusions.

We would suggest that messages created and endorsed by teenagers themselves are most acceptable, believable and motivating: these have consistently been identified as issues around mobility, safety, cost and access – and freedom and autonomy.

As a marketer I would suggest testing these topics with local teenagers, and using the pre- post-study to try and identify which messages have been motivating, if any. It is worth asking also, of those who never intend to drive – why not? This may already be a social norm that can be expanded upon.

8. Methodological considerations

8.1 Objectives

The primary objective of this intervention is to delay licensing, therefore a simple 'pre-post' study has been suggested. It is unlikely that young people will lie, either deliberately or through more socially desirable responding, about such a black and white question.

Secondary objectives are:

- measuring car/van ownership
- discerning what factors drive Bristol young people to drive or not drive, informing future interventions
- identifying segments that have responded most strongly to the intervention, suggesting either that
    - they are primary targets for interventions in the future
    - or that the intervention must be adjusted to appeal to any key groups that we are missing.

Other information that could be gathered if time and technology permits is:

- what alternative transport is used and why, informing future interventions
- identifying specific elements of the intervention that they found motivating or offputting (would need to be qualitatively assessed).

Other questions to ask are:

- what else can we learn about this intervention to inform future interventions? It is worth capturing feedback, immediately after sessions, from those delivering the intervention to get an idea of what worked and what did not judging by student reactions
- do we want to promote mopeds as an alternative? Yes – this is less risky to general public but more risky to individuals, and there is potential political and public backlash as dangers are more apparent especially to parents
- do we want to explore what alternative transport options they *are* using if they decided not to get a licence or own their own car? (see suggested questions below). This guides future interventions as it suggests what alternatives we should be focusing upon, invest in making these even more attractive and whether to ignore or improve others.
- What are they currently using as transport? This shows us what the competition is if they are reliant on being a passenger in cars already (in which case habit disruption is needed and more education on using alternative options to stop them simply moving to being a driver in a car), or whether we are more focused on maintaining existing public transport/walking/cycling behaviours and 'demarketing' the car.

8.2 Intervention delivery

Given restrictions on teaching time available, and teenage attention spans, I understand why one hour may be as much as can be reasonably expected to deliver the intervention, however I suspect such a short, one-off intervention will have little effect.

Minimising group size would help, as would repeated short sessions and field trips. Alternatively, online support, parental reinforcement, weaving into other areas of the school curriculum or poster and leaflet support around the school/college would help support the intervention.

The people chosen to deliver the intervention are important: school teachers may be associated with childish pursuits, women are unlikely to hold much sway over young men on the topic of cars, and older people will be less believable than young people. Some kind of 'expert' would be more credible, but authority figures (such as police or local government) may provoke rebellious reaction.

8.3 Questionnaire delivery and sample retention

We suggest using email or text with a link to an online questionnaire (for people with smartphones) for the post-intervention questionnaires unless the same cohort can be guaranteed to be easily assembled in the school environment 12 months later (which ensure the highest response rates). Incentives are advised and we'd suggest a choice from mobile top-ups, Amazon vouchers and i-Tunes vouchers.

8.4 Suggested questionnaires

There are minor amends suggested to the proposed questionnaires: in the screening questionnaire we can assess key reasons for wanting to drive to ensure we address this in the intervention, though this is a blunt tool for something that may be deeply socially embedded. This is also true for reasons for driving/not driving at 1 (or 3), 6 and 12 months.

Screening questionnaire (Participants aged 16 yrs)

Q1: In the next 12 months do you intend to apply for a Driving Licence to drive a car/van? Tick one box.
o I do not intend to get a licence in the next 12 months (FINISH HERE)
o I am thinking about getting a licence in the next 12 months (please go to Q2)
o I aim to get a licence in the next 12 months (please go to Q2)

Q2: What is your main reason for thinking about or aiming to get a licence in the next 12 months? (open ended question)

……..

Q3: In the next 12 months do you intend to own your own car/van? Tick one box.
o I do not intend to own a car/van in the next 12 months
o I am thinking about owning a car/van in the next 12 months
o I aim to get a car/van in the next 12 months

Q4: Currently, my main form of transport is (tick one box)
o Walking
o Bus or train
o Bicycle

o Moped or motorcycle
o Passenger in friends' cars
o Passenger in parents' car

Details to be gathered: name, age, gender, email, mobile number, permission to be contacted by either medium at a later date

1 or 3 month post- intervention questionnaire

Q1: In the next 12 months do you intend to apply for a Driving Licence to drive a car/van? Tick one box.
o I do not intend to get a licence in the next 12 months (go to Q2)
o I am thinking about getting a licence in the next 12 months (go to Q3)
o I aim to get a licence in the next 12 months (go to Q3)
o I have got a licence to drive a car/van (go to Q4)

Q2: What is your main reason for not getting a licence in the next 12 months? (open ended question)

……..

Q3: What is your main reason for thinking about or aiming to get a licence in the next 12 months? (open ended question)

……..

Q4: What was your main reason for getting a licence? (open ended question)

……..

Q5: In the next 12 months do you intend to own your own car/van? Tick one box.
o I do not intend to own a car/van in the next 12 months
o I am thinking about owning a car/van in the next 12 months
o I aim to get a car/van in the next 12 months
o I now own a car/van

Q6: Currently, my main form of transport is (tick one box)
o Walking
o Bus or train
o Bicycle
o Moped or motorcycle
o Passenger in friends' cars
o Passenger in parents' car

Note: need email address or postal address or some mechanism to deliver incentive, unless in class (ideal option).

Also need age to determine whether they have turned 17.

6 months post-intervention questionnaire (Some participants aged 17 yrs)
Same as 1 month post-intervention questionnaire

12 months post-intervention questionnaire (All participants aged 17 yrs)
Same as 1 month post-intervention questionnaire

9. Recommendations

Lack of rigorous evaluation of interventions in reducing the impact of driving, tobacco and alcohol on young people means that there is inconsistent and inconclusive evidence for effective elements of social marketing and other interventions, however weighing up the evidence and my personal experience contribute to the following recommendations for the pilot intervention for delaying driving licensure.

9.1 Cocreation

One of the strongest recommendations of this report is using cocreation to develop the intervention.

Work with local young people from these schools and support them to develop a workshop, film videos with local people such as paramedics, and to deliver the intervention to their peers, with extensive support from professionals. This would enhance credibility (as it comes from peers), develop word-of-mouth (and mouse) stories perhaps via social media charting progress, and engage more young people directly.

UWE are developing substantial experience with this amongst a variety of communities and would be happy to share their experiences on the topic.

9.2 Overall approach and messages

A short-term transactional approach is recommended i.e. offering quick and obvious benefits of walking/cycling/public transport and NOT driving versus learning to drive and owning a car.

These messages should be simple and avoid side-tracks e.g. drink driving should not be covered.

Costs vs. benefits

The key benefits of walking/cycling/public transport and NOT driving for this group are

- reduced cost = money to spend on better things e.g. clothes, games, socialising, saving for university
- less time in traffic in car alone = more time to socialise online and via text and with friends in person on buses, bikes and walking – or to just look out the window or read alone
- safety = (a tricky one as public transport late at night is an issue) but offset against the risks of young drivers or being a passenger with one

- fitness = why worry about keeping fit if you're doing so just getting around (minor message)

Key disadvantages of a car for this group are
- cost of tax, insurance, parking,
- time and frustration of congestion and finding parking spaces
- responsibility for tax, insurance, petrol, breakdowns/prangs, maintenance and servicing, MOT and parking: give estimated figures for these. Play down fines as they don't think they'll get these, play down sound system as they'll think this vital.

Social norms

Evidence to support the idea that 'getting a licence as soon as you are 17 is not normal' is needed e.g.
- figures showing declining licensing rates in UK
- figures emphasising comparatively low rates of licensing at this age
- role models of people who decided not to drive, and why (peers or celebrities).

These need to be contrasted to what young people currently think as they will tend to overestimate how many people get a licence as soon as they are 17.

Social norms of 'being an adult' also need to be challenged, as discussed above, and by reframing adulthood not as 'driving' but as 'making the best choices depending on who you are, where you are and what you want right now'.

Encourage students to think, later, about their OWN situation: some will need cars but some could save a lot of money and time if they live the right place, are active and know how to use other transport options. They don't have to do what everyone else does.

Challenge perceptions

There is a perception that cars offer mobility – but not if you're stuck in traffic jams, can't find spaces and it stops you 'having a good time' on a night out.

There is a perception that cars mean adulthood – but not if they restrict freedom and provide unwanted and costly responsibilities. And adults make their own decisions rather than do what everybody else is doing, so decide what is right for you.

Such perceptions need to be challenged as they arise in discussion, and these alternative points of view woven in by the facilitator.

Treat participants as intelligent adults

It is important to ensure the intervention does not appear as older people who have cars telling young people that they cannot have cars too, and that we do not patronise younger people but using judgmental language. It is notable that much of the literature describes young people as 'risk takers', and denotes them as irresponsible, inexperienced, slow to react and inconsiderate of others: if this language creeps in it will alienate participants.

A better approach is to appeal to each individual's ability to make decisions and consider them as intelligent individuals (after all they are in further education and may well plan to go further or be on the verge of starting up the career ladder) who consider the whole picture and balance up options for themselves.

9.3 Segmentation

Ideally, I would suggest developing gender specific interventions as the literature indicates males and females have different motivations fears, media and attitudes to driving – however I realise this is impractical.

Beyond this, the similar age, education, family income and urban location of these schools means we have a reasonably homogenous segment, but we may well see this break down into more discernible groups through their reactions to the intervention, informing later interventions.

9.4 'Product'

Existing public transport services need to be a viable alternative for young people. In terms of frequency, routes, availability at nights and weekends, interaction with staff, cleanliness etc, public transport does not live up to expectations for the perceived high cost of a ticket (Taylor et al., 2007).

Extending concessions to those over 16 would help offset cost issues: if there is a hike in price just at the time a car becomes available, the balance is even less favourable to public transport.

9.5 Delivery

I debate whether a presentation is actually the best way to deliver this: everyone's looking at the screen rather than at the speaker and this encourages one–way communication from the start. A screen will be useful for provoking images and graphs and video, but this should assist a group discussion rather than being the focus of it.

This one-off intervention is also hopeful – repeated short interventions would be better. The ideal would a 'field trip' to A&E or at least to another venue such as a fire station, however this is unrealistic for the budget, permissions and interruption to teaching.

Facilitator

The findings on role models and attitudes to authority suggest that a young(ish), male, reasonably fashionably dressed person who has a confident delivery style and good knowledge of the material is the best person to deliver the intervention. They must like and respect young people and have the humour to deal with them while having the authority to regain control in discussion groups.

I still suggest that an off duty fire fighter or paramedic may be appropriate as they are more credible, and can relate first hand experience of the impact of crashes and young people.

I have termed this role 'facilitator' to embrace the idea that the intervention is not one-way communication but engages the participants and acknowledges and addresses their perceptions, rather than guessing at what they are thinking.

Set up

Use an informal format, moving students around the room away from how they usually sit for learning to distance the experience from 'the usual school thing'. Sitting in chairs in a circle, or in small groups around tables, with materials or IT ready to capture their thoughts.

Tone and message framing

Variation in tone is key to keeping participants engaged throughout the session: attention will be at a peak in the first 10 minutes and then wane, therefore videos, different exercises, a guest speaker or some other 'interruptions' are required to jump start the session every 10 minutes or so.

Activities are one way of doing this, but varying tone and message framing is also important, for instance a swing from thinking about negative aspects to positive ones produces a change in mood. The sudden injection of fear heightens emotion: particularly if students are invited to explore this for instance through imagining the impact of a serious crash upon themselves, their friends (especially if in the car) and their families.

This should be managed by emphasising that it is only for a few minutes, that the facilitator would really appreciate students thinking about this distressing side for just this short time but that it is really important. This section should immediately be followed by an empowering section about the positives of delaying licensing, e.g. those that start later, start better (and stand more of a chance of passing the first time around?).

Tasks

Tasks should be varied (as described above) and intended to bring these theoretical ideas (for these current non drivers) to life as much as possible, using credible spokes people and role models. They encourage active participation to maintain and buffer attention.

For instance

- Have real money or write a cheque and pretend to hand it over, to demonstrate how much money is involved.
- Pile up the paperwork involved in keeping a car on the road for a year.
- Have a video of a young person who has been involved in an accident, talking about the consequences to them, their friends and their family (and their future?). Note that a video of a parent who lost a teenage son would leave participants thinking he clearly wasn't a good driver, however if they see someone credible who was involved in an accident this diffuses this.
- Invite such a young person to actually come and speak.

- Use video of a firefighter or paramedic talking about impact on young people.

- Use video of a mechanic estimating how much it costs to keep a car going each year, especially talking about the kind of cars young people drive. Perhaps discussing how they have to get their parents to come with them to negotiate and give them a lift home after leaving the car to be fixed.

- Use graphs or photos of escalating prices of fuel on the forecourts

- Practice skill models e.g. (as already suggested) but using a 'negative life circumstances' model where students can calculate how many of (insert favourite thing here - whether jeans, trainers, music, games or cinema tickets) they could have bought for the money that a car owner spent on a car, or how much (insert a time pressure or desired activity here – study, watching films, playing games, being with friends) could have been done in the time it takes to find a parking space.

- Imagination task – imagining impact of a serious crash on self, friends and family and future, see below. This is an 'endangers others' model.

Format

Maybe start with warm-up discussion based around and led by the students (prompted by facilitator)

- what they do in their spare time
- where they go
- how far is it from home
- how they get there
- what they think about travelling around Bristol.

A good facilitator will pick up on these and work into the session, without bringing up possible 'pro-car' factors that the students do not mention.

Then work through questions such as:

- Who wants to drive?
- Why?
- How may people do you think get a licence in their 17th year?
- Issues of owning a car – costs, responsibilities, time to learn and revise/practice for tests
- Issues with current transport
- Consequences of a non-serious or serious crash
- Why do you think the number of licences at age 17 has dropped?

Capture *their* data on flip charts, presentations etc rather than offering your guesses, make them feel like this is not a school lesson and that their opinions and thoughts are important. If possible encourage imaginative ways of portraying these thoughts, rather than just words, to include all learning types e.g. pictures from magazines, rough drawings, though bubbles that can be added to pre-drawn templates of, say, a crash.

Avoid prompting with things they have not thought of yet unless there's a very obvious gap (e.g. consequences on friends and family rather than self). In which case encourage students to add it to their own charts or images – this is more effective than simply telling them what they may have missed and can lead into discussion about whether they believe it or not. Facts should also be at hand to back up anything students don't believe or guess wrong, e.g. graphs of escalating fuel and insurance process, data re crashes, local data about congestion in Bristol and declining licensure rates in their age group. Wrong assumptions need to be challenged.

Equip facilitators to deal with the people who will inevitably defend the car by accepting their point of view but suggesting that valid alternatives exist e.g. *"it's great that you want a car and can afford it, but many people have other things they want to spend their money on until a car is more useful."*

Give facts on questions that are open to seeming judgmental or patronising, such as why younger drivers have more accidents:
e.g. *"the data shows that while some accidents are due to inexperience, age is also a factor. This beyond your control, it's simply that motor skills and judgement skills are still developing. It's simply a fact that the later you start the better you are"*

Also use humour and engage directly with participants. Learn names of some people and congratulate them when they have a good idea. Ensure more confident students do not always dominate and call on less confident students to have a say. Make it okay to say something stupid – perhaps offer rewards such as single sweets/giveaways – for even saying something, 2 if it's a good idea. Make it fun.

End with a summing up that acknowledges it is their decision, but that there are choices and as adults they get to make that choice. Yes – a car offers some freedom and excitement, but driving also has responsibilities and downsides (e.g. cost, commitment, frustration, environment). Many people in their 20s and 30s are now opting out of cars in this congested city and as petrol process go up and up. And also if you want to be a better driver from the start, it's better to have fun now, and start driving later.

Offer any incentive possible e.g. some free or reduced bus travel after age 17, free apps, information etc. Make information easily available for follow up and ensure this is available long after the intervention has been delivered i.e. when they turn 17.

Thank them for their time and for participating.

Practical tools

Students must be able to take away knowledge and tools about how to access alternatives, ideally via apps on Blackberries and other smartphones, via text, or on the internet.

9.6 Presentation

Avoid a presentation if you can, unless as a vehicle for images, graphs, audio or video.

However if you do:

- Don't use the word 'cool'
- Use prezi.com as an alternative to PowerPoint – much more impressive.
- Use DVDs/video footage of real young people involved in crashes or who have given up car because of cost.

9.7 Parental involvement

I strongly advise developing a strand of the strategy (perhaps to be controlled for in a larger intervention) involving parents. Post a simple and accessible pack of materials saying what is happening in the intervention, why it is being done (with focus on safety of students), with key facts about the dangers of driving for young people.

List the ways they can make a difference *if they are worried about their teenage son or daughter getting a licence too soon*
e.g. encourage them to take their time before committing to lessons, control access to car, encourage them to save for their own car (which takes time and teaches money skills), consider whether a car is more of a burden than a bonus because of costs, maintenance etc., consider restricting night time and group use of a car.

This can be seen as constructive and caring rather than dictatorial and online advice should be available to support parents who want more information.

If parents are concerned about being 'taxi drivers' for even longer, give them access to public transport information.

9.8 Follow-up

A one-off intervention can be potentiated by follow up through cheap channels in the media and spaces that the participants use after the intervention.

In school support

Posters and leaflets around the school, carrying branding and links to information on a website (e.g. costs of cars, public transport alternatives, apps that can plan bike routes, links to useful websites) would be useful. Consider asking schools to include messages on their home pages of websites. Use of a website can be driven by incentives. Ideally embed into curricula – however the diverse subjects at this stage makes this difficult.

Incentives and social media

Ideally social media would be incorporated, but this is, realistically, unlikely to be used unless there is a reason to join in e.g. competitions to win bikes or long-distance travel (e.g. an inter-railing pass around Europe when they turn 18), or local information and discounts on services and outlets these students use.

Local media and venues

In an ideal world, and for minimal budget, a canny PR campaign through local radio that these groups use, or through local venues such as clubs and leisure venues, would reinforce messages and add credibility. For instance, publicising competitions, having events that provide free transport home and encourage leaving the car at home, or offering discounts to people with a valid bus ticket for their journey there. Using local celebrities or other role models would support this.

9.9 Name for the intervention

Useful words are:

These are words that denote positive experiences of NOT having a car, and negative experiences of being in a car.

Possible names are:

- Car free, care free
- Start later, start better

Taglines could include:

- Avoid the crush, explore the city
- Cars = cash, crashes and congestion
- Owning a car isn't all it's cracked up to be

9.10 Long-term changes

In the long-term, licence delay requires support from local public transport operators, planners and colleges.

First of all, habits established long before taking the decision to drive their own car will affect behaviour at age 17, so establishing walking, cycling and independent public transport use in much younger groups is probably one of the most important things to do (as I know you are already trying to do!). Getting parents onside is key to this, but so are environmental factors such as public transport availability and knowledge and trust in its safety.

Should we fail to establish the right habits, habit disruption is very promising: taking opportunities whenever young people change schools, colleges, universities, or jobs to shake up their habits and leave the car at home in favour of quicker, cheaper, more

sociable or more convenient alternatives. This needs to be driven by these establishments.

A further factor is changing young people's environments: disincentives to driving include eliminating parking and reducing ease of access by car. Incentives to alternative transport use are increased public transport services and walking and cycling routes, public transport staff who are more welcoming to young people, more reliable services with better facilities (e.g. WiFi) and better access to information via the media they use e.g. apps, which would support educational and promotional interventions. Also making more local facilities available to young people would mean they don't have to get out of town to have fun: currently most cinemas are out of town, there are few places for this age group to socialise and much shopping is in malls on city outskirts.

10. Conclusion

Driving and car ownership are deeply desirable goals for 16 year olds. We cannot coerce or frighten them into compliance with delaying licensing, but we can offer convincing alternatives that satisfy their life goals: to be adults, to be independent, to have disposable income and to spend time with their friends.

While this intervention is relatively small scale, it can be improved to increase its chances of success, and so we can learn from it for future interventions. The involvement of influential third parties, such as parents and local media, can be cost-effective and achievable. Creating an intervention that involves participation and student-led elements, is emotionally engaging and that challenges long held perceptions can start to shift attitudes and behaviour. Supporting this with posters, leaflets, web-media and events that potentiate its effects maximises our chances of success. The final piece of the puzzle would be getting education- and work-places to change their environments to encourage sustainable transport and discourage car use.

Only by leveraging all these factors can we hope to see significant change, but by developing this intervention using these recommendations, I hope we can take a significant step in the right direction.

Sara Bird
12th August 2011

11. References

Ajzen, I. (1991). The Theory of Planned Behaviour. *Organizational Behavior and Human Decision Processes,* 50: 1979-211

Albert, D. & Steinberg, L. (2011). Peer influence on adolescent risk behaviour. Chapter 11 in M.T. Bardo et al. (eds.), Inhibitory Control and Drug Abuse Prevention: From Research to Translation. New York: Springer

Arnett, J.J. (1994) Sensation seeking: a new conceptualization and a new scale. *Personality and Individual Differences*, 16, 289-296.

Arnett, J. J. (1997). Young people's conceptions of the transition to adulthood. *Youth & Society,* 29: 1-23.

Arnett, J.J. (1999). Adolescent storm and stress, reconsidered. *American Psychologist*, 54(5): 317-326

Arnett, J.J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5): 469-480

Arnett, J.J., Offer, D. & Fine, M.A. (1997). Reckless driving in adolescence: 'State' and 'Trait' Factors. *Accident Analysis and Prevention*, 29(1): 57-63

Baer, J.S., Stacy, A., & Larimer, M. (1991). Biases in the perception of drinking norms among college students. *Journal of Studies on Alcohol*, 52: 580–586

Bain, A.L. (2003). White Western Teenage Girls and Urban Space: challenging Hollywood's representations. *Gender, Place and Culture,* 10(3): 197–213

Bauman K.E., LaPrelle, J., Brown, J.D., et al. (1991). The influence of three mass media campaigns on variables related to adolescent cigarette smoking: results of a field experiment. *American Journal of Public Health,* 81: 597–604.

Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall

Bargh, J.A. (1997). The automaticity of everyday life. In: Wyer, RS., editor. *Advances in Social Cognition*. Vol. X. Erlbaum; Mahwah, NJ, p. 1-61.

Barker, V. (2009). Older Adolescents' Motivations for Social Network Site Use: The Influence of Gender, Group Identity, and Collective Self-Esteem. *Cyberpsychology & Behavior*, 12(2): 209-213

Beck, K.H., Hartos, J.L. & Simons-Morton, B.G. (2002a). Adolescent driving risk: the promise of parental influence and public policy. Health Education and Behavior, 29(1): 71-82

Beck, K.H., Hartos, J.L. & Simons-Morton, B.G. (2005). Parent-teen disagreement of parent-imposed restrictions on teen driving after one month of licensure: is discordance related to risky teen driving? *Prevention Science*, 6(3):

Beck, K.H., Hartos, J.L. & Simons-Morton, B.G. (2006). Relation of parent-teen agreement on restrictions to teen risky driving over 9 months. *American Journal of Health Behavior,* 30(5): 533-543

Borsari, B., & Carey, K. (2003). Descriptive and injunctive norms in college drinking: A meta-analytic integration. *Journal of Studies on Alcohol,* 64: 331–341

Bourdieu, P. (1986). The forms of capital. In J. Richardson (ed.) *Handbook of theory and research for the Sociology of Education*. pp. 241-258. New York: Greenwood Press

Boyd, D. (2008). Why youth ♥ social network sites: The Role of Networked Publics in Teenage Social Life." In Buckingham D. (ed.) *Youth, Identity, and Digital Media*. The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge: MA: The MIT Press

Bynner, J. (2002). Youth transitions in comparative context. *Journal of Youth Studies,* 4(1): 5–24.

Cain, A. (2006). Teenage mobility in the United States: Issues and opportunities for promoting public transit. *Transportation Research Record*, 1971: 140–148.
Cain, A. & Sibley-Perone, J. (2005). *Teenage attitudes and perceptions regarding transit use*. National Center for Transit Research Center for Urban Transportation Research, University of South Florida
Charlesworth, A. and Glantz, S.A. (2005). Smoking in the Movies Increases Adolescent Smoking: A Review. Pediatrics, 116(6): 1516-1528
Clapp, J.D., & McDonnell, A. (2000). The relationship of perceptions of alcohol promotion and peer drinking norms to alcohol problems reported by college students. *Journal of College Student Development*, 41: 19–26
Clifton, K.J. (2003). Independent mobility among teenagers: exploration of travel to after-school activities. *Transportation Research Record* 1854: 74-80
Coleman, L., & Cater, S. (2005). Underage 'binge' drinking: A qualitative study into motivations and outcomes. *Drugs: Education, Prevention and Policy*, 12(2): 125–136
Conway, M., & Dubé, L. (2002). Humour in persuasion on threatening topics: Effectiveness is a function of audience sex role orientation. *Personality and Social Psychology Bulletin,* 28(7): 863-873
deBruijn, G., Kremers, S.P.J., Singh, A., vandenPutte, B., & vanMechelen, W. (2009). Adult active transportation: adding habit strength to the theory of planned behaviour. *American Journal of Preventive Medicine,* 36(3): 189-94
Deighton, C., & Luther, R. (2007). *Pre-driver education: a critical review of the literature on attitude change and development, good practice in pre-driver education and programme effectiveness*. Department for Transport: UK
DETR, 2000. *Tomorrow's roads: safer for everyone*. London: Department of the Environment, Transport and the Regions, 2000.
Donohew, L., Lorch, E.P., & Palmgreen, P. (1991). Sensation seeking and targeting of televised anti-drug PSAs. In: Donohew, L., Bujoski W.J., Sypher, H., eds. *Persuasive communication and drug abuse prevention*. Hillsdale, New Jersey: Lawrence Erlbaum.
Elliott, M.R., Raghunathan, T.E., & Shope, J.T. (2002). The effect of duration of licensure on risk of crash: a Bayesian analysis of repeated time-to-event measures. *Journal of the American Statisticians Association*, 97: 420–31.
Farrelly, M.C., Niederdeppe, J.,& Yarsevich, J. (2003). Youth tobacco prevention mass media campaigns: past, present, and future directions. *Tobacco Control*, 12(Suppl I): i35–i47
Festinger, L. (1954). A theory of social comparison processes. *Human Relations,* 7(3): 117-40
Fishbein, M. (2000). The role of theory in HIV prevention. *AIDS Care,* 12: 273-278
Fishbein, M., & Cappella, J. (2006). The Role of Theory in Developing Effective Health Communications. *Journal of Communication, 56*(August Supplement), S1-S17
Flynn, B.S., Worden, J.K., Secker-Walker, R.H., et al. (1992). Prevention of cigarette smoking through mass media intervention and school programs. *American Journal of Public Health*, 82: 827–34
Fujii, S., & Gärling, T. (2005). Temporary structural change: A strategy to break car-use habit and promote public transport. In G. Underwood (Ed.), *Traffic and transport psychology* (pp. 585–592). Amsterdam: Elsevier.
Gärling T., & Fujii, S. (2009). Travel behavior modification: theories, methods, and programs. In *The Expanding Sphere of Travel Behaviour Research.* Ed. Kitamura R, Yoshii, T., and Yamamoto, T. Emerald Group Publishing: United Kingdom, pp. 97-128

Gebel, K., King, L., Bauman, A., Vita, P., Gill, T., Rigby, A., & Capon, A. (2005). *Creating healthy environments: A review of links between the physical environment, physical activity and obesity*. Sydney, NSW Health Department and NSW Centre for Overweight and Obesity

Greene, A.L., Wheatley, S.M., & Aldava, J.F., IV. (1992). Stages on life's way: Adolescents' implicit theories of the life course. *Journal of Adolescent Research,* 7: 364-381

Gurin, D. B. (1976). Economics of Car Ownership and Use by Teenagers. In *Transportation Research Record 583*, TRB, National Research Council, Washington, D.C., pp. 78–83

Hamilton, D. L., & Sherman, J. W. (1994). Stereotypes. In R. S. Wyer, Jr. & T. K. Srull (Ed.), *Handbook of social cognition. Volume 2. Applications* (2nd ed., pp. 1–68). Hillsdale, NJ: Lawrence Erlbaum Associates

Hartos, J.L., Beck, K.H. & Simons-Morton, B.G. (2004). Parents' limits on adolescents approaching unsupervised driving. *Journal of Adolescent Research*, 19(6): 591-606.

Hartos, J.L., Eitel, P. & Simons-Morton, B.G. (2001). Do parent-imposed delayed licensure and restricted driving reduce risky driving behaviors among newly-licenced adolescents? *Preventative Science*, 2(2): 111-120.

Hartos, J.L., Eitel, P. & Simons-Morton, B.G. (2002). Parenting practices and adolescent risky driving: a three-month prospective study. *Health Education and Behavior*, 29(2): 194-206

Hartos, J.L., Eitel, P., Haynie, D.L. & Simons-Morton, B.G. (2000). Can I take the car? Relations among parenting practices and adolescent problem driving practices. *Journal Adolescent Research*, 15(3): 352-367

Hastings, G., Stead, M., & Webb, J. (2004). Fear appeals in social marketing: strategic and ethical reasons for concern. *Psychology & Marketing,* 21(11): 961–986

Hatfield, J., & Fernandes, R. (2009). The role of risk-propensity in the risky driving of younger drivers. *Accident Analysis and Prevention* 41: 25–35

Holdsworth, C. (2004). Family support during the transition out of the parental home in Britain, Spain and Norway. *Sociology*, 38(5): 909–926

Horspool, B. (2006). *Tempting teenagers to cycle*. North Shore City Council, New Zealand

Jonah, B. A. (1986) Accident risk and risk-taking behaviour among young drivers. *Accident Analysis and Prevention*, 18, 255-271

Jones, G. (2005a). *The thinking and behaviour of young adults (aged 16 - 25).* Social Exclusion Unit.

Jones, G. (2005b). Young people and their families today. *Extension of economic dependence in youth: Implications for families*. NFPI Policy Discussion Paper. London, National Family and Parenting Institute.

Kamins, M.A. (1990). An investigation into the 'match-up' hypothesis in celebrity advertising: when beauty may be only skin deep. *Journal of Advertising*, 19(1): 4-13

Kaufmann, V., Bergman, M., & Joye, D. (2004). Motility: Mobility as Capital. *International Journal of Urban and Regional Research*, 28(4): 745-756

Lachance, M.J., Beaudoin P., & Robitaille, J. (2003). Adolescents' brand sensitivity in apparel: influence of three socialization agents. *International Journal of Consumer Studies*, 27(1): 47–57

Lantz, P.M., Jacobson, P.D., Warner, K.E., Wasserman, J., Pollack, H.A, Berson, J., & Ahlstrom, A. (2000). Investing in youth tobacco control: a review of smoking prevention and control strategies. *Tobacco Control*, 9: 47–63

Lee, C.K.C., & Conroy, D.M. (2005). Socialisation through consumption: teenagers and the internet. *Australasian Marketing Journal,* 13(1): 8-19

Levy D.T. (1990). Youth and traffic safety: The effects of driving age, experience, and education. *Accident Analysis and Prevention*, 22: 327–34

Lewis, I., Watson, B., & White, K. (2008). *Predicting future speeding behaviour: The appeal of positive emotional appeals for high risk road users.* Paper presented at the High Risk Road Users Conference, Joint ACRS-Travelsafe National Conference, Brisbane, 18-19 September 2008

Lockwood, P., & Kunda, Z. (1997). Superstars and Me: Predicting the Impact of Role Models on the Self. *Journal of Personality and Social Psychology* 73(1): 91–103

Machin, M.A., & Sankey, K.S. (2008). Relationships between young drivers' personality characteristics, risk perceptions, and driving behaviour. *Accident Analysis and Prevention*, 40: 541–547

Martin, C.A., & Bush, A.J. (2000). Do role models influence teenagers' purchase intentions and behavior? *Journal Of Consumer Marketing*, 17(5): 441-454

McCartt, A.T, Teoh, E.R., Fields, M., Braitman K.A., & Hellinga, L.A. (2010). Graduated Licensing Laws and Fatal Crashes of Teenage Drivers: A National Study. *Traffic Injury Prevention*, 11(3): 240-248

McKenna, J., Gutierrez, K., & McCall, K. (2000). Strategies for an effective youth countermarketing program: recommendations from commercial marketing experts. *Journal of Public Health Management Practice*, 6: 7–13

McWhannell, F., & Braunholtz, S. (2002). *Young people and transport.* Transport Research Planning Group for the Scottish Executive. The Stationery Office: Edinburgh

Monneuse, O.J., Nathens, A.B., Woods, N.N., Mauceri, J.L., Canzian, S.L., Xiong, W., & , Ahmed, N.A. (2008). Attitudes about Injury among High School Students *Journal of American College of Surgeons*, 207: 179–184

Murray, D.M., Prokhorov, A.V., & Harty, K.C. (1994). Effects of a statewide antismoking campaign on mass media messages and smoking beliefs. *Preventive Medicine,* 23: 54–60.

Nielsen (2009). *How Teens Use Media*. The Nielsen Company: New York

Noar, S. M. (2006). *Journal of Health Communications,* 11*:* 21-42

Palmgreen, P., Donohew, L., Lorch, E.P., et al. (2001). *Television campaigns and adolescent marijuana use: tests of sensation seeking targeting*. American Journal of Public Health, 91: 292–296

Peattie, S. (2002). Using the Internet to communicate the sun-safety message to teenagers. *Health Education*, 102(5): 210-218

Pechmann, (2001a). A Comparison of Health Communication Models: Risk Learning Versus Stereotype Priming. *Mediapsychology*, 3: 189–210.

Pechmann, C. (2001b). Changing Adolescent smoking prevalence: Impact of advertising interventions. *The National Cancer Institute, Smoking and Tobacco Control Monograph No.14, Chapter 10* (online). http://cancercontrol.cancer.gov/tcrb/mongrahs (accessed November 5, 2007)

Pechmann, C. & Reibling, E.T. (2006). Antismoking advertisements for youths: an independent evaluation of health, counter-industry, and industry approaches. *American Journal of Public Health*, 96(5): 906-913

Pechmann, C., Guangshi, Z., Goldberg, M.E., & Reibling, E.T. (2003). What to convey in antismoking advertisements for adolescents: the use of protection motivation theory to identify effective message themes. *Journal of Marketing*, 67: 1-18

Prentice, D.A., & Miller, D.T. (1993). Pluralistic ignorance and alcohol use on campus: Some consequences of misperceiving the social norm. *Journal of Personality and Social Psychology*, 64: 243–256
Preusser, D.F., Williams, A.F. & Lund, A.K. (1985). Parental role in teenage driving. *Journal of Youth and Adolescence*, 14(2): 73-84
Putnam, R. D. (2000). *Bowling Alone.* Simon and Schuster: New York
Reister, T., & Linton, M. (1998). Designing an effective counteradvertising campaign: Arizona. *Cancer*, 83: 2746–51
Richins, M.L. (1991). Social comparison and the idealized images of advertising. *Journal of Consumer Research*, 18: 71-83
Roberts, I.G., & Kwan, I. (2008). *School-based driver education for the prevention of traffic crashes.* The Cochrane Collaboration: London
Rosenstock, L.M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2: 1-8
Scheer, S. D., Unger, D. G., & Brown, M. (1994, February). *Adolescents becoming adults: Attributes for adulthood.* Poster presented at the biennial meeting of the Society for Research on Adolescence, San Diego, CA.
Schoenbachler, D.D., & Whittler, T.E. (1996). Adolescent processing of social and physical threat communications. *Journal of Advertising,* 25: 37-54.
Senserrick, T.M. (2006). Reducing young driver road trauma: guidance and optimism for the future. *Injury Prevention*, 12(Suppl I): i56–i60
Shope, J.T. (2006). Influences on youthful driving behavior and their potential for guiding interventions to reduce crashes. *Injury Prevention*, 12(Suppl I): i9–i14
Simons-Morton, B.G. & Hartos, J.L. (2003). How well do parents manage young driver crash risks? *Journal of Safety Research*, 34(1): 91-97
Simons-Morton, B.G., Hartos, J.L. & Beck, K.H. (2004). Increased parent limits on teen driving: positive effects from a brief intervention administered at the Motor Vehicle Administration. *Prevention Science*, 5(2): 101-111
Simons-Morton, B.G., Hartos, J.L. & Leaf, W.A. (2002). Promoting parental management of teen driving. *Injury Prevention*, 8(Suppl II): ii24-ii31
Simons-Morton, B.G, Ouimet, M.C., & Catalano, R.F. (2008). Parenting and the Young Driver Problem. *American Journal of Preventive Medicine*, 35(3S): S294–S303)
Smith, W.A. (2006). Social marketing: an overview of approach and effects. *Injury Prevention*, 12(Suppl I): i38–i43
Social Exclusion Unit (2003). *Making the Connections: Final Report on Transport and Social Exclusion*.
Stafford, J., Pettersson, G., Young, H. & Mather, A. (1999). *Young people and crime on public transport report*. Department of the Environment, Transport and the Regions
Stradling, S. (2002). Transport user needs and marketing public transport. *Municipal Engineer*, 151: 23-28
Strecher, V. J., Bauermeister, J. A., Shope, J., Chang, C., Newport-Berra, M., Giroux, A., et al. (2006). Interventions to promote safe driving behaviour: Lessons learned from other health-related behaviours. In *Behavioural Research in Road Safety 2006*, Sixteenth Seminar (pp. p28-38). London: Department for Transport
Struckman-Johnson, C., Struckman-Johnson, D., Gilliland, R. C., & Ausman, A. (1994). Effect of persuasive appeals in aids, PSAs and condom commercials on intentions to use condoms. *Journal of Applied Social Psychology,* 24: 2223-2244
Tanner, J.F., Hunt, J.B., & Eppright, D.R. 1991. The protection motivation model: a normative model of fear appeals. *Journal of Marketing,* 55: 36-45

Tay, R., & Watson, B. (2002). Changing drivers' intentions and behaviours using fear-based driver fatigue advertisements. *Health Marketing Quarterly,* 19(4): 55-68

Taylor, J., Barnard, M., White C., & Lewis, J. (2007). *Understanding the travel aspirations, needs and behaviour of young adults.* Department for Transport: London

Teenage Research Unlimited (1999). *Youth focus groups to assess tobacco use prevention ads*. North Brook, Illinois: Teenage Research Unlimited

Thomson, R., Holland, J., McGrellis, S., Bell, R., Henderson, S. & Sharpe, S. (2004). Inventing adulthoods: a biographical approach to understanding youth citizenship. The Sociological Review, 52(2), 218-239

Tranter, P. & Pawson, E. (2001). Children's Access to Local Environments: A Case Study of Christchurch, New Zealand. *Local Environment*, 6(1): 27–48

Ulmer, R.G., Preusser, D.F., Ferguson, S.A. & Williams, A.F. (1999). Teenage crash reduction associated with delayed licensure in Louisiana. *Journal of Safety Research* 30(1): 31-38

University of Texas-Houston. *Texas tobacco prevention initiative media campaign and community program: effects among children and adults*. University of Texas-Houston, Texas: Health Science Center, 2001.

Verplanken, B., Aarts, H., Knippenberg, A. v., & Knippenberg, C. v. (1994). Attitude versus general habit: Antecedents of travel mode choice. *Journal of Applied Social Psychology*, 24: 285-300

Verplanken, B., Aarts, H., & Van Knippenberg, A. (1997). Habit, information acquisition, and the process of making travel mode choices. *European Journal of Social Psychology*, 27: 539-560

Verplanken, B. & Wood, W. (2006). Interventions to break and create consumer habits. *Journal of Public Policy & Marketing*, 25(1): 90-103

Williams, A.F., Karpf, R.S., & Zador, P.L. (1983). Variations in minimum licensing age and fatal motor vehicle crashes. *American Journal of Public Health*, 73: 1401–1403

Williams, A.F. (2008). *Licensing age and teenage driver crashes: a review of the evidence*. Insurance Institue for Highway Safety. Accessed 5th August 2011. Available at http://media.naplesnews.com/media/static/r1092.pdf

Wright, C., & Egan, J. (2000). De-marketing the car. *Transport Policy*, 7: 287-294

Zuckerman, M. (1995) Behavioral Expressions and Psychobiological Bases of Sensation Seeking. Cambridge University Press, New York.

Zuckerman, M. & Neeb, M. (1980) Demographic influences in sensation seeking and expressions of sensation in religion, smoking, and driving habits. Personality and Individual Differences 1, 197-206.

Zuckerman, M., Eysenck, S. B. G. & Eysenck, H. J. (1978). Sensation seeking in England and America: cross-cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology,* 46, 139- 149