4.1.11 Summary of implications

- Of the models examined, preference might be given to TPB, SCT and PMT models based on evidence from meeting good criteria for developing interventions.
- Of the models examined, preference might be given to SCT, HBM and TPB models based on evidence from existing intervention studies.
- Potentially useful integrative models have been proposed based on the models reviewed here (e.g. Fishbein *et al.*'s (2001) Major Theorists Model) but have not been tested. These might usefully inform interventions.
- Of the variables considered, the evidence would suggest the value of targeting intentions, PBC/self-efficacy, attitudes, response costs and barriers in order to change behaviour.
- In relation to changing behaviour through changing intentions, the evidence would suggest the value of targeting attitude, PBC/self-efficacy, outcome expectancies/response efficacy, and response costs.
- Persuasive messages are most commonly employed but they need to be paired with strategies that promote elaboration (e.g. group discussion) in order to be effective.
- In relation to speeding, targeting affective beliefs may be more important than targeting cognitive beliefs, and targeting benefits may be more important than targeting risks.
- Self-efficacy/PBC may be a particularly important target because of its strong association with behaviour and the fact that there is good evidence about how to effectively intervene.
- Implementation intentions appear to be a useful strategy in helping people to act on strong intentions in order to adopt a new behaviour or in order to do more of an existing behaviour. The evidence is less strong that they are useful in the cessation of behaviours and further research is necessary.
- There is limited evidence in relation to changing the behaviour of speeding drivers.
- Addressing social pressures to speed, time pressure as a motivation for speeding, and the positive outcomes of speeding may reduce speeding.
- Interventions developed to change the speeding behaviour of the worst offenders may need to be different from those designed to prevent/reduce speeding in the general population.

Going a little beyond the reviewed material, we would also make the following **recommendations:**

1. Interventions based around the models and/or variables identified as most predictive in this review should be piloted within the target population – speeding drivers.

2. Interventions might be designed to:
   (a) undermine the perception that speeding is associated with benefits – do you really get there quicker? do you really get ahead of other traffic?
   (b) promote the idea that there are costs, other than accidents, associated with speeding - less money to spend because of increased insurance costs or a speeding fine; having to rely on other people to drive you around because you are banned from driving;
   (c) promote the idea that drivers have control over their speed and that barriers to driving slowly are easy to overcome - it is easy to take your foot off the accelerator; a skilled driver is one who drives at the appropriate speed; leave plenty of time to get to your destination;
   (d) undermine the effect of normative pressure on driving fast – how 'cool' is it to drive fast to impress a friend? are you sure your mates are really impressed by your fast driving? are you one of the herd or are you a skilled driver who adopts an appropriate speed?
   (e) promote the affective benefits of driving more slowly – feeling less anxious; feeling in control.

3. Qualitative research investigating the beliefs of drivers who attend speeding interventions may help to target interventions more effectively. For example, it is useful to know what costs are important for this specific group of drivers.

4. Further research is required to address the factors that predict the initiation and maintenance of speeding. A large-scale longitudinal study measuring the cognitions identified in this review (intentions, PBC/self efficacy, attitudes, outcome expectancies/response efficacy, and costs and barriers) before and, for some time after, learning to drive would help to elucidate the pattern of influences on behaviour.

5. The value of combining interventions designed to change social cognition variables with changes to the driving environment in order to promote safer driving should be further investigated.

4.2 Theory-based intervention review

A review was undertaken of the literature on theory-based interventions to change behaviour. The aim of the review was to identify effective theoretical components that have been used successfully in interventions to change risky health behaviours, and to use the information identified to develop a framework of intervention

characteristics that are most likely to change speeding behaviour. Specifically, the review questions were:

1. Which theoretical components have been used successfully to change risky health behaviours?
2. How might these components be applied to changing speeding behaviour?

The principles of systematic review were adopted: rigorous and reproducible methods applied to synthesise the available evidence. See Fylan *et al.* (2005b) for details of the methodology for the review, including search strategy and terms, inclusion screening and data extraction.

The focus of the behavioural change interventions was non-addictive behaviours in adults. Addressing addictive behaviours, such as smoking and alcoholism, were excluded because any intervention would need to address the addictive nature of the behaviour as well as beliefs and attitudes. Interventions aimed at children and their parents were also excluded, as these would not map as clearly to an intervention targeted at an adult population. The review specifically aimed to identify effective health theory-based interventions and, therefore, intervention studies without a clear reference to psychological theory were excluded.

Three approaches to the literature search were taken. First, the evidence base of systematic reviews of interventions to change health behaviours was searched. Second, a review of recently published (2003–05) papers that describe interventions to change behaviour was undertaken. Third, key health psychology texts were searched for accounts and evaluations of interventions.

These three searches revealed over 3,000 articles. Inclusion screening, based on the title and abstract, or the full article, reduced this to 55 primary studies and systematic reviews.

No studies were identified that expressly compared the effectiveness of different theoretical approaches. Instead, the interventions described were usually based loosely on one or more theory, and the studies reported how the interventions were delivered and the behavioural change that was achieved. We therefore discuss the components of interventions that have been demonstrated as being effective in changing risky behaviour, and relate these components to the content of interventions to change speeding behaviour.

4.2.1 Which theories have been used to develop interventions?

The interventions aimed at changing risky behaviours that were identified for this review were based around the following theories:

1. the Health Belief Model (HBM);
2. Protection Motivation Theory (PMT);
3. the Self-regulation Model;
4. the Social Learning Theory and Social Cognitive Theory (SCT);
5. the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB);
6. implementation intentions; and
7. the Transtheoretical Model (TTM).

Examples of interventions based on these theories are described below.

The HBM was applied in an intervention aimed at increasing condom use. The study highlighted the importance of targeting perceived vulnerability, or invulnerability in many cases, to the outcomes of the behaviour (Bryan *et al.*, 1996). Although identifying and targeting perceived barriers was shown to be important, it was also shown that removing barriers was not enough to initiate the appropriate behaviours and that it was also important to target attitudes (Aiken *et al.*, 1994). Information booklets based on this theory that target attitudes have been shown to result in more positive norms towards screening and increased intention to be screened, without increasing anxiety or worry about screening (Williamson and Wardle, 2002).

A study that applied key components of PMT (Schaffer and Tian, 2004) found that the use of a theory-based booklet could significantly increase adherence to medication. In particular, the authors suggested that interventions should aim to improve self-efficacy by providing opportunities for joint problem-solving and through the reinforcement of skills. It was also important to identify people's perceptions of barriers to help remove these barriers, and to provide suggestions for initiating behavioural change.

The Self-regulation Model was used as the basis of an intervention to reduce heavy drinking (Neal and Carey, 2004). Individuals were encouraged to reevaluate their drinking behaviour and to identify long-term goals for which heavy drinking could be considered an inappropriate behaviour.

Social Cognitive Theory has been used in several interventions, and has been found to be a useful intervention for the adherence to HIV treatment (Smith *et al.*, 2003). It has also been used in interventions to reduce HIV risk (St Lawrence *et al.*, 1997). The intervention to reduce HIV risk comprised four sessions based around

instruction, modelling and skill rehearsal, and led to improved attitudes, self-efficacy and behavioural skill. This approach allows individuals to formulate and rehearse their reactions and behavioural responses to specific situations in which the maladaptive behaviour might arise. Cognitive approaches can be effective when delivered by means of telephone interviewing (Yabroff *et al.*, 2000). Indeed, the combination of letter and telephone counselling was found to be more effective than face-to-face counselling in achieving the desired behaviour (Saywell *et al.*, 1999).

Several studies based on Social Learning Theory have demonstrated that interventions which emphasise skill acquisition and rehearsal can be effective in changing behaviour (e.g. Hobfoll *et al.*, 1994). Increasing motivation (a central component of both Social Learning Theory and the TTM) was found to be effective in improving adherence to medication (Schroeder *et al.*, 2004), whereas supplying patient education alone was not effective.

The TPB, which has been used extensively in predicting speeding behaviour, has also been applied in an intervention to change speeding behaviour (Stead *et al.*, 2005). The study found support for all components of the theory, both in terms of intention to speed and actual speeding behaviour. Perceived behavioural control (PBC) was found to be most effective, followed by attitudes and subjective norms. Targeting PBC has been shown to achieve behavioural change in more general health behaviours, for example improving access to a screening facility is effective in increasing attendance (Legler *et al.*, 2004). The theory has been extended to include additional components, principally implementation intentions, self-efficacy and anticipated regret.

A combination of the TPB and implementation intentions was the focus of an intervention to promote workplace health and safety (Sheeran and Silverman, 2003). The results of the study suggested that an intervention based on the TPB alone was not as effective as one focused either on implementation intentions or a combination of the two. Implementation intentions are seen to be important in that they prompt certain behaviours when certain environmental cues are met and, as such, they may be of use when trying to encourage new patterns of behaviour. They have been shown to produce a highly significant improvement in the number of people undertaking the intended behaviour across a wide range of behaviours (Orbell and Sheeran, 2002).

Self-efficacy was added to the TPB in an intervention to decrease dietary fat. Three versions of an information leaflet were produced, which provided: (1) solely information, or a combination of information with material designed either to (2) change attitudes or (3) increase self-efficacy. All three interventions were effective, but the theory-guided interventions (2 and 3) were more effective in improving attitudes to reducing dietary fat, and there was a (non-significant) trend for the self-efficacy intervention to reduced dietary fat intake more than the others.

Anticipated regret was added to the theoretical components of the TPB in a study to examine the effects of viewing videos about speeding in intention to speed (Parker, 2002). Drivers viewed one of five versions of a video about speeding that targeted either:

- normative beliefs;
- behavioural beliefs;
- PBC;
- anticipated regret; or
- a control video that did not address driving behaviour.

The reported results were disappointing as the control group had the least intention to speed after viewing the video. Nevertheless, drivers who viewed the anticipated regret video had a significantly more negative attitude to speeding than the other drivers. Videos that targeted normative beliefs and anticipated regret were found to be the most effective in changing the relevant theoretical construct.

The TTM was found to be more effective than behavioural change programmes in interventions to increase adherence and screening attendance (Riemsma *et al.*, 2002). Examples of interventions were an interactive barriers counselling protocol based on stages of change, and receiving one of four mailed intervention packets based on precontemplation, contemplation, action and maintenance. The TTM has also been combined with other theoretical components. Interventions, tailored to the individual's stage of change, which provide information to decrease barriers and increase self-efficacy, can be effective (Schroeder *et al.*, 2004).

For the most part, theories were used to develop messages, information materials or interview discussion schedules, often with the aim of targeting inappropriate attitudes or beliefs. Few studies actually tested the relative usefulness of the individual components of these theories. Studies that compare theories tend to examine predictors of behaviour, rather than the effectiveness of interventions. Furthermore, because interventions tend to be multifaceted, it is difficult to separate the efficacy of the individual theoretical components. Also, because of the wide-ranging differences in methodologies and samples, no strong conclusions about effectiveness can yet be made. However, the studies still provide useful information about the content and format of effective interventions. Furthermore, a review of 42 studies of interventions to improve mammography screening concluded that the most effective interventions were those that employed a theoretical framework (Yabroff and Mandelblatt, 1999). Hence, while no clear conclusions can be drawn about which theory is most effective, it can be concluded that effective interventions should be developed from one (or more) relevant theory. Indeed, Denhaerynck's *et al.*'s (2003) review of interventions to increase attendance at mammography screening identified multi-faceted approaches as being more effective.

4.2.2 *What should the intervention message contain?*

Interventions were found to be more effective when they contained **enforcement messages** (Snyder *et al.*, 2004). Enforcement messages provide information about enforcement procedures, laws or rules (e.g. information on fines, roadside checks) and outline the negative consequences associated with the behaviour.

Interventions should include **educational material**, with the aim of changing beliefs about the behaviour. However, interventions that consist solely of educational material are less effective than multi-faceted approaches (Stone *et al.*, 2002; Warsi *et al.*, 2004). Behavioural change increases when education is supplemented by additional techniques, such as interviews (Friedman *et al.*, 1996).

The relevance of materials was also of importance, with participants signalling that it was important that they felt that materials were 'meant for them' (Rimmer *et al.*, 1999). **Tailored materials** are more effective than generic materials (Rimmer *et al.*, 1999; Revere and Dunbar, 2001; Yabroff, 2003). An intervention to promote condom use among young women used a computer-generated self-help magazine that was individually tailored to responses on survey items, and this approach was found to increase reported condom use (Scholes *et al.*, 2003). The majority of the sample reported that the materials used were relevant to them. The authors also outlined a number of other health contexts where this approach has been successfully applied.

Personalised normative feedback has also been found to be effective (Neal and Carey, 2004). This involves an individualised summary of data (e.g. the individual's speeding behaviour and their responses to road stressors) obtained following an intervention session, along with a comparison made to normative data (the general population or non-speeders). The concept of normative feedback is linked to the **Self-regulation Model** as the feedback regarding one's own behaviour is compared to a normative standard and this can trigger a self-evaluation process.

The **framing of messages** (providing information about the gains to be had or, alternatively, providing information about the losses that could result from a particular behaviour) was also found to be important. This is a key aspect of the presentation of information for decision making. Altering the frame of an educational message is a straightforward task. The findings of the study, which concerned mammography attendance, suggested that loss-framed messages were more effective than messages that highlighted the benefits of a particular behaviour (Banks *et al.*, 1995). It may be that loss-framed information increases a person's perception of their risk and that this change in risk perception initiates a behaviour change.

Rothman and colleagues (Rothman *et al.*, 1993) carried out an intervention where they altered the **attribution** content of the messages. Internal attribution messages emphasise an individual's own responsibility for a particular behaviour and were found to be more effective than external attribution messages (which emphasise the responsibility of others or of authority for controlling a behaviour).

It is important for interventions to address motivation in addition to providing information. In their study of adherence to medication, Schroeder *et al.* (2004) found that patient education alone was largely unsuccessful, whereas the addition of a component to address patient motivation increased adherence significantly. However, Volmink and Garner (1997) found health education to be the most effective intervention to increase adherence to tuberculosis treatment. While giving patients monetary incentives to attend was effective when used in isolation, it did not produce any further increase in attendance when added to patient education. Hence, interventions to target motivation should address the value that individuals place on the recommended behaviour or desired outcome, rather than offer short-term or monetary incentives.

4.2.3 *What format should the intervention use?*

Interventions should be delivered personally, rather than by means of mailed information materials, even when the information is tailored to each individual's needs. It is important that interventions are **interactive**, as interventions that were delivered statically (limited participant involvement) were found to be less effective (Yabroff *et al.*, 2001). This is in line with Social Learning Theory, which states that learning is achieved by first organising and rehearsing the modelled behaviour and then enacting it overtly. Furthermore, coding modelled behaviour into words, labels or images will result in better retention than simply observing. In addition, introducing face-to-face counselling can also improve the outcome of interventions (Champion *et al.*, 2003).

The use of **cognitive strategies** within interventions appears to be more effective than the use of behavioural or sociological components (Yabroff *et al.*, 2000). Cognitive strategies are concerned with the provision of new **information** and with **education** in order to increase knowledge and clarify misconceptions. In comparison, behavioural strategies include the use of telephone or mailed reminders, with the aim of initiating a particular behaviour while sociological strategies might use peer or social norm information to promote the behaviour.

The role of additional **reminders** following an intervention was highlighted in a number of studies (Costanza *et al.*, 2000; Saywell *et al.*, 1999; Taplin *et al.*, 2000). For a behaviour, such as mammography screening, or cervical screening, the use of reminder telephone calls or letters has been shown to significantly increase attendance (Stone *et al.*, 2002; Taplin *et al.*, 2000; Yabroff *et al.*, 2003), and reminder letters are particularly effective in increasing attendance when used in

combination with telephone counselling (Saywell *et al.*, 1999). Reminders should not be used as a stand-alone method of behavioural change (Volmink and Garner, 1997), such as sending drivers reminders not to speed, but should be used to refresh and reinforce a previously delivered intervention.

4.2.4 *How might this be applied to speeding interventions?*

Details obtained from speeding interventions that are currently in use highlight a number of approaches, which are outlined below. There are wide-ranging differences in the combination of approaches used in the interventions, and they map onto several of the models of health-related behaviour:

- **Information and education** (cognitive strategies) are provided by a number of the speeding interventions, which examine the principles of good driving, facts about speeding (including statistics) and hazard perception. **Coding** information is also used in some interventions, such as labelling 35 mph as the 'killing speed'.
- **Enforcement messages** are also used, which focus on the consequences of speeding (e.g. fines, speed cameras) and may include presentations by police officers.
- **Instruction, modelling or skill rehearsal** are included in some of the speeding interventions which have a practical component involving a driving session with an instructor and also which focus on situations where maintaining the speed limit can be viewed as difficult. Such interventions may also include a demonstration drive to show more appropriate behaviour.
- **Attitudes** are targeted by a number of the courses that focus on participants' perceptions of the acceptability of speeding.
- **Framing** is covered to some degree by interventions that focus on the negative outcomes, and this may include a talk from a paramedic who has attended a road-side collision, a victim or a relative of someone who has died or information from a police officer.
- **Barriers** are tackled by interventions that focus on the excuses provided by clients regarding their speeding behaviour (e.g. did not see speed limit sign, did not know the road). This is most likely to be an interactive approach and may offer the opportunity for **joint problem-solving**.
- **Attributions** are targeted by interventions that focus on responsibility awareness, and that the driver (rather than employers or other road users) is responsible for the speed at which he or she drives.

- **Reminders** are provided by some of the speed interventions in the form of booklets, key rings, etc., mailed to drivers some months after their attendance on a course. These remind drivers about the course content, and encourage them to maintain their adherence to the speed limit.

4.3 Combined conclusions

No studies were identified that expressly compared the effectiveness of different theoretical approaches. The reviews provide evidence that effective interventions should target:

- attitudes (beliefs and values) towards speeding, taking into account individual drivers' readiness to change, and increasing their motivation to drive at an appropriate speed;
- beliefs about the acceptability and ubiquity of speeding (norms);
- perceptions of responsibility for each driver's choice of speed (attributions);
- perceptions of the benefits of speeding (response costs);
- perceptions of the likelihood of drivers being detected if they speed (susceptibility);
- negative consequences of crashing or being caught speeding (anticipated regret);
- perceived barriers to driving at an appropriate speed (PBC);
- the way in which speeding makes drivers feel (affective beliefs);
- drivers' perceptions of their ability to drive at an appropriate speed (self-efficacy); and
- when and where drivers will reduce their speed (implementation intentions).

For example, interventions might be designed to:

- undermine the perception that speeding is associated with benefits;
- promote the idea that there are costs, other than crashing, associated with speeding;
- promote the idea that drivers have control over the speed they adopt and that barriers to driving slowly are easy to overcome;
- undermine the effect of normative pressure on driving fast; and
- promote the affective benefits of driving more slowly.

The reviews indicated that self-efficacy (and PBC) may be a particularly important target because of its strong association with behaviour and the fact that there is good evidence about how to intervene effectively. Persuasive messages should be paired

with strategies that promote elaboration (e.g. group discussion), and there should be interactive sessions on joint problem-solving in order to help individuals identify and adhere to appropriate speeds. Drivers should be reminded that speeding is illegal. Reminders of the key messages should be sent to drivers some months after the course. Interventions developed to change the speeding behaviour of the worst offenders may need to be different from those designed to prevent/reduce speeding in the general population.

5 EXISTING INTERVENTIONS TO CHANGE SPEEDING BEHAVIOUR

In this section we review the literature on interventions that aim to change speeding behaviour, and we summarise the content of the different speed awareness courses running in the UK as of January 2005. Full details of the review and the content of the courses can be found in Fylan *et al.* (2005b)

5.1 The evidence base of interventions aimed at changing speeding driver behaviour

The literature search revealed over 3,500 articles, and inclusion screening reduced this to 11 studies that report independent interventions. Studies included in the review had to address speeding as an area for behaviour change, but did not have to focus exclusively on speeding. Both empirical studies and meta-analyses were eligible for inclusion, but discussion papers or discussion-based review papers were excluded. The review questions were:

1. What interventions have been used to change speeding behaviour?
2. To what extent have these interventions been effective?
3. Is there any evidence to suggest that different interventions might be required for different types of speeding driver?

The 11 interventions are described below.

Ben-Ari *et al.* (2000) explored driving speed in 55 male drivers (aged 18 -21) in the Israeli army. The theoretical framework used was Terror Management Theory, which suggests that when mortality is made more salient we engage in activities to enhance our self-esteem. Appeals that are threat based (and therefore increase mortality salience) will then direct drivers to increase their self-esteem. Participants were allocated randomly to view a road trauma film or a control film. The road trauma film showed a young man describing a car accident he had experienced, and contained scenes of firemen trying to rescue the driver, and lots of blood and screaming. The control video was a food commercial. Participants were also assessed as having low or high driving relevance to self-esteem. Drivers with high driving relevant to self-esteem who had viewed the trauma video drove faster (in a driving simulator) than those who had viewed the control film. Drivers with low driving relevant to self-esteem who had viewed the trauma video drove slower than those who had viewed the control film. Driving speed increased from the first to the fourth trial, which may indicate that repeated exposure to the simulator led to participants feeling more confident in the simulator and, as a result, they increased their driving speed. The driving simulator was based on a video game, which are

normally driven very fast without negative consequences, and so the validity of the study is poor.

Donovan *et al.* (1999) recruited 326 self-reported speeding drivers (aged 17 to 39) from suburban shopping centres in Western Australia. The study aimed to find out whether the cost of an advert influenced its effectiveness. Four different road safety adverts about speeding were selected:

1. **Courthouse** – young man leaving court, discussing penalties with friends. Through flashbacks we learn that his girlfriend was hospitalised through unsafe driving. Low on emotion, and it did not show the accident (cost $80,000).
2. **Courtroom** – four executives driving to a meeting. Driver tries to overtake on the inside and kills a man changing a tyre. Graphic portrayal of accident. Driver taken into custody. Shown crying in witness box as dead man's wife looks on (cost $275,000).
3. **Speed camera** – shows a family eating dinner and discussing speed cameras. Teenage male scoffs and criticises their revenue-raising function. Father warns him not to speed. Shown again later, but son is paralysed and being spoon fed. Did not show accident (cost $30,000).
4. **Don't lose it** – two men and a woman talk about their accident caused by speeding, their physical injuries, loss of licence and other consequences (cost $20,000).

The participants were allocated randomly to one advert, which they viewed twice. Participants' perceptions of the main message, the clarity of the message and their emotional response were recorded. The main outcome measure was intention to speed, and intention to ask the driver to slow down when travelling as a passenger. The results indicated that the Courthouse advert was significantly less effective than other adverts on intention to speed. The Courthouse advert was significantly less effective than the Courtroom advert on intention to ask the driver to slow down. The Courthouse advert was disliked more than other adverts, and was thought to be more confusing. The authors suggested that this advert failed to use forceful or credible appeals to emotion. They concluded that adverts do not have to be very expensive to be more effective.

An advert-based intervention to change attitudes to speeding has been reported in several places by Parker (e.g. Parker *et al.*, 1996). The theoretical framework used was the Theory of Planned Behaviour (TPB), and adverts shown to participants (238 people, aged 17–40) were developed from previous work examining the social cognitive predictors of speeding. Drivers viewed one of four adverts designed to target different components of the TPB, or a control advert:

1. **Normative beliefs** – the driver gets out of the car and the passengers complain to the camera about his driving and say they are not impressed by it. Three different passengers (partner, same-sex friend, son).
2. **Behavioural beliefs** – intended to show that a quiet residential road can be full of hazards. By keeping to the 30 mph limit you can increase the likelihood of dealing with these hazards.
3. **Perceived behavioural control (PBC)** – the driver complains about difficulty in keeping a modern car to the limit, and the viewer hears a voice pointing out that the driver, not the car, is in control. The driver complains about being tailgated, and the voice points out that it is the driver's foot on the accelerator, and that he is free to choose his own speed.
4. **Anticipated regret** – aims to persuade the viewer that speeding on a residential road is wrong, even if nothing happens as a result. The driver is shown helping an elderly pedestrian across the road after she had been startled by a speeding car. He agrees that drivers should slow down on residential roads. Then he gets into his own car and drives off, then notices that he's doing 40 mph – the same speed he labelled as inconsiderate and dangerous.

Small groups of drivers viewed one of the videos twice then listed the thoughts that occurred to them while viewing the film. The main outcome measures were intention to speed and attitude to speeding, which was measured by the short version of the Driver Behaviour Questionnaire (with just one item about speeding) and the speeding scale of the Driver Attitude Questionnaire. The results indicated that the videos were not effective in changing TPB constructs, and often had the opposite effect to that intended, for example the PBC video group reported lower perceived control than the other groups. All intervention groups had lower mean scores for intention to speed and attitude to speeding than the control group, but the only statistically significant result was that the anticipated regret group had a more negative attitude to speeding than the control group. It should be noted that participants had to list their thoughts about the videos, which would increase elaborative processing, and would be unlikely in more naturalistic viewing conditions. Some participants made negative comments on the technical and dramatic contents of the videos, which perhaps made the message less credible.

Rossiter and Thornton (2004) also examined the effect of two different anti-speeding adverts on 37 young Australian drivers. The adverts lasted for five minutes:

1. **Pizza (fear relief)** – a pedestrian is hit by a car and a surgeon provides commentary on the injuries and the role of speed in causing them, and recommends that drivers reduce speed.
2. **Trike (shock)** – a child rides a trike into a road and is hit by a car.

The participants attended once a week for three weeks to view the advert and rate the fear and relief the adverts generated, and they also undertook a video speed test. Their speed was compared with that of a control group who had not viewed either advert. The fear relief advert showed a greater reduction in speed (2.2 kph for moderate repetition, and 3.1 kph for heavy repetition) than the shock advert. Female drivers showed a reduction in speed for all adverts following moderate and heavy repetition. Males showed an increase in speed for the shock advert following moderate repetition, and a small decrease following heavy repetition. Hence the fear-relief advert – which showed how to reduce the threat (i.e. slow down) - was more effective, particularly for males. No statistics were presented, so it is difficult to evaluate the mean scores presented and, furthermore, the task of rating fear and relief during viewing may have increased the depth of processing of the advert, which may not occur during more naturalistic conditions.

Stead *et al.* (2005) reported on the results of the Foolspeed project for the Scottish Executive in 2002. The target group was the general driving population in Scotland, but particularly males age 25–44. The study was a four-year longitudinal cohort study conducted as part of the Scottish Road Safety Campaign (Foolspeed) 1999–2001, with data collected at four time points. At baseline, 550 participants were recruited, of which 287 remained in the study throughout. The theoretical framework of the intervention was the TPB. Development of the adverts was informed by previous research and focus groups that explored beliefs and norms, and feelings about road safety advertising. The focus group results indicated that credibility and empathy with driving difficulties would be the optimal approach. The interventions were three TV/cinema adverts targeting attitude, subjective norm or PBC. Local recognisable scenes were used:

1. Attitudes - **Mirror** (1999) – aimed to challenge the belief that speeding in town saves time, that the driver is in full control, and that speeding can cause accidents. It showed a male driver in his 30s.
2. Subjective norms - **Friends and Family** (2000) - highlighted the mismatch between the driver's favourable view of their own driving and the irritation/ anxiety of passengers. It aimed to increase drivers' motivation to please others. It showed a male driver in his 30s.
3. PBC - **Simon Says** (2001) – tried to increase perceptions of control over drivers' behaviours by depicting internal and external pressures and showing that they can be resisted.

The adverts were shown as part of a mass-media advertising campaign, and through public relations and corporate sponsorship. Questionnaires assessed the response to the adverts: awareness; recall, comprehension; identification; involvement (affect); and perception of key messages. The main outcome measures were intention to speed, and self-reported speeding. The results showed that awareness of the campaign was not a significant predictor of intention to speed or reported speeding.

Only 20–33% of participants recalled the adverts. The TPB predicted 47–53% of variance in intention to speed and 33–40% of variance in self-reported speeding on 30 mph roads. PBC was found to be the most powerful predictor of intention. Reported speeding behaviour at the end of the study was predicted by higher baseline PBC, intention to speed and younger age. The majority of participants liked the attitude advert, and frequent speeders reported that the advert was targeted at them and that it made them feel that they drove too fast. Similar results were obtained for the PBC advert, but the subjective norm advert showed little difference in response between frequent and infrequent speeders. Attitudes towards speeding became more negative and were significantly related to awareness of the attitude advert. The study would have been stronger if it had used speed-related offences as an additional outcome measure.

Ulleberg (2001) reported a school-based study of 643 young drivers (aged 18–23) in Norway. The intervention comprised two movies, delivered by a campaign team during visits to schools. In addition, teachers were given a manual on traffic safety, which formed the basis of a traffic safety project for students. Reminders were also used in the form of commercials, posters, CDs, T-shirts, web pages and a competition on traffic safety knowledge. The participants were classified into different clusters, which were determined by personality scores. These were:

1. calm and emotionally well-adjusted, low normlessness, high altruism;
2. low altruism and anxiety, high sensation-seeking, aggression, irresponsibility and confidence;
3. high anxiety and altruism, low sensation-seeking, normlessness and driving anger;
4. high sensation-seeking and altruism;
5. high sensation-seeking, aggression, anxiety and driving anger; and
6. low sensation-seeking and altruism.

The measures were sensation seeking, aggression, anxiety, altruism, normlessness, driver anger scale (seven items) and risk taking. The main outcome measures were satisfaction with the campaign, judgements of meaning, interest, relevance, concern, and judgements of how positive/negative the campaign has been. The results indicated that low-risk clusters (1 and 3) rated the campaign higher than high-risk clusters (2 and 5). Females rated the campaign higher than males. While the theoretical framework was not stated explicitly, its use of role models could tap the subjective norm of the TPB, or Social Learning Theory. The authors did not measure speeding behaviour or intentions, so no conclusions can be drawn about the effectiveness of the intervention to change speeding behaviour. However, the differential response of clusters is in accordance with other studies that show high-risk drivers perceive campaigns/interventions to be less relevant.

Glendon and Cernecca (2003) studied the responses to anti-speeding messages of 117 young drivers (aged 17–25) in an Australian university. Twelve anti-speeding messages were compared:

10 kph less will save lives;

- be patient, not a patient;
- check speed – fines up to $240;
- don't fool yourself, speed kills;
- drive within the speed limit;
- focus on speed – slow down;
- slow down – radar is around;
- speed cameras – a new focus on saving lives;
- speed cameras – obey the speed limit;
- speeding – it's not worth the risk;
- speeding wrecks lives; and
- the faster you go the greater the impact.

Self-reported speeding, perceived vulnerability to speeding-related accidents, age, gender and the number of years participants had held their driving licence were assessed by means of a questionnaire. Participants were asked:

- How effective do you think the road sign would be in reducing speeding in general?
- How much do you personally agree with the message?
- How likely would you personally be to exceed the speed limit after viewing the sign on a roadway?

The results indicated that messages with an enforcement theme (fines or speed camera) were perceived to be the most effective and were associated with the lowest levels of intention to speed. Males reported that they would be more likely than females to speed having viewed the messages. No gender differences were found in intention to speed after viewing different types of messages, but there was a trend for females to be more responsive to non-enforcement messages. The study demonstrates that intention to speed was changed most by enforcement messages, however attitude to speeding was not measured and this could be viewed as a limitation of the study.

Walton and McKeown (2001) reported an intervention aimed at 113 young drivers (mean age 21) at a New Zealand university. The participants were shown five slogans:

1. The faster you go, the bigger the mess.
2. Slow down, speed kills.
3. She was only four and I killed her (related just to a 50 kph zone).
4. Do not fool yourself – speed kills.
5. It is in your hands, concentrate or kill.

The measures were:

- perceived usual speed of self and others on 50 and 100 kph roads;
- recall of having viewed the adverts previously;
- age; and
- gender.

The participants were categorised into two groups. The biased perception group incorrectly reported driving slower than average: 21% of drivers in 100 kph and 31% in 50 kph zones fell into this group. The second group comprised all other drivers. The main outcome measures were perceptions of advertising slogans, rated on a continuous scale from 'intended for people like me' to 'intended for others'. The results indicated that the biased perception group was significantly less likely to perceive that the adverts were aimed at them (non-significant for slogan 5). No age or gender effects were found. Around half of the drivers believed that the adverts were targeted at others.

Gregersen *et al.* (1996) undertook a large controlled trial with over 4,000 professional drivers in a Swedish telephone company. The intervention was for general driver improvement but it included a speed component. Four different interventions and a control condition were compared:

1. Driver training – manoeuvring, skid training and a commentary drive (the latter aims to improve speed adjustment and to realise stopping distances and fuel consumption).
2. Campaign – five meetings over a year that addressed aims, driving in darkness, stopping distances, winter driving, unprotected road users, loading, summary and discussion. Videos were shown and pamphlets provided.
3. Group discussion – three one-hour meetings of small (8–15) groups of drivers discussing road safety problems and what to do about them. The company had pledged to do their best to act upon suggestions made in the group discussions.

4. Bonus – money set aside for each driving unit, a sum deducted for each accident, and after one year the remaining amount was used for a group activity or purchase.
5. Control (no intervention).

The data were analysed two years retrospectively, at baseline, and two years prospectively. The discussion condition was based on results of trials of discussion groups for improving road safety:

- 60-minute warm up;
- 40-minute discussion in small groups to identify problems at workplaces;
- discussion of which problems could be solved by individuals and which ones by the company;
- discussions about measures and changes in driver behaviour; and
- employees writing down on a piece of paper a change in practice.

Driver training was delivered by the National Society for Road Safety. The campaign was delivered by trained employees during work time. The discussion groups were led by one of the drivers from the same unit who had attended an introductory meeting. The bonus scheme was explained during a meeting but no follow-up information was given. Working groups were allocated randomly to one of the interventions or to a control. The results indicated that driver training (risk ratio 1.67) and discussion groups (2.26) gave the largest reduction in accidents, followed by the bonus (1.31). No reduction was found in the campaign (0.82) or control groups. The discussion group showed the largest reduction in accident costs, which dropped by 38%, although no statistical analyses of these costs were presented. Statistical analyses were limited and few details were provided.

A comparison of the different approaches to reduce the crash risk of drivers in California was reported by Helander (1984). Drivers involved in a fatal accident, or involved in three accidents in a one-year period, or one accident plus two or more negligent operator points in one year, were included. Drunk drivers were excluded. In total, records from over 31,000 drivers were assessed. Three intervention groups and a control group were examined:

1. standard re-examination (driving test & discussion of accident, which can lead to further training if the test is failed);
2. accident avoidance session (discussion of accident avoidance techniques plus pamphlet);
3. mailed educational pamphlet ('It wasn't really my fault') and self-administered test; and
4. a no-contact control group.

Drivers were allocated randomly to conditions. Age and gender were recorded, and the main outcome measure was accident involvement one year post-intervention. The results demonstrated that the re-examination group had significantly fewer accidents than the control group. Statistics were not presented, but the accident avoidance intervention drivers had fewer accidents than the re-examination group. There was a trend for older females to be less responsive to interventions than younger females, and for older males to be more responsive than younger males. Females showed a trend to respond more than males to the mailed pamphlet condition. It should be noted, however, that the results were not analysed separately for drivers whose offence was speed related.

Masten and Peck (2004) undertook a meta-analysis of the driver improvement programmes in the USA. One hundred and six individual interventions were included and categorised in terms of the type of intervention and the orientation of intervention. Intervention type was found to account for 39% variance in effect size. The results shown in Table 5.1 were found for intervention crash risk effect size and violation risk effect sizes (larger positive effect sizes indicate greater reduced risk).

Table 5.1: Intervention crash risk effect size and violation risk effect sizes for a meta-analysis of driver improvement programmes in the USA (Masten and Peck, 2004)

Interventions	Crash risk effect size	Violation risk effect size
Educational/information	0.004	0.007
Group meeting	0.023	0.059
Individual meeting	0.045	0.084
Letter	0.022	0.042
Licence suspension/revocation	0.113	0.190
Licence extension	0.048	-0.001
Contingent point reduction	0.015	0.052
Probation	-0.036	0.122

The results indicate that suspension and revocation of a licence are most effective but the authors argue that this is most likely due to decreased exposure to driving. Treatment orientation accounted for 35% of effect size, and while the authors state that four orientations had a significant effect, they do not state which ones. The authors were contacted and asked for further details of the study. They supplied the data shown in Table 5.2 on effect sizes for the crash risk and violation risk for the three different orientations used in group meetings (positive effect sizes indicate reduced risk).

Table 5.2: Data on effect sizes for the crash risk and violation risk for the three different orientations used in group meetings)

Orientation	Crash risk effect size	Violation risk effect size
Threat	-0.036	0.075
Education/information	0.047	0.098
Changing behaviour/attitudes	0.013	0.040

These data suggest that, for group meetings, providing education and information is the most effective means of reducing crashes and driving offences. Further, the data suggest that threats are not an effective means of reducing the risk of crashing, but are more effective in reducing the risk of further driving offences than attempts to change attitudes and behaviour. Interestingly, for individual meetings and warning letters, threats were the most effective approach. While it should be noted that these data are not exclusively for speeding drivers, and are restricted to interventions based in the USA, they provide convincing evidence for the key role of education and information in changing driver behaviour.

Overall, few of the interventions identified were based on a theoretical framework of behavioural change, although the content of the interventions could sometimes be related to one or more theory. The most common intervention type was a video or commercial: six of the studies used this approach. Two studies were based on the TPB. Stead *et al.* (2005) provided support for the TPB to predict speeding intentions, but recall of the advertisements (which at 20–33% was low) was not related to TPB constructs or intention to speed. Similarly, the videos shown in the study by Parker *et al.* (1996) did not produce the desired changes in the relevant theoretical construct. While the authors suggest that the low budget available for making the videos might have influenced the results, the cost of anti-speeding adverts was not found to be related to their impact, and that the content was more important than the budget (Donovan *et al.*, 1999). This study found very little difference in the reported intention to speed between viewers of four different adverts of similar content. The least effective advert was judged as being less liked, less clear, and did not include substantial emotion, threat or shock. However, an advert based solely on shock was found to be less effective than one that contains a degree of fear and shows how safe driving can remove this fear (Rossiter and Thornton, 2004). Although, anti-speeding slogans with an enforcement theme (fines or speed camera) are more effective. Gender differences were observed in several of the studies, with females being more responsive than males. Overall, the research reported here suggests that interventions based solely on films, advertisements or slogans are unlikely to change speeding behaviour.

Four studies used mixed methods: two of these used a multi-faceted intervention in a school setting, and two were based in a real-life environment – drivers who had been referred by enforcement agencies (Helander, 1984) or professional drivers in an occupational setting (Gregersen *et al.*, 1996). These studies compared different

intervention approaches, usually driver training, discussion groups, and educational material. While neither study addressed speeding specifically, their naturalistic setting makes them of particular interest. The first (Helander, 1984) found that an intervention based on a discussion of techniques to avoid accidents, and an educational pamphlet, was most effective in reducing crash risk. The second (Gregersen *et al.*, 1996) again found that discussion groups were most effective in reducing the number of accidents that drivers were involved in. Driver training, which included a practical session, was also effective, although slightly less so than the discussion groups.

Our previous review of speeding drivers provided support for four different sub-groups (see Section 3.2):

- unintentional speeders;
- moderate occasional speeders;
- frequent high speeders; and
- socially deviant drivers.

The current review provides evidence to suggest that effective speed awareness courses should include an element of threat and shock, but not exclusively so. Methods of driving more safely, and thereby reducing the threat, should be included. The enforcement consequences of speeding (e.g. fines, licence points resulting in higher insurance premiums, possible disqualification) should be highlighted. There is no evidence to suggest that this component would be any more or less effective for the different groups of speeding drivers.

Interventions should not be based solely on videos or educational material, but should include group discussions that address driving problems and how to solve them. Where possible, intervention materials should be tailored to individual drivers. In the study of professional drivers, peer-led discussion groups were most effective in reducing accidents, and while there is additional evidence that discussion is a necessary component of changing behaviour, it cannot be concluded that the peer-led (or peer-involved) make-up of the group is vital. Nevertheless, it suggests that speed awareness courses should comprise peers, which might be of particular importance for the younger, socially deviant drivers.

The drivers that are most likely to speed are the most difficult group to change. The frequent high speeders and the socially deviant drivers (particularly males) are likely to require more material on why the speed awareness courses are relevant to, and aimed at, them. These groups of speeding drivers are also likely to require additional material designed to change their attitude towards speeding. Effective material for these drivers was found to challenge their beliefs that speeding in town saves time, that the driver is in full control, and that speeding does not cause accidents. The

moderate occasional drivers are more likely to require information on their perceptions of biased speed being incorrect.

5.2 Speed awareness courses in the UK

Eleven speed awareness courses run by Safety Camera Partnerships were identified as of March 2005, 10 are currently running and one has ceased. The courses are run by:

- Avon and Somerset;
- Gloucestershire (no longer running);
- Humberside;
- Kirklees;
- Lancashire;
- Leicestershire;
- Lincolnshire;
- Northamptonshire;
- Staffordshire;
- Thames Valley; and
- Warwickshire.

5.2.1 Course types

The courses can be broadly divided into three types:

- classroom-based presentations and discussions together with a driving demonstration and practice;
- classroom-based presentations and discussions without the practice element; and
- a seminar.

The first two types of course typically limit the number of drivers attending each course so as to facilitate discussion. The third type is conducted with a large number of drivers in a lecture-based format. One course (Thames Valley) also includes a computerised driving behaviour questionnaire and hazard perception test, which provides drivers with a personalised risk profile.

5.2.2 Target drivers

The majority of the courses target drivers detected speeding just above the 30 mph enforcement limit, usually 35 -39 mph. Some of the courses are very specific and

will only invite drivers at a specific speed, e.g. 36 mph, to attend. There are three exceptions to this:

- Humberside runs two types of course. One is the standard course for drivers speeding in urban environments (35 mph in a 30 mph zone, and 46 mph in a 40 mph zone). The second is for drivers speeding on motorways or rural roads at enforcement levels in 50, 60 and 70 zones. The instructors report that the two courses will, in future, be combined.
- Thames Valley runs two types of course. One is the standard course for drivers speeding in urban environments at the enforcement level of 35 mph in a 30 mph zone. This is a three-hour course involving one hour of computerised driving questionnaires and hazard perception tests, followed by two hours of presentations. The majority of drivers (96%) attend this lower speed course. The second type of course is for drivers detected driving at excessive speeds: 50 mph in a 30 mph zone. This begins with the same three-hour format as the lower speed course, and is supplemented by a two-hour practical session.
- Staffordshire and Lancashire have recently made their course available to drivers just over the enforcement limit in 30, 40, 50 and 60 mph zones. The majority of clients are detected in 30 mph zones.

5.2.3 *Course aims*

The courses have very similar stated aims, although some are more applied than others, for example the Warwickshire course aims to enable drivers to develop individual plans that recognise the need to drive at an appropriate speed resulting in the reduction of death and serious injury.

5.2.4 *Cost of the courses*

The majority of the theory and practical courses charge in the region of £90, and the theory-only courses cost around £60. All drivers who attend the courses have their fixed penalty fine and three licence points waived. The exception to this is drivers attending the excessive speeding course in Thames Valley, who receive three licence points and a £60 fine (drivers who fail to complete the course are referred back to the police for possible prosecution).

5.2.5 *Course content*

Details of the content of each of the courses is shown in Fylan *et al.* (2005b). The courses tend to have a common core content (with the exception of Lincolnshire):

- the reasons people have for speeding;
- the consequences of speeding (to self and others, financial, injury), sometimes including a video testimony of parents of a child killed by a speeding driver;

- awareness of each driver's individual responsibility for driving safely;
- stopping distances, and how much they increase with speed;
- the likelihood of death and serious injury for pedestrians hit at increasing speeds;
- the purpose of speed cameras, the criteria used for situating the cameras, and the statistics on accidents at camera sites;
- how to identify the speed limit of the area in which you are driving;
- hazard perception;
- practical tips for decreasing the risk of speeding in the future;
- how to drive more safely; and
- changing speed to suit driving conditions – selecting an appropriate speed.

5.2.6 *Practice element*

Four of the courses contain a two- or three-hour practical session in which two or three drivers practise their driving with an advanced driving instructor (ADI). The standard format is that the ADI conducts a commentary drive in which he or she talks through the hazards they detect and the driving choices they are making, including but not exclusively speeding. Clients are asked to identify hazards, and may complete a commentary drive. Throughout the practical sessions drivers are encouraged to discuss their beliefs about selecting the correct speed, and debate is encouraged, for example whether driving faster saves any time in an urban setting. Drivers then return to the classroom for a brief final discussion of their drive and the day.

5.3 The content of speed awareness courses mapped against effective intervention components

The content of all 10 speed awareness courses is shown in Table 5.3, mapped against the components of the interventions most likely to change speeding driving behaviour. Individual course mapping is shown in Fylan *et al.* (2005b).

Table 5.3: The content of 10 speed awareness courses mapped against the components of the interventions most likely to change speeding driving behaviour

Area	Details
Beliefs about speeding	Speeding is not safe; speeding is serious; speeding causes crashes and pedestrians have less chance of survival at higher speeds: 20% of pedestrians die when hit at 30 mph but 80% at 40 mph. 30% accidents are caused by speed; more people die from speeding then from drink/drug driving. Speeding drivers are 3–5 times more likely to crash Driving in fourth gear, and faster, decreases (rather than increases) fuel economy so is bad for the environment Reasons for speeding – addressed own and others' beliefs on speeding as necessary or appropriate. Reasons for speeding (e.g. being late and inattention) are excuses. Inappropriate speed is not always exceeding the limit Speeding does not get you there faster. Speeding does not save time: driving at 38 mph rather than 30 mph over a five-mile journey saved 75 seconds Consequences of speeding range from nothing to prison or death While modern cars have better brakes and are safer, most of the stopping distance is reaction time, which has not changed Urban speeding kills kids: the UK has the second worst record in Europe for killing kids. 3,500 people die on the road every year. Speeding has not been considered a real crime but this is changing Everybody speeds. Speeding causes injury: statistics on injury and crashes pre- and post-cameras. Speeding causes injury: video shown about where a driver would have stopped if travelling at 30 mph, but were speeding and so hit a child
Values about speeding	Drivers have a responsibility to be safe for themselves, their families, passengers and other road users. Drivers who crash do not intend to kill anyone: intention is not relevant Speeding can kill and it is wrong to kill – it causes extensive grief. You should not cause an accident. Speeding is unnecessary Safety is good, we do not want to put friends or family in danger Speeding is risk taking It is wrong to kill. Arriving a little late is not very important. It is not so important to arrive on time to justify speeding. Speeding causes damage to the driver, pedestrians and the environment

Table 5.3: (continued)

Area	Details
Driver's responsibility for speed choice	External reasons for speeding (e.g. being late, being tailgated, not knowing the speed limit) are excuses. The driver has control of their own speed The driver is at fault if he or she crashes – drivers must choose an appropriate speed. Nobody intends to kill but speed can turn a driver into a criminal or murderer Personality factors. If there is a crash it is the driver's fault – cannot blame it on a lack of speed bumps or railings The driver behind – tailgaters – does not control the car and the speed you drive at – you do The driving environment and obligations to other people are excuses – the driver chooses the speed at which they travel Environment, vehicle, and circumstances, but the driver is responsible. 95% of crashes are due to driver error The driver should manage their time so that they are not in a rush. Should know where the safety cameras are located Need the self-discipline to select one's own driving speed Drivers are responsible for their own choice of speed – anything else is an excuse. Drivers must be accountable for the speed they choose to travel at
Identifying oneself as a speeder	While some drivers speed much more (e.g. 50 mph in a 30 mph zone), they are in a minority. The majority of speeders drive at 35–39 mph – they are the problem Speeding by 5–10 mph is still speeding Group discussion on who speeds – everybody agreed that they were a speeder Pre-course beliefs that other clients would be 17-year-old lads. Speeding drivers are not all teenagers, but everybody attending the seminar is a speeding driver and all ages were represented. Driving at 35–39 mph in a 30 mph zone is speeding Appropriate speed is not the speed limit Everybody on the course has been caught speeding. Speed is a choice that drivers make
Likelihood of being detected/crashing	Speed cameras and mobile units are placed throughout the county and will detect speeding drivers. Map of safety camera locations Stopping distance increases with speed, so speeders are more likely to crash. You are 3–5 times more likely to crash if you speed. Speeding is the main cause of 30% of all crashes Statistics on the number of accidents One driver crashes every second Inappropriate speed causes crashes. Many more people are killed or injured on local roads than through crime

Table 5.3: (continued)

Area	Details
Negative consequences of being caught	Fines, points and increased insurance costs. Loss of licence would mean restricted mobility, hassles and possibly loss of friends Could lose what is important to you Could lose your job, which can have severe financial consequences – loss of house, breakdown of relationships. Speeding could affect lots of people, not just the driver Affective consequences: anger, frustration and embarrassment The consequences of speeding can range from nothing to being killed
Negative consequences of crashing	Death and serious injury to others. Photograph of police station and a prison cell. Each fatal accident costs £1.2 million Injury or death to oneself, passengers and pedestrians. The 'ripple effect' in which one crash could cause negative effects to hundreds of people. Even if you do not intend to kill, you could be imprisoned Cost to the NHS: If staff are dealing with a crash, they are not dealing with routine waiting-list cases, so somebody's operation is cancelled Cost to the local people Video of parents talking about their daughter killed by a speeding driver. Video of crash test – cars are not as safe as you think, and a crash causes serious injury. Stressed death and injury Policeman's account of a fatal road incident Pain, grief and guilt Graphic adverts shown about the consequences of crashes Damage to the car. Injury to yourself and others. If you die your partner/spouse will meet somebody else and your children will grow up without you, raised by a stranger Inconvenience to family, injury, writing the car off and having to wait for the insurance money before getting a new car. Increased insurance costs
Barriers to not speeding	Practical tips on dealing with: modern cars being difficult to drive at 30 mph (use third gear); rushed (plan journey with plenty of time); tailgaters (ignore or slow down and let them pass); do not realise speed (include instruments on scanning); do not know the limit (lamp-post rule) Not knowing the limit Distractions Drugs/alcohol, fatigue and stress. Peer pressure Self-discipline Not knowing the area

Table 5.3: (continued)

Area	Details
Good/bad feelings from speeding	Speeding makes you feel stressed. Acknowledged that speeding can give you a buzz but no course addressed this. How you would feel if you caused an accident because you were speeding? Thrill of speeding is addressed in the Thames Valley driving style assessment Clients are asked to consider how they would feel if they hit somebody, the victim's family arrived and asked why they were speeding. How you would feel if a family member was killed because of your speeding
When and where drivers will comply with the speed limit (implementation intentions)	Common danger points for drivers. Noted that while the formal part of the course has finished, it is really just the beginning. Reinforced that now clients know the facts, they must make a decision about the speed they are willing to travel at Clients have to write down what they are taking away from the course
Messages from enforcement agencies	Speeding is illegal. Partnership includes the police and the council. Seminars delivered by current or ex-police officers
Personalised feedback	Own reason for speeding revealed as an excuse Individual performance on hazard test. Results of own questionnaire. Course booklets with spaces for clients to complete questions about their driving and the situations surrounding speeding Feedback during practice drive. Constructive comments and written feedback on driving from an ADI In the Thames Valley course, drivers receive a copy of their driving style assessment and a hazard perception test is completed by each driver
Interactive sessions/ problem solving	Interactive presentation style and lots of discussion using an approach in which clients find out through discussions and discovery The reasons that people speed are discussed and identified by the group as being excuses Clients have a personal work booklet, which is shared with the group and commented on by the instructor National speed limits and how to tell the limit Crash scenarios Problem solving about where drivers would stop if travelling at different speeds, and if they would hit a pedestrian emerging from in front of a bus Discussions on the consequences of crashing and the negative consequences of speeding Use of the *Highway Code* booklet for problem solving on road rules and safe driving Hazard perception, reasons for speeding, e.g. why people speed, what practical steps could you take to drive at an appropriate speed Discussion of whether any of the clients has known anybody who has been killed or injured. Some had or had observed a crash. This was a very powerful illustration of the consequences of speeding Discussions of what you can do – coping strategies, e.g. concentration, leaving more time

Table 5.3: (continued)

Area	Details
Develop and rehearse skills	Identifying the correct speed limit Visual searching Hazard perception tasks Practical tips given for controlling speed and reacting to tailgaters The pack given to clients contains a leaflet on speed limits Practical drive to gain skills and confidence in the ability to drive within the limit. Feedback on driving skills given by instructor Selecting an appropriate speed The use of anticipation, space and appropriate speed
Information coding	Only a fool breaks the two-second rule COST (concentration, observation, space, time). COAST (concentration, observation, anticipation, space, time) Killing zone Crash magnets SLOW (speed low, observe warning) Look OUT (over, under through) Cameras are yellow. Camera signs
Post-course reminders	Clients are requested to return their evaluation forms Clients are given a Think! key ring. Results of questionnaires are sent to clients Clients are provided with an information pack on safe driving, Advanced Driving, and a DVD of the main course content. Reminders, including speed booklets, tyre gauge and high-luminance vest are sent in 3-4 months The personal speed booklet could act as a reminder if kept in the car

6 EVALUATING SPEED AWARENESS COURSES

All current speed awareness courses evaluate clients' perceptions of the quality of the course with respect to the venue, the style and knowledge of the presenters, and the relevance of the content. Some courses also ask about the quality of the joining instructions they were sent. While monitoring these areas is of value in order to maintain client satisfaction, it is also important to evaluate the effectiveness of the course in reducing speeding.

Five courses (Kirklees, Lancashire, Lincolnshire, Northamptonshire and Warwickshire) evaluate clients' intentions to speed, or their attitude towards speeding, following the course. One course (Leicestershire) is currently running an evaluation to find out about (among other things) any changes that clients have made to their driving since the course (e.g. further driver training, better journey planning, no change). Only three courses (Humberside, Lincolnshire and Northamptonshire) reported that they have monitored re-offending rates for drivers who chose to attend the course and those who chose to accept the fixed penalty fine and points. Kirklees have monitored re-offending for clients who have attended the course, but do not have re-offending statistics for drivers who chose not to attend. The following evaluation statistics were supplied by the individual course organisers and, where appropriate, statistical significance has been calculated. The results are summarised in Table 6.1.

Table 6.1: Summary of re-offending rates for attenders and non-attenders of four different courses

	Follow-up	Attended	Not attended
Humberside	12–18 months	40 (8%)	125 (25%)
Kirklees	12 months	13 (4.9%)	Not available
Lincolnshire	6–12 months	23 (5.2%)	46 (10.4%)
Northamptonshire	12 months	84 (7%)	125 (9%)

In Humberside, re-offending data from 500 drivers who attended the course were compared with 500 drivers who were travelling at a slightly higher speed and so were not eligible to attend. The data indicated that 8% of drivers who attended the course and 25% of those who did not attend the course received a further speeding offence. These data suggest that the course is associated with a statistically significant decrease in speeding (χ^2 = -52.44, p <0.0001, 1-tailed). However, the two groups of drivers may not be comparable: the non-attenders were travelling at a slightly higher speed than the attenders. Furthermore, the speed at which drivers were invited to attend the course changed over the duration of the study from 37 mph to 35 mph. Finally, the groups were not matched for the number of existing licence points. The results must therefore be interpreted with caution.

In Lincolnshire, a questionnaire was sent to 3,209 drivers convicted of speeding, of which 996 (31%) were returned: 448 from people who had attended a seminar (49% response rate) and 548 who did not (24% response rate). Most drivers who attended the seminar reported that they had changed their attitude to driving at inappropriate speeds (87%), and that they had changed their driving habits (85%). Fewer drivers who did not attend reported that they had changed their attitude (76%), and their driving (75%). These differences are statistically significant: people who attended the course were more likely to report that they had changed their attitude towards speeding ($\chi^2 = 17.71, p < 0.0001$, 1-tailed) and their driving habits ($\chi^2 = 16.63$, $p < 0.0001$, 1-tailed) than those who did not attend. However, the evaluation data highlight the problem with self-reported behaviour: there was no significant difference in re-offending between people who reported that they had changed their driving habits (7% re-offended) and those who reported that their driving habits had not changed (10% re-offended) ($\chi^2 = 1.72, p = 0.125$, 1-tailed). Re-offending rates were compared for drivers who attended the seminar and those who received the fixed penalty. Of those who attended, 5% were detected speeding again, compared with 10% of those who did not attend. The course is therefore associated with a statistically significant decrease in speeding ($\chi^2 = 8.37, p = 0.002$, 1-tailed).

In Northamptonshire, 1,201 drivers attending the course between July and December 2001 were tracked by the Driver and Vehicle Licensing Agency (DVLA) in order to see if they had re-offended in the following year. All these drivers had been travelling at 37 mph in a 30 mph limit. They were compared with 1,365 drivers who declined the course. Of the attenders, 84 (7%) were detected speeding again, and a further five (0.4%) committed separate offences. Of the non-attenders, 125 (9%) re-offended, and a further 24 (1.8%) committed separate offences. The results indicate a 23% reduction in committing a further speeding offence and a 32% reduction in committing any driving offence. The course is associated with a statistically significant decrease in speeding ($\chi^2 = 3.75, p = 0.031$, 1-tailed).

In Kirklees, re-offending statistics were available for 378 drivers who had attended the course six months previously. Of these, five were subsequently detected speeding (1.3%). No figures were available for drivers who did not attend, or for before the course was introduced.

All the courses that have measured re-offending show a statistically significant reduction following attendance on the course. The data provided have very different baseline re-offending rates, however, so it is not appropriate to compare their results directly.

In Lancashire, an independent evaluation of the effect of the course on self-reported driver attitude and self-reported speeding was undertaken. Statistically significant improvements ($p < 0.001$) in driver attitude and in self-reported speed choice are reported across road types, but self-reported speed may not be a valid measure of

actual speed, particularly as many of the drivers attending the course may be unintentional speeders.

In summary, the course evaluations have assessed clients' perceptions of the joining instructions they received, the quality of the venue, the style of the instructors, and the content of the course sessions. This is important to ensure that the course is perceived to be of high quality, but it does not assess how effective the course has been in meeting its intended outcome of changing driving behaviour. Some courses have evaluated clients' self-reports of whether their attitude has changed, and whether they intend to change their driving. This method moves closer to assessing a change in speeding behaviour, but the data provided by the Lincolnshire partnership indicate that drivers who reported that the course had changed their attitude towards speeding are no more, or less, likely to have a subsequent speeding offence than those drivers who reported that their attitude had not changed. Furthermore, drivers who reported that they had changed their driving were no more, or less, likely to have a further speeding offence than those drivers who reported that their driving behaviour had not changed. Hence, use of self-reported speeding is not a valid measure and should not be used in the course evaluations.

Instead, the evaluation should relate directly to the aims of the course. We suggest that any evaluation should include a questionnaire to assess the following:

- clients' perceptions of the joining instructions that they were sent, the quality of the venue, and the style of the instructors;
- clients' perceptions of the relevance and value of each of the sessions included in the course;
- clients' reports of which sessions they found most useful, and the reasons why;
- clients' reports of how likely they will be to choose to drive at an appropriate speed (intentions);
- clients' reports of how confident they are in identifying the speed limit of different roads;
- clients' reports of how confident they are that they can put the knowledge gained into practice; and
- clients' attitudes toward speeding, and their subjective norms regarding speeding.

A questionnaire on intentions to speed, attitude towards speeding and subjective norms regarding speeding, and confidence in identifying the correct speed limit, should be sent to clients with the joining instructions and be collected at the start of the course. They should be asked to complete the same questionnaire directly after the course, and the two questionnaires should be analysed to assess the impact of the course on attitudes, intentions and confidence in identifying the speed limit. While

the pre- and post-course questionnaires would have to be matched, questionnaires should be anonymous, and clients should be assured that their individual responses cannot be identified.

We further suggest that an evaluation should assess the effectiveness of the course in changing speeding behaviour. This should be undertaken by recording subsequent speeding offences in a group of clients who have attended the course and in a matched group who have not attended. Speeding offences should be recorded nationally rather than at a local level. The follow-up period should be a minimum of six months. Finally, we suggest that the proportion of drivers offered the course who choose to attend (i.e. uptake rates) should be monitored.

A large-scale prospective research study would be required to evaluate differences in effectiveness between the different speed awareness courses.

PART 2 EXPERT GROUP MEETING

7 REVIEW OF EFFECTIVE INTERVENTIONS FOR SPEEDING MOTORISTS

7.1 Introduction

An expert group meeting was held on 21 September 2005, attended by the researchers, two independent scientists, and representatives of the Department for Transport (DfT), the Driving Standards Agency (DSA), the Parliamentary Advisory Council for Transport Safety (PACTS), the Association of National Driver Improvement Scheme Providers (ANDISP), the Association of Chief Police Officers (ACPO), and safety camera partnerships, The meeting aimed to discuss the research review on effective interventions for speeding motorists, with a view to agreeing a set of recommendations that translate the research findings into feasible practical recommendations for police forces and course providers. During the meeting the report authors presented the findings of the literature review, the background to the speed awareness courses, and the basis on which the evidence base for their recommendations were made. The expert group discussed the implementation of the research results in view of the practical operational constraints, leading to agreement of the recommendations of the expert group, described in Section 7.2. After the meeting, the report authors mapped the existing ACPO-recommended course onto the effective intervention components, and this mapping is described in Section 7.3. The scientists agreed to continue working on the course content after the meeting in order to generate ideas for effective information content and exercises, and their work is described in Section 7.4. Finally, the scientists agreed an evaluation methodology, which is outlined in Section 7.5.

7.2 Expert group meeting discussions and agreements

The discussion covered the following points.

7.2.1 What are the aims of the course?

Those present were asked to describe their organisations' view of the aims of the speed awareness course. The different groups had different aims for speed courses:

- the police – to give a second chance to people who made genuine mistakes;
- ANDISP – casualty reduction, through increasing compliance;
- PACTS – greater compliance with road traffic law;

- the scientists – reducing speeding behaviour by increasing intention to comply, and to increase the ability to carry out intention to comply;
- DSA – education, awareness to raise standards and reduce casualties; and
- DfT – rehabilitation rather than punishment.

The UK Police Service, who are responsible for contracting these courses, also see a benefit in that they divert people who made a genuine mistake and were caught speeding just over the enforceable legal limit away from the criminal justice system. It was agreed that the aims of the stakeholders present did not conflict and, therefore, it should be possible to accommodate them within one single scheme.

Agreed aims

To reduce casualties, encourage greater compliance with the law and good road use, and offer a behavioural change intervention.

7.2.2 Who is the course targeted at?

Police representatives stated that drivers caught just over the enforceable speed limit are the target, and they believe them to be people who made a genuine mistake at the time. The discussion centred on:

- the belief that there is one group of people who intend to comply with speed limits, and they should go on the course if they are caught just above it, and there is another group who do not intend to comply, and there should be a different course for them;
- how you cannot infer the presence or absence of intention to speed from the observed speed someone was caught travelling at;
- the fact that there is wide variation in observed speeds in unintentional and intentional speeders;
- the profiles of the four groups of speeding drivers identified by the research review; and
- the fact that all four groups are represented in the current attenders of speed courses, and that all benefit form core interventions, with the two more deviant groups needing specific components to be included.

The discussion concluded that, given the fact that courses will be offered to people based on the speed at which they are caught, it would be greatly beneficial to ascertain to which of the four groups they belong so that the core component can be delivered to all, with some additional tailored components for the most deviant two groups.

7.2.3 *Constraints on the course that may impact on its format and content*

Course fee

Acceptable maximum costs and the effects of costs – monetary and other – on take-up rates and regional migration, and on other operational issues, were discussed. Implications for course format (number of sessions, classroom and on-road course provision) were included. The participants concluded that the costs should be a level that does not have an adverse effect on uptake. Further research is required to determine the cost at which uptake would be affected.

Length and format of course

The minimum, the practicable and the ideal length of the intervention were discussed. The discussion concluded that:

- an effective intervention could not be delivered in less than half a day (minimum length);
- in order to include all the constructs recommended, a full day is needed and this is possible (practicable length);
- research evidence suggests that longer courses are more likely to be effective; and
- scientific knowledge also suggests that a benefit would be gained from delivering the course across two sessions, delivered at some time interval (e.g. a week apart), but difficulties of scheduling and trainer deployment may make this difficult.

The group agreed to consider the development of a course that is either one full day or two half days separated by a week, when a driving 'homework' task should be completed.

Course content

Classroom only versus classroom and on-road driving course

The ANDISP representatives argued for an on-road driving component to the course given their local, early pilot work which indicated that people on a theory course did not apply what they had learned in their course's classroom part and did not achieve behavioural change. Representatives of the police pointed out that the evidence base for including a driving element is unclear, and it would be difficult to run a course with a driving component for many reasons: driving instructor capacity; the extra cost; and the potential impact on uptake rates, The group discussed the issues raised, with the following points made:

- The research review suggested that the practical element might not be required for everybody, even though the review did not identify evidence specifically regarding the relative effectiveness of theory versus theory and practical contents. The evidence base is not strong for a driving practical element to be compulsory to achieve a change in attitude and behaviour.
- The description by ANDISP of the current on-road driving component seems to imply that the practical component tackles the construct of self-efficacy.
- Self-efficacy is important to address but this might be achieved by means of either classroom or on-road interventions – we do not, as yet, know which is more effective.

The participants agreed that the group will recommend three course structures of various robustness, with a further recommendation for ACPO and the police forces to undertake the best possible given the available resources and constraints.

Content and method of delivery

The outcome of the discussion on this topic was that:

- all constructs identified by the research review should be included in the courses;
- the ACPO course model is a start point and the findings of the current research will be used to further improve it;
- some prescription on course content is needed, but this should be limited to essential parameters to be achieved while allowing the flexibility to tailor the intervention to individual attenders;
- the method of delivery is important, with elaboration and one-to-one and group discussion being essential. The focus on elaboration, discussion and problem solving is vital, and methods that make attenders engage and interact with the material should be used;
- quality assurance should be monitored closely. While the possible on-road driving could be monitored by DSA, it is not yet clear what mechanism for monitoring classroom content should be put in place. Providers should consider good models from occupational training – a rigorous evaluation with a percentage (e.g. 10%) of courses observed would be ideal. The cost of this validation could be covered within the course fee; and
- there is evidence that post-course reminders work. The group agreed that such reminders, by way of posted leaflets with key messages mapped onto the constructs recommended by the review, should be sent to all attenders some weeks after course completion. This should be a checklist of things drivers have to put in practice. A constant reminder -- such as a key ring with key messages might also be useful.

The group agreed to recommend the following course formats, in ascending order of preference:

- half-day classroom;
- half-day classroom and half-day practical, with or without a one week period separating them; and
- half-day classroom and half-day practical, and a half-day classroom discussion one week later.

Evaluation of courses

The following points were covered in the discussion:

- the majority of current evaluations are of client acceptance, which does not assess performance against the stated course aims;
- courses should be evaluated using methods recommended by the group;
- the opportunities for collecting baseline data before the proliferation of these courses, as well as the opportunities to collect data from various control groups, should be explored in the near future - the lag before courses come online could enable baseline data to be collected; and
- evaluation is likely to be affected by the individual force's enforcement policy.

Other points of discussion

Various operational issues have been clarified. These include:

- the delay between the speeding offence and the referral to, and completion of, a course;
- the incentive to participate;
- the independence of police as one current source of variation in practice;
- their need to prioritise course take-up; and
- the need to work using the APCO course model as the basis.

In view of the research review, it was important to recognise that there may be different courses required for sub-groups of speeding drivers – the research has demonstrated that the aims of the course would be different for different groups of drivers. The discussions focused on the appropriateness of 'one course fits all' and the ability of the courses proposed here to be flexible and allow material to be tailored for individual drivers, while maintaining a core intervention that appears to be beneficial across speeder sub-groups. Factual inaccuracies in current courses were revealed by the research review, and it would be useful to have a common driver information pack in order to ensure that the information is accurate.

7.3 ACPO model mapped onto the effective intervention components

Details of the ACPO-recommended speed awareness content were provided for the researchers, and its content (together with likely discussion points provided by the Chair of ANDISP) was mapped against the effective intervention components identified in the research reviews. This mapping is shown in Table 7.1.

Table 7.1: Mapping of the ACPO-recommended speed awareness content against the effective intervention components identified in the research reviews

Area	Details
Beliefs about speeding (including norms)	Driver or rider error is a contributory factor in 95% of crashes Speeding is not safe: you are 3–5 times more likely to crash if speeding Speeding is dangerous: % of pedestrians killed when hit at 20, 30 and 40 mph DfT DVD 'this car is travelling at 35 mph': cars need more distance to stop when travelling at a higher speed. While modern cars have better brakes and are safer, most of the stopping distance is reaction time, which has not changed 3,500 people die on the road every year. Speeding has not been considered a real crime but this is changing
Values about speeding	Speed kills and killing is wrong
Driver's responsibility for speed choice	Environment, vehicle and circumstances, but the driver is responsible
Identifying oneself as a speeder	Not covered
Likelihood of being detected/crashing	Safety cameras will detect speeding drivers. One driver crashes every second
Negative consequences of being caught	Fines, licence points, increased insurance costs, possible loss of job. Each client is at risk
Negative consequences of crashing	Fines, licence points, increased insurance costs, possible loss of job. Injury to yourself and others, killing yourself or somebody else. Imprisonment
Barriers to not speeding	Clients write down what causes them to speed, then they identify how their speeding behaviour could be changed. For example, too difficult to drive at 30 – use third gear. Do not know speed limit – how to tell the speed limit in different zones. Late – manage your time better. Tailgaters – ignore. Self-discipline
Good/bad feelings from speeding	How the driver felt when they received their speeding ticket
When and where drivers will comply with the speed limit. (Implementation intentions)	Clients write down a pledge about their future driving – could be tailored to address those driving situations that they have identified as when they are most likely to speed
Messages from enforcement agencies	The safety camera partnership is the council and the police

Table 7.1: (continued)	
Area	**Details**
Personalised feedback	Performance on the hazard perception test. Constructive comments and written feedback on driving from an ADI for courses that include an on-road element
Interactive sessions/ problem solving	An interactive presentation style, with group work and discussions. Individual work may be completed in personal speed booklets, which can be shared with the group and the instructor. The *Highway Code* booklet can be used for problem solving on road rules and safe driving
Develop and rehearse skills	Hazard perception tasks in theory session and in practical. When driving, the use of anticipation, space and appropriate speed
Information coding	Look OUT – over, under, through – was covered on the practical
Post-course reminders	Clients are provided with an information pack on safe driving. Information on Advanced Driving. A DVD of the main course content can be provided. Reminders can include speed booklets and key rings, etc.

7.4 Further post-meeting work on course content by the scientists

The scientists (both the researchers and the independent scientists) were asked by the group to develop evidence-based suggestions of the components that might be included in both classroom-based and on-road driving situations. They were also asked to develop a methodology for evaluating courses. The combined responses are shown in Table 7.2.

7.5 Suggestions from scientists on course evaluations

It was discussed that the evaluation should include both intentions and attitudes to speeding, and also changes in each of the constructs that the course aims to address (e.g. self-efficacy, normative beliefs). Measures should be taken at three time points: before the course; directly afterwards (clients should complete and return their questionnaires at the course rather than at home so as to reduce data loss from non-returned questionnaires); and 12 months after the course.

The measures to be taken before the course are:

- attitudes to speeding – the Manchester Driver Attitudes Questionnaire (Parker *et al.*, 1996);
- intention to comply with the speed limit, and self-reported preferred speed;
- beliefs about the acceptability and ubiquity of speeding (subjective norms);
- perceived barriers to complying and confidence in the ability to comply with the speed limit (PBC and self-efficacy);

Table 7.2: Suggestions from scientists on course components

	Classroom intervention example	On-road driving intervention example
Beliefs about speeding	Challenge behavioural beliefs about speeding. For example, if it is OK to speed on someone else's residential street, what do drivers think about speeding on their own residential streets? Or, we all think 'it won't happen to me' but we cannot all be right in thinking this, can we? We are all vulnerable to being detected and being accident-involved Participants are required to self-generate a number of costs and benefits of speeding, and a group discussion could bring these together Challenge beliefs that speeding is safe by providing statistics on the role of speed in crashes, and the speed at which a pedestrian would be hit when travelling at different speeds Task to identify hazards during a video clip when travelling at 30 mph and 38 mph – it is much more difficult at higher speeds Discussion aimed at getting drivers to realise that fast driving is not skilled – skilled driving involves identifying an appropriate speed, and this is often well below the speed limit	Get drivers to drive down residential streets or shopping streets at their normal speed and then ask them to drive at a speed they would find reasonable if they lived on this street or were shopping in the street in question Get drivers to identify hazards and encourage them to recognise that conditions are never perfect and that dangers are always present Encourage drivers to watch the progress of speeding drivers and how (un)likely it is that speeding saves time in urban environments
Values about speeding	How cool is it to speed? Give drivers a passenger's perspective on their speeding – perhaps by getting them to reflect on how they feel when they are passengers in a speeding car when someone else is driving Ask how cool it really is to drive fast to impress a friend, and how likely it is that the friend is actually impressed How important is it to be fast rather than skilled? Is it more important to drive fast or to have more available money as you have to pay fines or increased insurance costs? Discussion to make benefits of speeding seem less likely, and the costs more likely	When speeding motorists are encountered, get drivers to make assessments of the speeders' behaviour. Then point out that others see their behaviour the same way
Driver's responsibility for speed choice	Challenge the view that speeding is someone else's fault by focusing the discussion around the sheep-like behaviour of the conforming speeder Group discussion to identify the different sources of pressure from other road users to speed, and to change the relative importance given to each influence Identifying/rehearsing methods of resisting pressures to speed, e.g. from tailgaters	Focus on getting drivers to learn to drive comfortably within speed limit. This may mean getting them used to driving in third gear Help drivers to respond appropriately to tailgaters

Table 7.2: (continued)

	Classroom intervention example	On-road driving intervention example
Identifying oneself as a speeder	Get drivers to be frank about the circumstances in which they speed and to find it acceptable or unacceptable to speed Provide statistics on speeding and the role of a few mph more in crashes and injuries to help drivers to realise that 35 mph is speeding (i.e. it is not just the boy racers that are the problem)	Ask drivers to report on what speed they would normally drive at on these roads, and what would lead them to drive faster or slower
Likelihood of being detected/ crashing	Give information about the frequency with which speed is a contributory factor in crashes. Speeding may not inevitably lead to accidents but if you have an accident, it is more than likely that speed was a contributory factor, and that by driving less fast one could have avoided the accident Note that the number of speed cameras means that it is now much more likely that drivers will be detected	Point out speed cameras and accident black spots in the neighbourhood, citing annual statistics for injury and 'killed or seriously injured' (KSI) accidents in the area or county
Negative consequences of being caught	Focus the discussion here on the 'hidden' negative consequences, such as the greater cost of getting car insurance, and the implications of being banned from driving, such as the loss of a job and social life, and increased day-to-day hassles	Explain the points and financial penalties that would ensue from being caught driving at their preferred speed on given roads
Negative consequences of crashing	Discussion of the following: Death or injury The widespread effect of just one injury or death on the victim's family, workplace and community The effect on the driver's own family if they were to die or be injured or imprisoned The cost to the NHS, including the cost to other people who have operations cancelled Focus on the negative feelings that one would experience: regret (because one was responsible, at least in part, for what happened) and/or guilt (for damage caused to others and self)	Not easy to do on the road! Perhaps best done by driving past a point where a serious accident is known to have occurred and describing what happened to those involved

Table 7.2: (continued)

	Classroom intervention example	On-road driving intervention example
Barriers to not speeding (reduce barriers and thereby increase self-efficacy)	Get drivers to list these and then to think about how they could arrange matters so that these barriers were removed. For example, if time pressure is a barrier to not speeding, allow more time to get to a destination; if the car just seems to speed up, try driving in third gear. This could also be achieved by group discussions, persuasive communications, or by a testimony from a previous course attender Learning to identify the speed limit in different road settings	Take drivers out on roads where most drivers speed, and get them to drive just under the speed limit, and provide them with coping strategies for dealing with perceived pressure from other vehicles Practising driving in third gear Feedback from the instructor on how to judge what represents an appropriate speed Practise identifying the speed limit, and noting how frequently sign repeaters occur, so even if you are unsure of the limit, you do not need to drive very far at a low speed before you find out
Good/bad feelings from speeding (affective beliefs)	Good feelings: thrill factor. Would it not be healthier to get one's kicks in contexts (extreme sports, for example) where the only one whose life is at risk is oneself? Is it really appropriate to feel good about putting other people at risk? Bad feelings: already referred to above. Regret and guilt are potentially powerful weapons here. We are ready to criticise others for their selfish and dangerous behaviour on the road. Are we immune from doing the same things? (hypocrisy) The good feelings that can arise from driving more slowly, such as feeling less anxious and feeling more in control We underestimate the extent to which emotion influences our behaviour. We need to gain control of our driving, not let our emotions control us	Get drivers to talk about feelings while driving. Focus on the relaxation benefits of driving less quickly and the self-esteem benefits from knowing that you are driving more safely Point out how much more effort it is to increase the level of concentration required to offset increased speed.
When and where drivers will speed (implementation intentions)	Drivers list a number of contexts in which they commonly speed, or are tempted or pressurised to speed. They could then be encouraged to form a plan of how they could adhere to the speed limit in response to a cue in each context	Drivers could try out their plans
Messages from enforcement agencies	Have police and fire service personnel talk about their experiences of attending crashes Remind drivers that speeding is an offence	Not easily done on the road

Table 7.2: (continued)

	Classroom intervention example	On-road driving intervention example
Personalised feedback	Use self-identification as a speeder (see above) as the basis for tailoring feedback that is suited to the driver's stated beliefs and practices Self-completed questionnaire of risk profile or speeding typology Specific, concrete sub-goals to complete, printed records for self-monitoring, assignments that drivers complete and send in to course organisers	Tailor feedback on driving style to what is known about the driver from classroom responses and discussions
Interactive sessions/ problem solving	Most of the above could be best achieved by having short introductory talks/vkleos, followed by a classroom discussion and/or breaking out into smaller groups to come up with the best way to tackle particular aspects of the speeding issue Using the *Highway Code* to find things out	If particular problems have been identified in a classroom session, address these problems on the road
Develop and rehearse skills	Specific exercises to be put into practice between classroom sessions (if there is to be more than one session), plus report back to class at the next session Exercises could be related to the barriers drivers commonly report, such as not knowing the speed limit. For example, drivers could be told speed limit rules, then would be presented with a series of video clips or photographs and asked to identify the speed limit	Put the skills exercises into practice on the road
Information coding	Slogans that summarise the essence of the course, with emphasis on memorability and vividness. For example, 'Dead men don't speed'	Get drivers to repeat the slogans at particular points during the drive (e.g., when first getting into a vehicle)
Post-course reminders	Follow-up leaflets or postcards containing the essence of the course, distilled in a few simple slogans Cues such as windscreen stickers or key rings	Follow-up personalised feedback on driving style and skills, noting areas where the driver needs to pay particular attention

- beliefs about how speeding makes you feel (affective beliefs);
- beliefs about the likelihood of being caught speeding or crashing when speeding;
- beliefs about the negative consequences of crashing or being caught; and
- beliefs about the driver's responsibility for selecting an appropriate speed.

The measures to be taken at the end of the course are:

- all the pre-course measures; and
- local quality-control questions about the instructions, venue and instructors may also be included for local analysis.

The measures to be taken 12 months after the course are:

- all the pre-course measures;
- re-offending rates, collected nationally and compared with baseline re-offending rates for areas not currently running courses with the same enforcement limit; and
- if possible, accident rates.

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[redacted]

From: [redacted]
Sent: 05 May 2016 08:22
To: [redacted]
Subject: FW: quite urgent - cars

From: [redacted]
Sent: 29 September 2015 15:11
To: [redacted]
Subject: RE: quite urgent - cars

YES: 85% of Scottish adults (72% of smokers) agree that smoking should be banned in cars that are carrying children younger than 18 years old, 7% (15% of smokers) disagree.

YES: 58% (25% of smokers) of Scottish adults agree that smoking should be banned in all cars, 29% (59% of smokers) disagree.

Other bits correct too!

From: [redacted]
Sent: 29 September 2015 15:05
To: [redacted]
Cc: [redacted]
Subject: FW: quite urgent - cars

[redacted] – sorry to keep spamming you! Can I just double check the stats below are good for us to give to the Minister to use in public? It's just that I note they aren't published on the ASH S website yet?

[redacted]

From: Allison Brisbane [mailto:ABrisbane@ashscotland.org.uk]
Sent: 17 June 2015 11:42
To: Mackay S (Siobhan); Sheila Duffy
Subject: RE: quite urgent - cars

Cars -
85% of Scottish adults (72% of smokers) would support a measure to ban smoking in cars that are carrying children younger than 18 years old, 7% (15% of smokers) would oppose.
58% (25% of smokers) of Scottish adults agree that smoking should be banned in all cars, 29% (59% of smokers) disagree.

All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 1036 adults. Fieldwork was undertaken between 26 Feb to 12 March 2015. The survey was carried out online. The figures have been weighted and are representative of all Scotland adults (aged 18+).

From: Siobhan.Mackay@scotland.gsi.gov.uk [mailto:Siobhan.Mackay@scotland.gsi.gov.uk]
Sent: 17 June 2015 11:37
To: Allison Brisbane; Sheila Duffy
Subject: quite urgent - cars
Importance: High

Allison / Sheila

I'm just looking for the latest stats we have on public support for a ban on smoking in cars.

I've got this from your website and wanted to check it was still up-to-date?

A 2014 YouGov poll revealed that 75% of Scottish adults (61% of smokers) agreed that smoking should be banned in cars that are carrying chidren younger than 18 years old, making this a measure strongly supported by the public.

[redacted]
Tobacco Control Team Leader | Public Health Division | Population Health Improvement Directorate | Scottish Government | 0131-244-2576 |
[redacted]