Modifying Beliefs and Attitudes to Exceeding the Speed Limit: An Intervention Study Based on the Theory of Planned Behavior

DIANNE PARKER and STEPHEN G. STRADLING
University of Manchester, England

ANTONY S. R. MANSTEAD
University of Amsterdam, The Netherlands

This study builds on previous theory of planned behavior (TPB) studies in which we identified the beliefs and values which predict intention to commit driving violations. Four short experimental videos were developed in order to assess the effectiveness of an intervention grounded in the TPB. Three of the videos featured the major constructs of the TPB model. The fourth video featured anticipated regret, an addition to the TPB model which had previously been shown to add significantly to its predictive performance (Parker, Manstead, & Stradling, 1995). Results indicated that two of the videos brought about statistically significant belief changes with respect to scores on TPB items, and significant changes in general attitudes toward speeding. Discussion centers on the problems encountered in operationalizing the TPB constructs and on the potential of theory-based interventions to induce attitude change.

The social cognition model offered by the theory of reasoned action (TRA; Fishbein & Ajzen, 1975) and the theory of planned behavior (TPB; Ajzen, 1985; Ajzen & Fishbein, 1980) have attracted an enormous amount of attention from social psychologists wishing to assess their predictive and heuristic utility in accounting for the links between beliefs and behavior. There are several potential advantages of using this general model. It offers a relatively parsimonious theoretical account of those links, together with clear specification of how they should be operationalized. Moreover, it can be used to identify the variables which are important predictors of intentions and behavior, and offers pointers to how effective attitude- and behavior-change interventions should be formulated. These advantages have made the model very attractive to applied social psychologists interested in understanding the determinants of social behavior with a view to effecting behavioral change.

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Correspondence concerning this article should be addressed to Dianne Parker, Department of Psychology, University of Manchester, Manchester M13 9PL, England.

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As a result, many studies have been reported which utilize the TRA/TPB in an attempt to shed light on the beliefs underpinning those behaviors it is thought desirable to promote or change, particularly in the domains of health and safety behavior. For example, the model has been applied in research on smoking (Budd, 1986; Grube, Morgan, & McGree, 1986), contraceptive use (Boyd & Wandersman, 1991), seat-belt use (Budd, North, & Spencer, 1984; Mittal, 1988), drinking (Kilty, 1978; Schlegel, Crawford, & Sanborn, 1977), dental behavior (Beale & Manstead, 1991; McCaul, O’Neill, & Glasgow, 1988), infant feeding (Manstead, Proffitt, & Smart, 1983), health screening (Brubaker & Fowler, 1990; Ronis & Kaiser, 1989), and AIDS-preventive behavior (Terry, Gallois, & McCamish, 1993).

One assumption underlying many such studies is that if the beliefs and values which motivate individuals to behave in particular ways can be specified, then attempts to change (or maintain) that behavior can be more precisely targeted. In this way, the TRA/TPB models provide a useful diagnostic tool for the applied social psychologist. However, as far as we are aware few studies have been reported which assess the efficacy of interventions based on the model. Indeed, in a foreword to a recent volume on AIDS-preventive behavior (Terry et al., 1993) which reports 14 Australian studies, each of which applied the TRA to AIDS-related behavior, Fishbein suggested that:

The ultimate test of the utility of the theory of reasoned action will rest upon its ability to guide the development of effective behavior change interventions . . . . the present volume only holds out the promise of effective interventions. Perhaps the next step for the Editors of this book is to compile a volume describing tests of the theory “in action,” by presenting a number of studies evaluating the effectiveness of theory-based interventions. (Terry et al., 1993, p. xxiv)

The present paper describes a program of study in which we set out to do precisely that, in the domain of driver behavior. In previously reported studies, the TRA/TPB was applied with a view to identifying the beliefs and values which distinguish those drivers with an increased risk of committing driving violations (Parker, Manstead, & Stradling, 1995; Parker, Manstead, Stradling, Reason, & Baxter, 1992). For present purposes, violations may be defined as deliberate deviations from safe practice. It is now established that it is the propensity to violate, rather than the tendency to make errors while driving, which is associated with involvement (Parker, Reason, Manstead, & Stradling, 1995; Parker, West, Stradling, & Manstead, 1995). Young drivers, male drivers and those who drive a relatively high annual mileage report more violations
than do other drivers, and also have relatively high accident rates. Because the commission of violations is intentional, it arises from attitudinal and motivational factors and thus is, in principle at least, amenable to interventions designed to bring about attitude and behavior change.

In a study utilizing the TPB model (Parker et al., 1992), it was shown that all three factors specified in the model work reasonably well in predicting intention to commit four driving violations, namely, drunk driving, speeding at 40 mph (65 kph) in a 30-mph (48-kpm) zone, tailgating, and overtaking on a bend where there is reduced visibility. Hierarchical multiple regression analyses showed that attitude toward behavior, subjective norm, and perceived behavioral control all contributed independently and significantly to the prediction of behavioral intentions to commit each of these violations.

In theory, the most successful attitude change intervention will be one targeted at the beliefs and values that distinguish the violation-prone from drivers less likely to commit violations. In order to pinpoint which beliefs did so, multivariate analyses of variance were employed. The results revealed that willingness to violate had significant effects on several individual belief items. In terms of the attitudinal component, which concerns the driver’s beliefs about the likely consequences of his/her committing the violation in question, it was above all the beliefs concerning the likelihood of negative consequences of speeding that distinguished those more likely and those less likely to commit a violation. In relation to the normative component, which reflects how mindful the driver is of the approval (or disapproval) of others, the perceived expectations of partners and same-gender friends distinguished those more likely and those less likely to commit a violation. There was also a significant effect for perceived behavioral control, such that the less control drivers reported feeling over their own driving behavior, the lower were their reported intentions to refrain from committing violations.

In a further study (Parker, Manstead, & Stradling, 1995), the generalizability of the TPB model was assessed by applying it to a different set of driving violations, all relating to lane discipline. Specifically, the violations were: cutting across traffic to leave a freeway, weaving in and out of lanes of slow-moving traffic on a two-lane highway, and overtaking on the inside lane of a freeway. Once again, the model performed reasonably well in predicting intentions to violate, accounting for between 34% and 37% of the variance in intentions. This time, however, two additional predictor variables were added to the questionnaire. These were measures of moral norm and anticipated regret. Moral norm reflects the individual’s personal, internalized moral rules. Some researchers have argued that for certain behaviors, at least, it is necessary to take account of the individual’s personal normative beliefs, as well as the normative beliefs measured by the TRA/TPB model (e.g., Gorsuch & Ortberg,
1983; Pomazal & Jaccard, 1976; Schwartz & Tessler, 1972; Zuckerman & Reis, 1978). Given that risky driving might (for some drivers, at least) carry moral implications, it was considered worthwhile to add a measure of moral norm to the standard TPB model. Furthermore, anticipated regret has been shown to be important in predicting behavioral expectations about sexual and contraceptive behavior (Richard, van der Pligt, & de Vries, 1995). It was felt that the commission of driving violations is likely to invoke feelings of anticipatory negative affect in some drivers at least, so a measure of anticipated regret was also included.

It was found that the addition of these two new personal norm variables significantly improved the predictive performance of the model by between 11% and 15%. Furthermore, they both distinguished drivers relatively more likely to violate from others, such that high violators endorsed more strongly the belief that “It would be quite wrong to [commit a violation],” and endorsed less strongly the belief that committing a violation would “make me feel good.”

In order to test the effectiveness of a theory-based intervention, it was necessary to develop a series of persuasive communications based on the beliefs items identified as important in the formation of an intention to commit driving violations. In the study described below, a series of short videos were made, each of which was designed to change beliefs, attitudes, and intentions in relation to speeding at 40 mph (65 kph) in a residential area governed by a 30-mph (48-kph) speed limit. For several reasons, it was decided that the study should be focused solely on speeding. First, the scripting and making of videos is a labor- and cost-intensive business, which is difficult to accommodate within a limited research budget. Second, speeding is undoubtedly the most widespread of the common driving violations, and it is well known that higher speed choice is associated with increased accident risk (Elander, West, & French, 1993). Third, and most important, the aim of the study was to compare empirically the effectiveness of videos based on clusters of beliefs identified as important by the TPB studies. This necessitated the introduction of standardization where possible. It was therefore important that each video was fairly narrowly focused on one such cluster of beliefs, and that all other features were constant across videos, as far as practicable.

Method

Subjects

A total of 238 drivers (114 male, 124 female) participated in this study. They were recruited from the general public in downtown Manchester, by
asking pedestrians who fit the sampling quota if they were willing to participate in a study concerned with attitudes toward driving.

**Stimulus Videotapes**

Four short videos were made by a professional audiovisual design company based in Manchester. Each one targeted one of four key concepts. Three of these concepts were ones we had previously found to distinguish speeders from nonspeeders; the fourth was the anticipated regret/moral norm factor that had proved to be a useful additional predictor in the study of lane-discipline violations. The concepts featured were behavioral beliefs, normative beliefs, perceived behavioral control, and anticipated regret.

In an attempt to maximize experimental control, all four videos were of similar length, featured the same principal actor and the same car, and were shot in the same location. The road used was chosen because it was a good example of the type of residential street, with cars parked on both sides, that had been referred to as the context for the speeding violation in our earlier empirical study (Parker et al., 1992). The main character, was played by an actor in his late 20s who was supposed to look like “an ordinary sort of guy.”

**Normative beliefs.** The normative-beliefs video shows Tom pulling up to a curb on three separate occasions. On each occasion, he is accompanied by a passenger. In the first scene, the passenger is his partner (i.e., husband/wife/boyfriend/girlfriend); in the second scene it is a same-gender close friend; and in the third, it is his (male) child. As Tom leaves the car to go into a shop, each of these passengers speaks to the camera, complaining about Tom’s driving, and in particular about the fact that he drives too fast on narrow residential roads.

The main message from each of Tom’s passengers is that they are not impressed by his speeding and would much prefer it if he kept to the 30-mph (48-kph) speed limit. This video, then, features the wishes of others who are important to Tom. It is designed to convey to the audience the message that people do not like being driven by someone who exceeds the 30-mph (48-kph) speed limit in residential zones. Our previous research has shown that drivers who report intending to speed in such circumstances are less likely than are nonintenders to believe that their partners, their same-gender friends, and/or their immediate family disapprove of their driving in this way.

**Behavioral beliefs.** The behavioral-beliefs video was intended to show that a quiet residential road can, in fact, be an obstacle course of hazards. Our earlier research showed that those who intend to speed believe less strongly than do others that speeding would result in being stopped and fined, would cause an accident, or would put the lives of pedestrians at risk. This video
shows Tom driving down the road and encountering each of those hazards. The objective of the video is to make the audience think about what could have happened, to introduce the idea that such hazards are likely to be present on seemingly innocuous residential roads, and to show that by keeping to the 30-mph (48-kph) speed limit, they will increase their chances of being able to deal with whatever hazards do arise.

**Perceived behavioral control.** In the perceived behavioral control video Tom is confronted with what we regard as the two main components of behavioral control. The first scene was designed to illustrate the notion of control over internal factors, in the sense of resisting temptation. We hear Tom complain of the difficulty of keeping a powerful, modern car to the 30-mph (48-kph) speed limit, and hear a disembodied and slightly ethereal voice remind him that he, and not the car itself, is in control. In the second scene, the notion of control over external factors is introduced. When Tom complains about feeling pressured to drive faster by the car behind him, the warning voice reminds him that it is his own foot on the accelerator and that he is free to choose his own driving speed. This video was designed to persuade the audience that the driver can control his/her own behavior, despite internal and external pressures to speed, and that it is therefore possible to keep to the speed limit.

**Anticipated regret.** The anticipated regret video was the most difficult to develop, for it attempts to portray speeding as inherently wrong, as the sort of thing which could lead to the driver feeling guilty or ashamed if he or she were to do it. The aim of this video is to persuade the audience that if they do speed on a residential road, they should feel bad about it because speeding is inherently wrong, whether or not it gives rise to serious negative consequences.

In the first scene of this video, Tom is shown helping across the road an elderly and rather talkative female pedestrian who has just been startled by a speeding car as she was preparing to cross. Tom agrees with her that drivers should slow down on residential roads. Then, when Tom gets into his own car and starts to drive, reflecting on the lack of consideration shown by some drivers, he glances at his own speedometer, only to realize that his own speed is now approaching 40 mph (65 kph), and that he is now doing what moments earlier he was calling inconsiderate and dangerous.

**Procedure**

Each video was seen by a total of between 41 and 50 drivers, divided into three age groups (17-24, 25-32, and 33-40). Small groups of drivers viewed one of the four videos twice. Subsequently, they were given a period of 3 min in
which to list the thoughts that occurred to them while viewing the film. Then, they went on to complete a questionnaire which contained two questions measuring each of the constructs featured in the videos (i.e., normative beliefs, behavioral beliefs, perceived behavioral control, and anticipated regret).

**Measures**

The two normative belief items were as follows: NBl: My friends would expect me to drive down this sort of road at 40 mph (65 kph; agree strongly to disagree strongly); and NB2: My partner would expect me to drive down this sort of road at 40 mph (65 kph; agree strongly to disagree strongly).

The two behavioral belief items were as follows: BB1: I would put the lives of pedestrians at risk if I drove down this sort of at 40 mph (65 kph; very likely to very unlikely); and BB2: I would get stopped by the police if I drove down this sort of road at 40 mph (65 kph; very likely to very unlikely).

The two perceived behavioral control items were as follows: PBC1: Keeping to 30 mph (48 kph) on a road like this would be (very easy to very difficult); and PBC2: Keeping to the speed limit on a road like this with another car on your tail would be (very easy to very difficult).

The two anticipated regret items were as follows: AR1: I would feel sorry for driving at 40 mph (65 kph) down this sort of road (very likely to very unlikely); and AR2: Driving at 40 mph (65 kph) down this sort of road would make me feel good (very likely to very unlikely).

Intentions to speed in the future were assessed by asking subjects how likely it was that an occasion would arise during the next 12 months when they would drive down a 30-mph (48-kph) residential street at 40 mph (65 kph; very unlikely to very likely). This is, in effect, a measure of behavioral expectations, rather than intentions per se (cf. Warshaw & Davis, 1985) and was framed in this way because it was felt that respondents would be more likely to provide honest answers to a question that did not stress the intention to speed in the future. Responses to all of these items were recorded on 7-point scales with endpoints as indicated above.

Subjects' self-reported driving behavior was assessed using the Driver Behavior Questionnaire (DBQ; Reason, Manstead, Stradling, Baxter, & Campbell, 1990). In the short version of this measure, subjects are asked to report how often they instigate each of a list of 16 behaviors while driving. The items include eight errors and eight violations, one of which concerns speeding.

Subjects' overall attitude toward the commission of violations was assessed using a previously standardized 40-item measure of attitudes, the Driver Attitude Questionnaire (DAQ). This instrument contains 10 items relating to each
of four driving violations. For the purposes of the present study, only the subscale relating to speeding was considered. In pilot research using 273 subjects, this scale had an internal consistency of $\alpha = 0.77$. These items, which were measured on a 5-point scale with endpoints of strongly agree and strongly disagree, were worded as follows:

1. I would be happier if speed limits were more strictly enforced.
2. People stopped for speeding are unlucky because lots of people do it.
3. Stricter enforcement of speed limits on 30-mph (48-kph) roads would be effective in reducing the occurrence of accidents.
4. It's okay to drive faster than the speed limit as long as you drive carefully.
5. Speed limits are often set too low, with the result that many drivers ignore them.
6. Speeding is one of the main causes of road accidents.
7. I know exactly how fast I can drive and still drive safely.
8. I would favor stricter enforcement of the speed limit on 30-mph (48-kph) roads.
9. Sometimes you have to drive in excess of the speed limit in order to keep up with the traffic flow.
10. Even driving slightly faster than the speed limit makes you less safe as a driver.

Finally, there was a section assessing demographic information, including subjects' age, gender, driving experience (in years), annual mileage driven, traffic offense history, and accident rate over the previous 3 years.

It is generally agreed that lasting attitude change depends on cognitive engagement with the attitudinal position; that is, not on simple rote learning, but rather on the elicitation of a thoughtful reaction in the reader, listener, or viewer, such that the balance of thoughts is in favor of the advocacy. This process is described as cognitive elaboration by Petty and Cacioppo (1986), and as systematic processing by Chaiken (1980). In effect, the audience actively persuades itself through the thoughts elicited by the message, rather than passively accepting the line being presented in the message. The standard way to assess the degree to which such elaboration has occurred is to measure cognitive response by asking subjects to list the thoughts that had occurred to them during presentation of the message, in the present case while watching the
video. In the study reported here, subjects were given 3 min in which to complete a standard thought-listing measure (cf. Brock, 1967).

**Control Group**

A control group of drivers was used to provide baseline measures of attitudes, et cetera, for comparison purposes. These drivers watched a video of similar length and style to the experimental films, featuring the same principal actor. This video also encourages safety-mindedness and was made by the same production company for a water-supply company, and was designed to encourage employees to use short-wave radios to inform their depot of their whereabouts.

**Results**

Table 1 shows the age by gender breakdown of the total sample of 238, and the subsamples who saw each video. Respondents drove an average of 11,000 miles annually, and had an average of 11 years' driving experience. One hundred and eighty-one (76%) of the respondents had been accident free as drivers in the previous 3 years. Across the whole sample, the mean violation score was 10.12 (SD = 4.51). A series of one-way ANOVAs showed that there were no significant differences among the groups watching the videos in terms of age, $F(4, 237) < 1, ns$; gender, $F(4, 237) < 1, ns$; reported level of violations in general, as measured by the DBQ, $F(4, 232) = 1.52, ns$; and of speeding in particular, in the relevant DBQ item, $F(4, 232) = 1.10, ns$. Furthermore, although it was not possible to balance the groups in terms of other important driving variables, one-way ANOVAs revealed no significant differences among the groups in terms of mileage, $F(4, 237) < 1, ns$; driving experience, $F(4, 237) < 1, ns$; or accident involvement, $F(4, 237) < 1, ns$.

The thoughts listed in the cognitive responses section of the questionnaire were classified by two independent judges into one of five categories: antispeeding, prospeeding, antivideo, provideo, and neutral. Antispeeding thoughts were those which were consistent with or in favor of the antispeeding position being advocated in the message. Conversely, prospeeding thoughts were those that were inconsistent with or against this position. Thoughts were listed as antivideo if they evidenced negative reactions to some aspect of the video itself or its production. Provideo thoughts were those that commented favorably on the video itself. Table 2 shows the number of thoughts in each category, excluding neutral, elicited by each video. In relation to the normative-beliefs video, the number of antispeeding thoughts clearly outweighs the number of prospeeding thoughts, and the number of anti- and provideo
Table 1

*Numbers of Respondents by Age Group, Gender, and Type of Video Seen*

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<th>Video</th>
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Table 2

*Number of Thoughts of Each Type Elicited in Response to the Videos*

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<th>Type of video</th>
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<th>Behavioral belief</th>
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<td>Promessage</td>
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<td>Provideo</td>
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<td>Antivideo</td>
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Table 3

*Means (and Standard Deviations) on TPB Items by Type of Video Seen*

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<th>PBC</th>
<th>AR</th>
<th>Control</th>
<th>Contrast (t)</th>
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<td>NB2</td>
<td>BB1</td>
<td>BB2</td>
<td>PBC1</td>
<td>PBC2</td>
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<td>NB2</td>
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</table>

*Note.* NB = normative belief. BB = behavioral belief. PBC = perceived behavioral control. AR = anticipated regret. *p < .05. **p < .01. ***p < .001.

thoughts are approximately equal. The antivideo thoughts elicited by the behavioral-beliefs video consisted largely of negative reactions to the detection of speeding by radar gun, many subjects feeling that this would be unlikely to happen in the UK on the sort of road featured in the video. Even so, the balance of directly speed-related thoughts is still clearly in favor of the advocated position. The majority of the thoughts elicited by both the perceived-behavioral-control video and the anticipated regret video were also antispeeding, with relatively small numbers of antivideo thoughts being elicited. Overall, then, there is reason to believe that all four videos should have the potential to evoke attitude change.

The impact of the videos on subjects’ TPB beliefs was assessed by one-way
ANOVAS. Planned comparisons were carried out comparing the TPB score for the group who had seen the relevant video (target group) with the score of subjects in all other groups. Table 3 shows the means and, in the last column, the $t$ values comparing the TPB item scores of the target group with the scores of all other groups considered together. In Table 3, higher scores always represent greater safety.

The normative belief items related to the perceived expectations of friends (NB1) and to the perceived expectations of partners (NB2). For NB1, those who had seen the normative-beliefs video had significantly higher scores than did subjects in the other groups, reflecting the fact that they disagreed more with the statement that "My friends would expect me to drive down this sort of road at 40 mph [65 kph]." A significant difference was also found between the target group mean and the combined mean scores of the other groups for the NB2 item.

In relation to the behavioral-beliefs video, the perceived likelihood of two consequences of driving down the street at 40 mph (65 kph) was assessed. These were: getting stopped by the police and putting the lives of pedestrians at risk. No significant differences were revealed on these items by the planned comparisons between the target group and all other groups.

There was a significant effect of having watched the perceived behavioral control video on PBC1, the control belief measuring the perceived ease of keeping to a 30-mph (48-kph) limit, $t(233) = -2.77, p < .01$. The negative $t$ value indicates that those who had seen the relevant video actually expressed weaker perceptions of behavioral control than did respondents in the other groups. In relation to PBC2, the belief which measured the perceived ease of keeping to the speed limit with a car close behind, the contrast was not significant.

In relation to the anticipated-regret video, the two relevant items were "I would feel sorry for driving at 40 mph [65 kph] down this sort of road" (AR1) and "Driving at 40 mph [65 kph] down this sort of road would make me feel good" (AR2), the latter of which was reverse scored. For AR1, the mean score of those who had seen the anticipated regret video did not differ significantly from the mean score of others. For AR2, the planned comparison was highly significant, $t(233) = 3.34, p < .001$.

Scores on the intention item showed that most respondents thought that they were quite likely to speed on such a street during the next 12 months, with an overall mean of 4.99. As illustrated in Table 4, all four experimental groups had lower scores on this measure than did the control group; however, the main effect of video on stated intentions was not significant, $F(4, 237) = 0.34, ns$.

A general attitude toward speeding scale was obtained by summing subjects' scores on the 10 speeding items of the DAQ (reverse scored where appropriate). Reliability analysis indicated that this scale, which had a mean
Table 4

*Intention to Speed by Type of Video Seen*

<table>
<thead>
<tr>
<th>Type of video</th>
<th>Perceived behavioral belief</th>
<th>Anticipated regret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normative belief</td>
<td>Behavioral belief</td>
<td>Control</td>
</tr>
<tr>
<td>M</td>
<td>4.96</td>
<td>5.02</td>
</tr>
<tr>
<td>(SD)</td>
<td>(1.94)</td>
<td>(1.99)</td>
</tr>
</tbody>
</table>

Table 5

*Attitude to Speeding by Type of Video Seen*

<table>
<thead>
<tr>
<th>Type of video</th>
<th>Perceived behavioral belief</th>
<th>Anticipated regret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normative belief</td>
<td>Behavioral belief</td>
<td>Control</td>
</tr>
<tr>
<td>M</td>
<td>21.58</td>
<td>21.47</td>
</tr>
<tr>
<td>(SD)</td>
<td>(6.02)</td>
<td>(6.13)</td>
</tr>
</tbody>
</table>

score of 21.44 (SD = 6.03) and a range from 8 to 38, had an alpha coefficient of .77. Table 5 shows the mean scores for each of the five videos.

Higher scores reflect more negative attitudes toward speeding, that is, more desirable attitudes from a safety point of view. One-way ANOVA showed that attitudes toward speeding varied significantly as a function of video seen, $F(4, 232) = 2.56, p < .05$. Post-hoc comparisons of the means using the Scheffé test showed that the only statistically significant comparison was that between the control video group mean and the anticipated regret group mean.

**Discussion**

This study was designed to assess the potential of short videos based on the
TPB to bring about measurable change in drivers’ attitudes toward speeding at 40 mph (65 kph) in a residential area with a 30-mph (48-kph) speed limit. The content of the videos was informed by earlier empirical work that had identified beliefs which distinguished those reporting strong versus relatively weak intentions to refrain from committing driving violations. Thus, the present study represented an attempt to assess the practical utility of an attitude-change intervention grounded in the TPB.

The results suggest that two of the videos developed have genuine potential to bring about changes in the desired direction in beliefs and/or attitudes concerning speeding at 40 mph (65 kph) in a 30-mph (48-kph) zone. These were the videos featuring the concepts of normative beliefs and anticipated regret. Subjects who saw the video focusing on the disapproval of important others for speeding expressed more doubt that people important to them would approve of their speeding than did other groups. Thus, there are grounds for thinking that the video caused subjects to reevaluate their perceptions of the wishes of their close friends and partners. There was also evidence that the anticipated-regret video had been effective in changing the beliefs of those who had seen it. They endorsed significantly more strongly than did other groups the suggestion that speeding does not make you feel good, in addition to which they expressed more negative general attitudes toward speeding.

There was also a significant difference between the scores on the PBCI item of those who saw the PBC video, and other groups. However, the difference was not in the expected direction. Subjects who saw the PBC video actually had the lowest score on that item, indicating that, as a group, they perceived the most difficulty in sticking to a 30-mph (48-kph) limit. It is important to remember that the mean score of 3.96 reflects the fact that they reported that it would be “neither easy nor difficult” to stick to the speed limit in those circumstances described. With the benefit of hindsight, it seems that showing drivers a video in which the protagonist is having trouble keeping to the 30-mph (48-kph) limit and is being pressured by the car behind to drive faster may not be the most effective manner in which to influence control beliefs in the desired way. If anything, the video might have given viewers the idea that it would be difficult to keep to the limit, and thereby inadvertently offered them a ready-made justification for speeding. It would appear that the concept of PBC needs to be operationalized in a different manner than the one adopted here in order to be effective in changing beliefs about control over speeding. One possibility for any future operationalization would be to employ a positive role model by showing a driver successfully exercising control over driving speed.

The fact that the behavioral beliefs video produced no measurable effect on attitudes toward speeding either generally, as measured by the speeding subscale of the DAQ, or on beliefs, as specifically measured by the TPB items, is
somewhat disappointing because the notion that behavioral beliefs underpin attitudes is central to the TPB. However, it may be that the presentation of three separate potential hazards in the space of 2 min made the video seem unrealistic to the viewers, and that a less compressed, or more focused, exposition of the potentially negative consequences of failing to observe the speed limit on residential roads would meet with more success.

The relative success of the anticipated regret video provides further evidence that this concept is a valuable addition to the TPB model, at least where behavior of some moral or personal import to the perpetrator is concerned (cf. Parker, Manstead, & Stradling, 1995). However, it was difficult to operationalize the concept of anticipated regret visually, and further work is necessary before we can be confident about its potential for bringing about belief and attitude change.

Despite the fact that two of the four experimental videos evoked significant changes in the targeted beliefs, and that one of these two videos also had a significant impact on attitudes toward speeding, it needs to be borne in mind that there were no significant effects of the videos on the measure of subjects' expectations that they would speed in residential areas during the following 12 months. While it would clearly have been more encouraging if the videos had resulted in significant differences on this measure of intentions, the enormity of the task confronting one brief manipulation should not be underestimated. Lasting attitude change is notoriously difficult to achieve (Cook & Flay, 1978). Furthermore, in the domain of driver behavior, trying to change attitudes toward speeding is likely to be one of the most difficult tasks. Previous research shows that drivers' attitudes toward speeding are more permissive than toward any other violation (Parker et al., 1992), that drivers report committing this violation more frequently than any other of those we have studied (Reason et al., 1990), and that drivers see others as committing this violation relatively frequently (Manstead, Parker, Stradling, Reason, & Baxter, 1992). Indeed, speeding by driving at 40 mph (65 kph) in a 30-mph (48-kph) area is prevalent in the UK and on some roads it is virtually ubiquitous.

The failure to reveal consistently significant effects may also be due in part to the fact that the present videos were produced relatively inexpensively. Some subjects did make negative comments on technical or dramatic aspects of the videos, as reported above. Although the videos were produced to a high standard by a professional production company, financial considerations meant that there was a limit on the quality that could be attained. The potential audience for such videos is now highly visually sophisticated, and correspondingly likely to criticize video material falling short of professional broadcast standards. It follows that the measurable effectiveness of the videos should be greater if they were produced to a higher standard.
A further consideration is that subjects who participated in this study saw one of the videos just twice before completing the dependent variables. A media campaign designed to modify speeding behavior would, of course, involve repeated presentations of the persuasive communication. Experience has shown that the role of health education in bringing about behavioral change is likely to be subtle and indirect. For example, in the domain of driver behavior, considerable effort was put into encouraging the voluntary use of seatbelts. Disappointingly, research suggested that such campaigns were largely unsuccessful in changing behavior (Cliff, Catford, Dillow, & Swann, 1980). Nevertheless, when the wearing of seatbelts became a legal requirement in the UK, the level of compliance with the new law was immediately very high. The extensive publicity given to the beneficial effects of wearing a seatbelt not only prepared the public to accept legislation that would otherwise have been fairly unpopular, but also paved the way for an immediate change in behavior on the introduction of legislation.

A related possibility is that the type of persuasive communication described here brings about changes that are not altogether measurable by conventional attitude scales. Thus, viewing a video about speeding in a residential area may not result in an immediate change of attitude among habitual speeders. However, it may result in transition in their thoughts from a state of not even considering that their behavior might be problematic, to a state in which they admit that it might be necessary to change their behavior. Prochaska and DiClemente (1982) have called this a transition from the “precontemplative” to the “contemplative” stage in achieving lasting behavioral change.

In conclusion, the finding that two of the present videos resulted in significant effects on key dependent variables, despite the entrenched nature of the target behavior and the brief nature of the stimulus videos, is encouraging. We remain confident that an effective way to modify behavior is to pursue the strategy adopted here, first identifying the key determinants of the behavior of interest and then trying to modify those determinants.

References


