

Evaluation of the effectiveness of the National Driver Improvement Scheme

Road Safety Research Report No. 64

**Evaluation of the effectiveness
of the National Driver
Improvement Scheme**

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EXECUTIVE SUMMARY

This research evaluated the effectiveness of courses run under the National Driver Improvement Scheme (NDIS), which is offered in a number of regions by the police as an alternative to court prosecution for the offence of driving without due care and attention. NDIS courses provide retraining to drivers and consist of taught classroom sessions on driving theory and on-road practical driving under the supervision of an instructor. Courses may be offered to offenders with full driving licenses who satisfy particular criteria and who are prepared to pay the course fee. Failure to complete the NDIS course satisfactorily can result in the driver being prosecuted for the original driving offence.

The current evaluation of the effectiveness of NDIS courses involved two studies:

1. a nationwide questionnaire survey of course attendees and a comparison sample at several time points over the course of a year to examine impacts on self-reported driving attitudes and behaviours; and
2. a study of on-road driving behaviour in a sample of course attendees and a comparison sample at several time points over the course of a year to principally examine impacts on non-self-report driving behaviours.

In the first study, questionnaires were completed prior to attending a course, immediately after (NDIS group only), and then 6 and 12 months later. The principal dependent variables were scores on the Driver Attitude Questionnaire (DAQ) and the Driver Behaviour Questionnaire (DBQ).

The data offer support for a positive but modest impact of the NDIS intervention compared with controls at six months, which is maintained at 12 months on some attitude measures.

In particular, for the DAQ and DBQ error scores, a modest but significant effect of NDIS course attendance on data collected at six months was apparent, although this effect had disappeared by 12 months. For DBQ lapses and DBQ violations, there was a significant effect at both 6 and 12 months.

There were few variables which appeared to moderate these effects. The NDIS group self-reported fewer accidents than controls in the first six months following course attendance, although this difference disappeared over the six months afterwards. For self-reported near misses, there was no difference between the NDIS and control groups in the first six months after the course, but NDIS attenders self-reported fewer near misses in the subsequent six months. There were no significant differences in self-reported violations. These effects were not, in general, significantly moderated by demographic, driving or psychological variables.

In the second study, questionnaires and an on-road driving safety assessment by a qualified advanced driving instructor were completed prior to attending a course, immediately after the course (NDIS group only), and then 6 and 12 months later. The principal dependent variables were instructor-rated driving safety and self-reported scores on the DAQ and the DBQ.

The data from the second study indicated that there were few, if any, effects that could be confidently attributed to attending the course. If the NDIS group data **alone** were examined, there was evidence that there was an improvement over time in each of the driving instructor rated safety, DAQ, DBQ lapses, DBQ errors, DBQ violations, on-road driving assessment, response latencies, and Theory of Planned Behaviour (TPB) measures from before to after the intervention. However, when these data were compared with that from the control group, it failed to reveal significantly safer driving in the NDIS group, and this could denote a practice effect rather than an improved driving performance attributable to attendance of the NDIS course. The study failed to observe any significant difference between control and NDIS groups in relation to scores on the DAQ, the DBQ, self-reported accident, self-reported near misses, self-reported violations, attitude response latencies, and TPB measures.

As in the first study, none of the relationships examined appeared to be significantly moderated by the demographic and psychological characteristics of the participants. Thus the intervention appears to be equally unsuccessful for all demographic and psychologically-based sub-groups of drivers attending this course.

The modest size of the control group in the second study, and the methodological weakness of examining the NDIS group alone, should be noted as important for the interpretation of the findings.

The current evidence is broadly consistent with work that has looked at the impact of NDIS courses on subsequent accident involvement and traffic offences (Buckle *et al.*, Pearce, 2005) which found no significant effects on careless driving convictions.

Although in the current research we found evidence of a modest improvement in attitudes towards safe driving for those who attend the course compared with a similar control group, we did not find reliable evidence that this translates into improved driving performance on the road. The lack of impact on subsequent accidents and careless driving offences reported by Buckle *et al.* lends further support to our conclusion that attending NDIS courses has only a modest impact on attitudes, and this is not strong enough to translate into safety gains. Based on the data from our and the Buckle *et al.* study, modification of NDIS courses in order to improve their effectiveness may be warranted.

1 INTRODUCTION

This research evaluated the effectiveness of two-day courses run under the National Driver Improvement Scheme (NDIS), which is offered in a number of regions by the police as an alternative to court prosecution for the offence of driving without due care and attention. The course is offered to at-fault drivers involved in recent accidents charged under Section 3 of the Road Traffic Safety Act 1988. The first driver improvement course was set up in 1991 by Devon and Cornwall Police, in association with Devon County Council, following recommendations made in the Road Traffic Law Review (1988). Such courses have now been adopted by the majority of police forces in England and Wales. NDIS courses provide retraining to drivers and consist of taught classroom sessions on driving theory and on-road practical driving under the supervision of an instructor. Courses may be offered to offenders with full driving licenses who satisfy the criteria of:

- there being a reasonable chance of successful prosecution;
- there being no serious injury or fatality at the time of the offence;
- there being no other offences that require prosecution;
- the driver having not attended a driver improvement scheme in the last three years; and
- the driver being prepared to pay the course fee.

Failure to complete the NDIS course satisfactorily can result in the driver being prosecuted for the original driving offence.

The current evaluation of the effectiveness of NDIS courses reported here involved two studies:

1. a nationwide questionnaire survey of course attendees and a comparison sample at several time points over the course of a year to examine impacts on self-reported driving attitudes and behaviours; and
2. a study of on-road driving behaviour in a sample of course attendees and a comparison sample at several time points over the course of a year to examine impacts on non-self-report driving behaviours.

The first 'questionnaire' study aimed to answer the following questions:

- Are there changes in drivers' attitudes towards safe/unsafe driving practices and changes in drivers' propensities to engage in aberrant driving behaviour as a result of course attendance?
- If the aforementioned phenomena exist, are such changes sustained over time?

- If the aforementioned phenomena exist, are there differences in such changes by different driver groups (e.g. gender, age, driving experience, personality characteristics)?

The aims of the second ‘on-road’ study were:

- to quantify any impact on driving performance attributable to attending the NDIS course;
- to evaluate how changes in attitudes towards unsafe driving behaviours translate into changes in driving performance;
- to assess the stability of any change in attitudes and/or driving performance over a period of up to 12 weeks; and
- to evaluate the contribution of factors that might moderate these changes.

This report of the two studies consists of five sections, including this introduction. The next section details the questionnaire study methodology and findings. Section 3 describes the on-road study methodology and findings. Section 4 offers a brief discussion and interpretation of the findings, and Section 5 provides the list of cited references (six appendices are also included at the end of this report).

There are few comparable studies on interventions to improve driver safety. Edwards (2003) provided a brief report of six existing speed awareness courses (offered to those caught marginally over the speed limit) but focused on describing the nature of the courses in relation to duration, cost etc. Meadows (2003) provided a more detailed evaluation of the Lancashire County Council Speed Awareness course (course also included in the Edwards (2003) review). Both the Driver Behaviour Questionnaire (DBQ; Reason *et al.*, 1990) and the Driver Attitude Questionnaire (DAQ; Parker *et al.*, 1996) employed in the present research were used, and a number of significant effects emerged when comparing respondents scores before and after course attendance. However, no control group was included, only a modest sample size was examined, and only a relatively modest time interval was considered. The present research more fully addressed each of these issues.

It is worth noting that neither of the above studies looked at NDIS courses specifically. Only two significant studies have specifically focused on evaluating aspects of NDIS courses. Burgess and Webley (1999) assessed improvements in attitudes towards unsafe driving behaviours and the occurrence of self-reported adverse traffic events over a short (three months) post-course period. They found significant improvements in self-reported lapses, errors (DBQ measures) and driving attitude (DAQ measures) when comparing participants immediately before and three months after NDIS course attendance. These findings are promising but limited to a relatively short period of time and do not include a comparison control group. As the ultimate aim of the NDIS courses is to induce positive **and** long-lasting changes in driver attitudes and behaviour, it is important to look at time periods greater than

three months. It is theoretically possible that any gains on these dimensions attributable to attending the course could follow a 'reversed learning curve', with the gains diminishing over time. The slope of this curve (the rate of gain loss) is crucial in deciding the overall effectiveness of the course. For this reason the current research examined changes in these variables over a 12-month period (at 3, 6 and 12 months) following course attendance, and in addition included a comparison control group in order to more precisely identify the impact of course attendance.

Two other extensions of the current research over the earlier work of Burgess and Webley (1999) are worth noting. First, a broader range of measures was examined beyond the DBQ and DAQ employed in earlier work. In study 1 we also examined socially desirable responding, personality measures, sensation seeking, self-reported accidents, near misses and offences. In study 2 we also examined changes in attitudes towards various driving situations based on the Theory of Planned Behaviour (TPB; Ajzen, 1991), attitude latency measures, and self-reported driving behaviours. In addition, we tackled potential problems with self-report measures by including measures of socially desirable responding. In study 2 we also obtained measures of implicit attitudes based on reaction times which are less open to bias, and we obtained driver instructor ratings of on-road driving safety in a variety of driving situations. The latter is potentially important in attempting to demonstrate that NDIS courses do lead to objectively measurable changes in driving behaviour.

A second extension of the current work over previous work is in examining factors that may account for variations in the effectiveness of NDIS course attendance. In particular, we assessed a number of variables that might moderate any effects (e.g. personality variables, sensation seeking) and statistically tested their impact on the findings.

The one other study that has examined the effectiveness of NDIS course attendance focused on impacts on subsequent careless driving conviction rates (Buckle *et al.*, 2005). This study compared a large sample of NDIS attenders with a group of individuals convicted for careless driving. Although the two groups did have slightly different profiles, no significant differences were identified in the rates of careless driving conviction in the three years subsequent to course attendance/prosecution. In addition, no significant differences were apparent in rates of other motoring offences over the same three-year period. This study is impressive in examining a large objective database using appropriate, sophisticated, statistical techniques (survival analysis). In relation to the present research, it is of interest to discover the extent to which we do find impacts of NDIS course attendance that are consistent or at odds with the findings of Buckle *et al.* (2005).

In summary, the present research aimed to assess the impact of NDIS course attendance on driving attitudes and behaviours over a 12-month time period and to compare these findings against a comparable control group. Two studies were conducted to achieve this aim: a nationwide questionnaire survey study and an on-road driving study. The details of the method and results of these two studies are given in the next two sections.

2 STUDY 1: NATIONWIDE QUESTIONNAIRE SURVEY

This first 'questionnaire' study aimed to answer the following questions:

- Are there changes in drivers' attitudes towards safe/unsafe driving practices and changes in drivers' propensities to engage in aberrant driving behaviour as a result of course attendance?
- If the aforementioned phenomena exist, are such changes sustained over time?
- If the aforementioned phenomena exist, are there differences in such changes by different driver groups (e.g. gender, age, driving experience, personality characteristics)?

2.1 Methodology

2.1.1 *Sample*

Two groups of drivers were involved in the postal survey. Drivers who committed careless driving offences, who were referred and attended an NDIS course were recruited into the NDIS group. Drivers who committed careless driving but did not go on an NDIS course (due to the course not being available in the region of their residence) were recruited into the control group.

NDIS group

The NDIS group was recruited in two cohorts through NDIS service providers across England and Wales. In the first cohort the survey was administered between January and March 2002 via the service providers listed in Table 1. As some NDIS service providers missed the survey deadlines, a second cohort of the survey was administered starting between January and February 2003 to expand the representativeness of the sample. The regions and providers involved in the second cohort of the survey were those listed in Table 2.

Table 1: Source of NDIS participants (first cohort) in Study 1			
Regions contributing to the survey	Participating service providers	Regions contributing to the survey	Participating service providers
Bedfordshire	Bedfordshire County Council	Lancashire	Lancashire County Council
Berkshire	DriveTech Ltd	Lincolnshire	Lincolnshire County Council
Carmarthenshire	Carmarthenshire County Council	London	London Driver Improvement Service Ltd
Cheshire	Cheshire County Council	Northamptonshire	Northamptonshire County Council
Cleveland	Stockton Borough Council	Nottinghamshire	Nottingham City Council
Derbyshire	Derby City Council	Pembrokeshire	Pembrokeshire County Council
Devon	Devon County Council	Shropshire	Shropshire County Council
East Sussex	East Sussex County Council	South Yorkshire	Kirklees Metropolitan Council
East Yorkshire	Hull City Council	Staffordshire	Staffordshire County Council
Flintshire	Flintshire County Council	Suffolk	Suffolk County Council
Gloucestershire	Gloucestershire County Council	Surrey	Surrey County Council
Greater Manchester	Oldham Metropolitan Borough Council	Vale of Glamorgan	Professional Driver Services Ltd
Herefordshire	Herefordshire Council	Warwickshire	Warwickshire County Council
Hertfordshire	Hertfordshire County Council	West Midlands	Dudley Metropolitan Borough Council
Kent	Kent County Council	West Sussex	West Sussex County Council

Table 2: Source of NDIS participants (second cohort) in Study 1	
Regions contributing to the survey	Participating service providers
Cambridgeshire	Cambridgeshire County Council
Bedfordshire	Driving Services Ltd
Cornwall	
Cumbria	
Hampshire	
Merseyside	
North Yorkshire	

The drop-out rate over time for the NDIS group across the two cohorts was considerable and is shown in Table 3.

Table 3: NDIS participant drop-out rates in Study 1

Matched questionnaires	Number of questionnaires	Response rate against total sample size (4,018)	Response rate based on returns in previous wave
Wave 1	3,797	94.5%	–
Wave 2	2,743	68.3%	
Wave 3	1,086	27.0%	
Wave 4	978	24.3%	
Re-offence data	3,535	88.0%	
Wave 1 + 2	1,959	48.8%	–
Wave 1 + 2 + 3	582	14.5%	29.7%
Wave 1 + 2 + 3 + 4	358	8.9%	61.5%

Control group

The control group was recruited through police forces (Table 4). Drop-out rates for this group were also large and are shown in Table 5.

The comparatively high drop-out rates in both the NDIS and control groups raise a number of issues in relation to the representativeness of the final sample. This is tackled in the report by conducting attrition analyses and a limited reanalysis of the data using all available respondents at each time point (Appendix C).

Table 4: Source of control group participants in Study 1

Regions	Police forces	Duration
North East England	Durham Constabulary	January 2002 – October 2002
Northern Ireland	Police Service of Northern Ireland	January 2003 – January 2004
Scotland	Central Scotland Police Dumfries and Galloway Constabulary Fife Constabulary Grampian Police Lothian and Borders Police Northern Constabulary Strathclyde Police Tayside Police	March 2003 – October 2003

Table 5: Control group participant drop-out rates in Study 1

Matched questionnaires	Number of questionnaires	Response rate against total sample size (2,000)	Response rate based on returns in previous wave
Wave 1	238	12%	–
Wave 3	103	5.2%	
Wave 4	68	3%	
Wave 1 + 3	103	5%	43%
Wave 1 + 3 + 4	68	3%	66%

2.1.2 Design

In the NDIS group the questionnaire survey was administered four times over a 12-month period as follows:

- Time 1: before a driver attended the course. The questionnaire was attached to the service provider's course confirmation letter and was returned confidentially when the driver attended the course. The data collected included demographics, DAQ, DBQ, social desirability, personality traits ('big five' factors), and measures of driving behaviours.
- Time 2: upon completion of the course. The follow-up questionnaire was issued to the driver at the end of the course. It was completed at the course centre and returned confidentially before the driver left the course centre. The data collected included DAQ and sensation-seeking scores.
- Time 3: six months after course completion. The follow-up questionnaire was posted to the driver through the service provider and returned to the University of Leeds research team via a Freepost envelope. The data collected included DAQ, DBQ, and self-reported traffic accidents/near misses and offences.
- Time 4: 12 months after course completion. The follow-up questionnaire was again posted to the driver through the service provider and returned to Leeds via a Freepost envelope. The data collected included DAQ, DBQ, and self-reported traffic accidents/near misses and offences.

For respondents who provided their driving licence number (in the NDIS group only), we contacted the Driver and Vehicle Licensing Agency (DVLA) to obtain record of offences for the 12 months since entering the study.

In the control group the questionnaire survey was carried out three times over a 12-month period.

- Time 1: the questionnaire was mailed to candidate drivers directly by the participating police forces and was returned to Leeds via a Freepost envelope. The data collected included demographics, DAQ, DBQ, social desirability, personality traits ('big five' factors), and measures of driving behaviours.
- Time 3: six months after the first questionnaire was returned. The follow-up questionnaire was posted to the driver from Leeds and was returned to Leeds via a Freepost envelope. The data collected included demographics, DAQ, DBQ, sensation-seeking scores, and self-reported traffic accidents/near misses and offences. Note that no data were collected from control group participants at Time 2.
- Time 4: 12 months after the first questionnaire was returned. The follow-up questionnaire was posted to the driver from Leeds and was returned to Leeds via a Freepost envelope. The data collected included demographics, DAQ, DBQ, and self-reported traffic accidents/near misses and offences.

It was not possible to assess re-offence records in the control group.

The questionnaires used for the NDIS group and the control group are given in Appendices A and B respectively.

2.1.3 Measures

Demographics

Gender, age and area of residence (urban, rural) were assessed for all respondents.

Driving behaviours

A number of measures of driving-related behaviour were assessed:

- the time since obtaining a driving licence (labelled experience in later analyses);
- the number of miles driven in a usual week (not used in later analyses because of the high correlation with annual mileage, but used to ascertain if annual mileage estimates are relatively accurate);
- the number of miles driven in the past 12 months (labelled mileage in later analyses); and
- the number of miles driven in relation to work (converted to a percentage of miles driven per year for work and labelled driving for work in later analyses).

Driver Attitude Questionnaire

The DAQ is a 20-item self-report questionnaire designed to tap attitudes towards various aspects of driving, including drink driving, close-following, dangerous overtaking and speeding (Parker *et al.*, 1996). An overall score and scores on each of the four sub-scales can be computed. However, in the present analyses results are only reported for the overall scores. Responses to items on this tool are made using a five-point Likert scale format from 'I strongly disagree' to 'I strongly agree'. Internal reliabilities for scales were computed and a mean score was calculated. Higher scores indicate more negative views of each aspect of driving (or more positive attitudes towards safer driving; scored between 1 and 5). Reliabilities were generally good (alphas > 0.76).

Driver Behaviour Questionnaire

The DBQ is a 24-item self-report questionnaire designed to tap driving-related errors, lapses and violations (Reason *et al.*, 1990). An overall score and scores on each of the three sub-scales can be computed. Items are responded to using a six-point Likert scale format from 'Never' to 'Nearly all the time' (scored 0 to 5). Internal reliabilities for scales were computed and a mean score was calculated.

Higher scores indicate a stronger tendency to commit lapses, errors or violations. Reliabilities were generally good ($\alpha > 0.71$ for lapses scale; $\alpha > 0.75$ for errors scale; $\alpha > 0.73$ for violations scale).

Socially desirable responding

A 10-item self-report questionnaire was used to tap socially desirable responding (Crowne and Marlowe, 1961). It uses a two-point 'No' or 'Yes' response format. Internal reliabilities for scales were computed and a mean score was calculated. Higher scores indicate more socially desirable responding. Reliabilities were poor ($\alpha = 0.30$) in the present sample and were not improved to an appropriate level by the elimination of items. However, this is a well validated scale and it may be argued that internal reliabilities such as Cronbach's alpha are inappropriate for a measure such as this. Nevertheless, this low reliability should be borne in mind in interpreting the findings from this measure.

Personality measures

The 50-item scale from the International Personality Inventory Pool (IPIP, 2002) was employed to measure the 'big five' personality dimensions (10 items per scale): Agreeableness, Conscientiousness, Openness, Extraversion and Neuroticism. Responses are made using a five-point response format from 'Very inaccurate to 'Very accurate' (scored 1 to 5). Internal reliabilities for scales were computed and a mean score was calculated. Higher scores indicate a greater level of each dimension. Reliabilities were generally good (Extraversion: $\alpha = 0.84$; Agreeableness: $\alpha = 0.66$; Conscientiousness: $\alpha = 0.77$; Neuroticism: $\alpha = 0.83$; Openness: $\alpha = 0.72$).

Sensation seeking

A 10-item self-report questionnaire was used to tap sensation seeking (based on the thrill and adventure seeking sub-scales of the Zuckerman (1994) sensation-seeking scale). The respondents chose by selecting which of two responses provides the best self-description (e.g. 'I often wish I could be a mountain climber; I can't understand people who risk their necks climbing mountains'). Internal reliabilities were computed and a mean score was calculated (scored between 1 and 2). Higher scores indicate more sensation seeking. Reliabilities were generally good ($\alpha > 0.82$).

Accidents, misses and offences

For accidents, respondents were required to indicate the number of accidents they had been involved in since completing the last questionnaire. The same applies to questions on near misses.

For motoring offences, respondents were required to first indicate if they had been involved in any motoring offences since completing the last questionnaire. If the response was 'yes', the respondent was also required to indicate the number of offences of different types (e.g. drink/drug related, reckless driving, parking offences). Owing to the limited number of positive responses, only the overall rates of motoring offences were employed in the present analyses.

Re-offence data

For respondents who provided their driving licence number (in the NDIS group only), we contacted the DVLA to obtain their record of offences since entering the study. Data acquired from the DVLA included their offence code and the date of their offence, which were subsequently used to identify the number and seriousness of offences within 12 months after completing the first questionnaire, as well as the time interval between the course completion and re-offence (in the NDIS sample). Given the lack of a comparison group, only a limited number of analyses were performed with these measures.

2.2 Analyses

This is a complex set of data open to a variety of analyses. This section sets out a number of decisions made about analyses which were taken in order to simplify the analyses and their reporting. This section also sets out the structure of the results section that follows.

Initial analyses focused on describing the sample and establishing the comparability of different sub-samples at the outset of the study. In particular, we examined the similarity of the control and NDIS groups at the start of the study in order to ensure they were directly comparable. Next we examined the differences between those who participated in all rounds of data collection with those who participated in the initial round and then dropped out at some later stage. This provides some information on any biases in the sample. Analyses then considered the degree of overlap between the dependent variables.

The major focus of the analyses was then on comparing the NDIS and control groups on the major dependent variables. Most analyses focused on that sub-set of the sample that completed all rounds of data collection. This limits the sample sizes but allows us to use more powerful within-subject analyses. Given the high drop-out rates and biases in drop out, a second more limited set of analyses attempted to confirm the main findings across all respondents who had provided data at each time point. This set of analyses maximises the sample sizes but is not directly open to the more powerful within-subject analyses. Given that these secondary analyses substantively confirmed the main findings, they are only reported in Appendix C.

For the main analyses, the key dependent variables in this research were: DAQ scores; DBQ lapse scores, DBQ error scores, DBQ violation scores; self-reported accidents, misses and offences. The key independent variables in this research were group (NDIS versus control) and time (the time point at which data were collected; four time points for the NDIS group, three for the control group). Owing to concerns about potential impacts of socially desirable responding on self-report data, we also collected a measure of such responding allowing us to covary out any effects.

Finally, there were a series of measured variables which might be expected to influence the findings (e.g. moderate the impact of the intervention). We refer to these as moderators. These include personality variables, sensation seeking, demographics (gender, age), and driver characteristics (experience, miles driven, work-related driving). As previously noted, this provides a complex dataset to analyse and requires a number of decisions to be made about the way in which the main analyses be conducted.

First, the dependent variables are likely to be inter-related. The degree of inter-relationship is explored below. Nevertheless, despite this degree of inter-dependence we decided to analyse each variable separately. This decision was based on the mostly modest degree of inter-relationship observed and the fact that different variables were measured different numbers of times, requiring different approaches to the analysis (e.g. DAQ versus DBQ measures).

Second, the key analyses focused on group by time analyses. In effect we expected the NDIS and control groups to be initially (prior to the NDIS course) very similar. We then expected the NDIS group to show changes from pre- to post-intervention (Time 1 versus Time 2). By Times 3 and 4 we anticipated that this change in the NDIS group is maintained. Importantly, at Times 3 and 4 the NDIS group should show differences from the control group. Thus the main analyses are 2×3 mixed design ANOVAs (ANalysis of VAriance; time point 2 cannot be included in the main analyses because it was not assessed in the control group) with post-hoc tests used to explore significant differences.

Third, given concerns over biases in the sample due to socially desirable responding and attrition, we repeated this analysis using socially desirable responding as a covariate and examined differences in means using data from all respondents who were available at each time point.

Fourth, additional analyses examined if differences by time and group were influenced by various other measured variables (i.e. moderators). This analysis was only performed for the sub-sample who provided data at every time point. In examining various moderators we made the decision to dichotomise variables in order to simplify analyses (i.e. to employ ANOVA rather than regression models). In relation to moderators we were interested in their impact on the main effects of time

or condition and particularly on the time \times condition interaction. The moderators examined were:

- gender (male versus female);
- age (median split: young versus old);
- length of time holding a licence (experience; median split: high versus low);
- miles driven per year (miles driven; median split: high versus low);
- driving mainly for work (work-related driving; median split on proportion of miles driven are for work: high versus low);
- personality – openness (median split: high versus low);
- personality – conscientiousness (median split: high versus low);
- personality – extraversion (median split: high versus low);
- personality – agreeableness (median split: high versus low);
- personality – neuroticism (median split: high versus low); and
- sensation seeking (median split: high versus low).

Again these effects were examined using mixed ANOVA designs. Given the large number of moderators we employed the conservative procedure of analysing one moderator at a time but employing an adjusted p value (only ps < 0.01 were examined). Higher order interactions among moderators were not examined due to limited sample sizes. This procedure for an exploratory analysis of moderators is relatively common where there are a number of moderators to examine (e.g. Terry and Hogg, 1996). However, given the lack of substantive moderation effects in the vast majority of these analyses, these results are only reported in Appendix D.

In summary, the analyses examined:

- sample descriptives and sub-sample comparisons;
- attrition analyses;
- inter-relationships of dependent variables;
- main group \times time analyses on dependent variables;
- analyses of full sample (Appendix C); and
- examination of moderation effects (Appendix D).

2.3 Results

2.3.1 Sample description and sub-sample comparisons

The total sample consisted of 4,256 respondents (4,018 NDIS participants; 238 control participants), although there was complete data at every round of data collection available from only 426 respondents (358 NDIS participants; 68 control participants). Most were men (70%) with a mean age of 38.1 years (SD = 16.8). Approximately 65% lived in urban areas. On average, the sample had held licences for 18 years, drove around 210 miles per week and had driven approximately 15,000 miles in the past year, of which two-thirds (approximately 10,000) were driven for work purposes.

Table 6 indicates that the NDIS sample and control group were roughly comparable on these demographic and driving characteristics. This appeared to be true across the full sample of ‘All Respondents’ and the sub-sample who completed measures at every time point (‘Respondents (all time points)’). Finally, the sub-sample who completed measures at every time point appeared not to differ dramatically from the complete sample (either in the NDIS or control groups; Table 6). For these reasons it was considered unnecessary to control for demographic or driving characteristics in subsequent analyses (although Appendix D reports analyses considering these variables as potential moderators of the results).

Measure	Full sample		All respondents				Respondents (all time points)			
			NDIS		Control		NDIS		Control	
	M	SD	M	SD	M	SD	M	SD	M	SD
N	4256	–	4018	–	238	–	358	–	68	–
%Male		70		70		73		–		–
Age	38.1	16.8	37.9	16.7	39.8	17.5	46.6	17.8	41.7	14.6
%Urban		65		65		63		–		–
Hold licence (months)	210	182	210	182	219	185	284	194	237	163
Miles driven (usual week)	299	400	296	393	330	464	283	382	272	299
Miles driven (past 12m) ¹	14.7	19.3	14.7	19.3	14.8	19.3	13.2	16.4	14.1	11.3
Miles driven (in job) ¹	9.5	18.1	9.6	18.4	9.0	14.5	8.1	15.3	8.4	10.9

1. Expressed as thousands of miles.

2.3.2 Attrition analyses

The next stage of the analyses was to compare respondents who only completed the first questionnaire with those who completed all questionnaires on the key variables (DAQ scores, DBQ measures, Socially Desirable Responding, personality measures,

and sensation seeking). This was conducted using Multiple ANalysis of VAriance (MANOVA) with group (NDIS versus control) and completeness (Time 1 only versus every time point completed) as independent variables. This revealed the main effects of group (Wilk's Lambda $F(10,2501) = 2.13, p < 0.05$), completeness (Wilk's Lambda $F(10,2501) = 2.29, p < 0.01$), but fortunately no significant interaction (Wilk's Lambda $F(10,2501) = 1.31, ns$). Examination of univariate Fs indicated significant differences for group for DAQ scores ($F(1,2510) = 5.38, p < 0.05$), DBQ-violations ($F(1,2510) = 3.99, p < 0.05$), conscientiousness ($F(1,2510) = 9.08, p < 0.01$), and neuroticism ($F(1,2510) = 5.10, p < 0.05$). Examination of the mean scores indicated higher DAQ (3.65 versus 3.57), conscientiousness (3.55 versus 3.48) and neuroticism (3.43 versus 3.32) scores in the NDIS group compared with the control group, but higher DBQ violation scores (0.475 versus 0.427) in the control group compared with the NDIS group.

Examination of univariate Fs indicate significant differences for completeness for DAQ ($F(1,2510) = 6.77, p < 0.01$), DBQ violations ($F(1,2510) = 5.30, p < 0.05$), extraversion ($F(1,2510) = 6.92, p < 0.01$) and neuroticism ($F(1,2510) = 4.96, p < 0.05$). Examination of the mean scores indicated higher DAQ (3.68 versus 3.64) and neuroticism (3.49 versus 3.40) scores in the complete group compared with the incomplete group, but higher DBQ violation (0.445 versus 0.362) and extraversion (3.17 versus 3.04) scores in the control group compared with the NDIS group.

In general these differences are relatively modest, although they do indicate that there are some differences between the NDIS and control groups at the outset of the study and that the sample who completed all questionnaires are somewhat different from those who started but did not complete the study. Reassuringly, the failure to find a significant interaction suggests that the factors related to drop out from the study were not different in the NDIS versus the control groups. In general, these findings offer some support for the decision to focus on the complete sample but confirm major findings in the larger, incomplete sample (Appendix C). The differences between groups highlight the need for a full analysis of data across time points as is used below (i.e. rather than examining changes from baseline).

2.3.3 *Inter-relationships of dependent variables*

Table 7 reports the inter-relationships (correlations) of DAQ scores, and DBQ lapse scores, DBQ error scores and DBQ violation scores at Time 1. It is interesting to note that while the DBQ scores show relatively strong correlations with one another, DAQ shows weaker relationships, except with DBQ violations.

Table 7: Correlations among Time 1 measures in Study 1				
Variables	1	2	3	4
1. DAQ score		-0.11**	-0.18**	-0.42**
2. DBQ lapse score			0.60**	0.37**
3. DBQ error score				0.53**
4. DBQ violation score				

Notes:

1. N = 2,562.
2. ** denotes the correlation is significant at the 0.01 level.

Table 8 reports the inter-relationships of self-reported accidents, misses and offences, DAQ scores, and DBQ lapse scores, DBQ error scores and DBQ violation scores at Time 3. Again, correlations are generally modest except among the DBQ scores, and between DAQ and DBQ violations. This should be borne in mind when interpreting the main analyses of these variables.

Table 8: Correlations among Time 3 measures in Study 1							
Variables	1	2	3	4	5	6	7
1. No. of accidents in last 6 months		0.14**	-0.10**	-0.04	0.06	0.06*	0.11**
2. No. of near misses in last 6 months			-0.22**	-0.12**	0.21**	0.18**	0.23**
3. Involvement in motoring offence in last 6 months				0.18**	-0.10**	-0.08**	-0.32**
4. DAQ score					-0.11**	-0.19**	-0.44**
5. DBQ lapse score						0.60**	0.33**
6. DBQ error score							0.48**
7. DBQ violation score							

Notes:

1. N = 1,188.
2. * denotes the correlation is significant at the 0.05 level.
3. ** denotes the correlation is significant at the 0.01 level.

Table 9 reports the inter-relationships of self-reported accidents, misses and offences, DAQ scores, DBQ lapse scores, DBQ error scores and DBQ violation scores at Time 4. Again, correlations are generally modest except among the DBQ scores, and between DAQ and DBQ violations.

Variables	1	2	3	4	5	6	7	8
1. No. of accidents in last 6 months		0.14**	-0.05	-0.07*	0.07*	0.06	0.11**	0.00
2. No. of near misses in last 6 months			-0.16**	-0.10**	0.09**	0.12**	0.18**	0.01
3. Involvement in motoring offence in last 6 months				0.15**	-0.14**	-0.10**	-0.29**	-0.15**
4. DAQ score					-0.14**	-0.20**	-0.46**	-0.01
5. DBQ lapse score						0.58**	0.34**	0.09**
6. DBQ error score							0.45**	0.02
7. DBQ violation score								0.08*
8. Re-offence frequency after intervention								

Notes:
1. N = 1,047.
2. * denotes the correlation is significant at the 0.05 level.
3. ** denotes the correlation is significant at the 0.01 level.

In summary, the intercorrelation between dependent variables at each time point was relatively modest, except in the case of DBQ measures. This, to some extent, justifies our focus on analysing each dependent variable one at a time. Note these relationships were very similar in the sub-sample who provided data at all time points.

2.3.4 Main group by time analyses

In the following analyses for simplicity, we report the analyses excluding socially desirable responding. Repeating the analyses using socially desirable responding as a covariate did not substantively alter the findings, although the covariate did have a significant effect in most cases (not for self-reported accidents, self-reported near misses, or self-reported traffic violations). There were no significant interactions with the covariate.

DAQ scores

Table 10 reports the mean DAQ scores for the two groups (NDIS and control) for each time point at which they were assessed. The effects are fairly clear from this table of means but were tested formally by ANOVA and post-hoc t-tests. A two-way ANOVA (group × time), with time points 1, 3 and 4 included, indicated a non-significant main effect of group ($F(1,419) = 2.91, p = 0.09$), but significant effects of both time ($F(2,838) = 6.80, p = 0.001$) and the time by group interaction ($F(2,838) = 11.04, p < 0.001$). The time effect is apparent in higher DAQ scores at Times 3 and 4 compared with Time 1, but this effect is qualified by the interaction which was explored by post-hoc t-tests. These post-hoc t-tests make clear that

the control and experimental groups did not differ significantly at Time 1 ($t(419) = -0.82$, ns) or Time 4 ($t(419) = -0.28$, ns), although they were significantly different at Time 3 ($t(419) = -3.44$, $p = 0.001$).

Examination of the means indicates that most of the change (increases) in DAQ scores over time occurs between Times 3 and 4 for the control group ($t(64) = 4.45$, $p < 0.001$) and between Times 2 and 3 for the NDIS group ($t(355) = 4.12$, $p < 0.001$).

Table 10: DAQ scores for control and NDIS groups at each time point for the sub-sample that provided data at every time point in Study 1

Group	N	DAQ scores							
		Time 1		Time 2		Time 3		Time 4	
		M	SD	M	SD	M	SD	M	SD
Control	65	3.65	0.38	–	–	3.56	0.41	3.73	0.45
NDIS	356	3.69	0.37	3.69	0.38	3.76	0.44	3.74	0.44
Total	421	3.69	0.38	3.69	0.38	3.73	0.44	3.74	0.44

Overall these findings do not provide strong support for the long-term effectiveness of NDIS on DAQ scores. In particular, while both groups did not significantly differ at the outset of the study on DAQ scores, they also did not differ 12 months later (Time 4). Only at Time 3 (six months after the intervention) did the NDIS and control groups differ in the expected direction, i.e. higher DAQ scores in the NDIS group. Unfortunately even interpretation of this one positive effect is somewhat clouded by the fact that these changes in DAQ scores in the NDIS group were not apparent immediately after the completion of the course (Time 2), but only in the data collected six months later (Time 3). Thus in order to interpret these findings in a positive light we would have to assume that the impact of attending the course on DAQ scores was a delayed effect not immediately apparent at the completion of the course. There seems to be no immediately plausible reason to make such an assumption.

DBQ scores

Table 11 reports the mean DBQ scores for the two groups (NDIS and control) for each time point at which they were assessed. The effects are again fairly clear from this table of means but were tested formally by ANOVA and post-hoc t-tests. An overall MANOVA established effects for group, time and time \times group across the three measures. However, in order to simplify analyses, group \times time ANOVAs and post-hoc tests were considered separately for DBQ lapse scores, DBQ error scores, and DBQ violation scores. Each of the DBQ measures was strongly skewed towards zero. However, dichotomising the data and reanalysing did not substantively alter the findings, and therefore the original analyses are reported.

Table 11: DBQ scores for control and NDIS groups at each time point for the sub-sample that provided data at every time point in Study 1

DBQ score	Group	Time 1		Time 3		Time 4	
		N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Lapse	Control	65	0.81 (0.50)	65	0.78 (0.50)	65	0.85 (0.48)
	NDIS	356	0.77 (0.47)	355	0.61 (0.42)	352	0.72 (0.46)
	Total	421	0.77 (0.47)	420	0.63 (0.43)	417	0.74 (0.47)
Error	Control	65	0.37 (0.35)	65	0.38 (0.36)	65	0.32 (0.34)
	NDIS	356	0.38 (0.36)	355	0.25 (0.30)	352	0.27 (0.32)
	Total	421	0.38 (0.36)	420	0.27 (0.31)	417	0.28 (0.32)
Violation	Control	65	0.43 (0.50)	65	0.41 (0.44)	65	0.44 (0.43)
	NDIS	356	0.34 (0.37)	355	0.29 (0.36)	352	0.30 (0.38)
	Total	421	0.36 (0.38)	420	0.31 (0.36)	417	0.32 (0.34)

For DBQ lapse scores, a two-way ANOVA (group \times time), with time points 1, 3 and 4 included, indicated a significant main effect of group ($F(1,415) = 4.76, p = 0.03$), time ($F(2,830) = 10.0, p < 0.001$) and the time by group interaction ($F(2,830) = 3.41, p = 0.03$). The effects were explored by post-hoc t-tests. These post-hoc t-tests make clear that the control and experimental groups did not differ significantly at Time 1 ($t(419) = 0.63, ns$), but do at both Time 3 ($t(413) = 2.96, p < 0.01$) and Time 4 ($t(415) = 2.10, p < 0.05$) in the anticipated direction (i.e. lower scores in the NDIS group). Between Times 1 and 4 there are no significant changes in DBQ lapse scores in the control group ($t(64) = -0.77, ns$), although the changes in the NDIS group were significant ($t(351) = 2.00, p < 0.05$). Overall these findings provide some support for the short-term and long-term effectiveness of NDIS on DBQ lapse scores. In particular, while both groups did not significantly differ at the outset of the study on DBQ lapse scores, the NDIS group reported lower levels of lapses at six months after attending the course and this difference was maintained even 12 months after completing the course.

For DBQ error scores, a two-way ANOVA (group \times time), with time points 1, 3 and 4 included, indicated no significant main effect of group ($F(1,415) = 2.44, ns$), but significant effects for time ($F(2,830) = 8.60, p < 0.001$) and the time by group interaction ($F(2,830) = 6.10, p < 0.01$). The effects were explored by post-hoc t-tests. These post-hoc t-tests make clear that the control and experimental groups did not differ significantly at Time 1 ($t(419) = -0.12, ns$), do differ at Time 3 ($t(418) = 3.22, p < 0.01$), but do not differ at Time 4 ($t(415) = 1.06, ns$). Between Times 1 and 4 there were no significant changes in DBQ error scores in the control group

($t(64) = 1.39$, ns), although the changes in the NDIS group were significant ($t(351) = 5.84$, $p < 0.001$). Overall these findings provide some support for the short-term and long-term effectiveness of NDIS on DBQ error scores. In particular, while both groups did not significantly differ at the outset of the study on DBQ error scores, the NDIS group was reporting lower levels of errors at six months after attending the course, although this difference was not maintained 12 months after completing the course.

For DBQ violation scores, a two-way ANOVA (group \times time), with time points 1, 3 and 4 included, indicated a significant main effect of group ($F(1,415) = 7.29$, $p < 0.01$), but no significant effects for time ($F(2,830) = 1.81$, ns) or the time by group interaction ($F(2,830) = 0.87$, ns). The effects were explored by post-hoc t-tests, although given the failure to find a significant interaction the results should be treated with some caution. These post-hoc t-tests make clear that the control and experimental groups did not differ significantly at Time 1 ($t(419) = 1.73$, ns), but did at Time 3 ($t(418) = 2.67$, $p < 0.01$) and Time 4 ($t(415) = 2.81$, $p < 0.01$). Between Times 1 and 4 there are no significant changes in DBQ violation scores in the control group ($t(64) = -0.28$, ns), although the changes in the NDIS group were significant ($t(351) = 2.51$, $p < 0.05$). Overall these findings provide some limited support for the short-term and long-term effectiveness of NDIS on DBQ violation scores. In particular, while both groups did not significantly differ at the outset of the study on DBQ violation scores, the NDIS group was reporting lower levels of violations at six months after attending the course and this difference was maintained 12 months after completing the course.

Self-reported accidents, misses and offences

Table 12 reports the mean accidents, near misses and traffic violations for the two groups (NDIS and control) for each time point at which they were assessed (Times 3 and 4 only). The effects were tested by ANOVA and post-hoc t-tests. Each of the measures was strongly skewed towards zero, however, dichotomising the data and reanalysing did not substantively alter the findings and therefore the original analyses are reported. We should note that the present tests were relatively weak as no pre-intervention measures were taken on these variables (i.e. this is a post-test only design not allowing us to test if the groups were matched at baseline).

Table 12: Accidents, near misses and offences for control and NDIS groups at each time point for the sub-sample that provided data at every time point in Study 1

Measure	Group	Time 3		Time 4	
		N	Mean (SD)	N	Mean (SD)
No. of accidents in last 6 months	Control	65	0.17 (0.45)	65	0.09 (0.34)
	NDIS	356	0.04 (0.18)	356	0.06 (0.25)
	Total	421	0.06 (0.25)	421	0.06 (0.27)
No. of near misses in last 6 months	Control	65	0.77 (1.67)	64	1.11 (2.27)
	NDIS	353	0.37 (0.78)	356	0.47 (1.01)
	Total	418	0.44 (0.98)	420	0.57 (1.30)
Involvement in motoring offence in last 6 months	Control	65	1.69 (0.47)	62	1.77 (0.42)
	NDIS	355	1.81 (0.40)	356	1.81 (0.39)
	Total	420	1.79 (0.41)	418	1.80 (0.40)

For accidents, a two-way ANOVA (group \times time) indicated a significant main effect of group ($F(1,419) = 12.0, p = 0.001$), a non-significant effect of time ($F(1,419) = 1.31, ns$) and a significant time by group interaction ($F(1,419) = 3.74, p = 0.05$). Post-hoc t-tests made clear that the control and experimental groups differed significantly at Time 3 ($t(68) = 2.33, p = 0.02$) but not at Time 4 ($t(419) = 1.00, ns$). Thus, although the NDIS group experienced fewer accidents in the first six months following course attendance when compared with the control group, this difference was not apparent in the following six months.

For near misses, a two-way ANOVA (group \times time) indicated a significant main effect of group ($F(1,419) = 18.4, p < 0.001$) and time ($F(1,419) = 6.40, p = 0.01$), but no significant time by group interaction ($F(1,419) = 2.77, ns$). Post-hoc t-tests made clear that the control and experimental groups did not differ significantly at Time 3 ($t(69) = 1.88, p = 0.02$) but did at Time 4 ($t(67) = 2.21, p = 0.03$). Thus, although the NDIS group did not experience significantly fewer near misses in the first six months following course attendance when compared with the control group, this difference was significant in the following six months. This suggests a slight benefit for the NDIS group, although it is unclear why it should only emerge in the second six months following NDIS course attendance.

For offences, a two-way ANOVA (group \times time) indicated no significant main effect of group ($F(1,419) = 2.69, ns$), time ($F(1,419) = 2.02, ns$), or time by group interaction ($F(1,419) = 2.02, ns$). Thus the NDIS and control groups show no

evidence of differences in self-reported offences in the first six months or second six months following course attendance.

Objectively recorded re-offence data

Re-offence data were only available for the NDIS group. Thus only descriptive data are available. A total of 392 individuals re-offended in the 12-month period following NDIS course attendance (11% of the sample), with 40 of these individuals re-offending more than once (one individual re-offended five times). The mean interval between course attendance and first re-offence was 6.23 (SD = 3.53). Without comparison data it is difficult to know what value to place on these findings. There were only significant differences ($p < 0.01$) in respect of one moderator: miles driven impact on the re-offending rate (fewer miles driven $M = 0.01$; more miles driven $M = 0.08$).

2.4 Discussion

The data from this study indicated that there were some positive changes in drivers' attitudes and practices that could be attributed to attending the course, and that some but not all these effects were sustained over a 12-month period. We can therefore conclude that the NDIS intervention has some positive impact on those attending when compared at six months and which is maintained at 12 months on some measures.

Changes were observed for scores on the DAQ and the DBQ. In particular, for the DAQ and DBQ error scores a modest but significant effect of NDIS course attendance on data collected at six months was apparent, although this effect had disappeared by 12 months. For DBQ lapses and DBQ violations there was a significant effect at both 6 and 12 months.

For self-reported accidents, the NDIS group experienced fewer accidents in the first six months following course attendance when compared with the control group, although this difference was not apparent over the next six months (months 7 to 12). For self-reported near misses, although the NDIS group did not experience significantly fewer accidents in the first six months following course attendance when compared with the control group, this difference was significant in the following six months. There were no significant differences in self-reported violations. We should note that these analyses for self-reported accidents, near misses and violations were relatively weak as no pre-intervention measures were taken on these variables (i.e. this is a post-test only design not allowing us to test if the groups were matched at baseline).

Interestingly, none of these effects were influenced by social desirable responding. In addition, the effects were substantively similar when examined across the larger group of respondents who were present at any one of the time points (Appendix C).

Finally, none of these effects appeared to be significantly moderated by the variables examined here (Appendix D). Thus the intervention appears to be equally successful (or unsuccessful) for all groups. The one exception was for miles driven on DBQ violations scores. Here it would appear that the lack of an overall effect for condition across time masked the fact that there was a significant drop in DBQ violations in the NDIS group compared with the control group across time for those who drive more miles (the rates are much lower among those who drive fewer miles).

In summary, the present findings might be interpreted as being cautiously supportive of the value of NDIS courses in relation to changing the variables measured here. Some of these changes appear to be restricted to the first six months following course completion, although others show effects that are sustained even 12 months after completing the course. Nevertheless, we should note that the overall size of the changes were modest and may not be sufficient to translate into sustained behaviour change that might result in fewer accidents and violations by course attendees compared with non-attendees.

3 STUDY 2: ON-ROAD DRIVING ASSESSMENT

The aims of the second ‘on-road’ study were:

- to quantify any impact on driving performance attributable to attending the NDIS course;
- to evaluate how changes in attitudes towards unsafe driving behaviours translate into changes in driving performance;
- to assess the stability of any change in attitudes and/or driving performance over a period of up to 12 months; and
- to evaluate the contribution of factors that might moderate these changes.

3.1 Methodology

3.1.1 *Sample*

Two groups of drivers were involved in the on-road study. Drivers who committed careless driving offences and attended an NDIS course were recruited into the NDIS group (from two locations: Darlington and Huddersfield). Drivers who committed careless driving offences but did not go on an NDIS course (due to the course not being available in the region of their residence) were recruited into the control group (in Darlington). The original proposal required a subset of 60 drivers from control and intervention groups to take part in field trials. This proved difficult to achieve. The final sample consisted of 70 in the NDIS group (35 from each town) and 8 in the control group. However, there were missing data at different time points which meant that the sample available at all time points was 60 in the NDIS group and 6 in the control group. The limited size of the control group, in particular, limits the power of the analyses.

3.1.2 *Design*

In the NDIS group, each participant was invited to attend for around 70 minutes at each of the four time points. Each attendance consists of a one-hour driving assessment session and a five-minute laboratory testing session. Prior to each appointment, participants received a questionnaire by post and returned it on the appointment date. Data were collected on four occasions over a 12-month period as follows:

- Time 1: before a driver attended the course. The data collected included demographics, DAQ, DBQ, social desirability, and personality traits (‘big five’ factors). In addition, measures in relation to on-road driving (ratings by appointed Grade 6 driving instructors), attitude latency data and responses to TPB questionnaires were collected.

- Time 2: within two weeks of completion of the course. The data collected included DAQ and sensation seeking. In addition, measures in relation to on-road driving (ratings by appointed Grade 6 driving instructors), attitude latency data and responses to TPB questionnaires were collected.
- Time 3: six months after course completion. The data collected included DAQ, DBQ, and self-reported traffic accidents/near misses and offences. In addition, measures in relation to on-road driving (ratings by appointed Grade 6 driving instructors), attitude latency data and responses to TPB questionnaires were collected.
- Time 4: 12 months after course completion. The data collected included DAQ, DBQ, and self-reported traffic accidents/near misses and offences. In addition, measures in relation to on-road driving (ratings by appointed Grade 6 driving instructors), attitude latency data and responses to TPB questionnaires were collected.

In the control group, data were collected on four occasions over a 12-month period:

- Time 1: the data collected included demographics, DAQ, DBQ, social desirability, and personality traits ('big five' factors). In addition, measures in relation to on-road driving (ratings by appointed Grade 6 driving instructors), attitude latency data and responses to TPB questionnaires were collected.
- Time 2: around two weeks after the first assessment. The data collected included DAQ and sensation seeking. In addition, measures in relation to on-road driving (ratings by appointed Grade 6 driving instructors), attitude latency data and responses to TPB questionnaires were collected.
- Time 3: six months after the first assessment. The data collected included DAQ, DBQ, and self-reported traffic accidents/near misses and offences. In addition, measures in relation to on-road driving (ratings by appointed Grade 6 driving instructors), attitude latency data and responses to TPB questionnaires were collected.
- Time 4: 12 months after the first assessment. The data collected included DAQ, DBQ, and self-reported traffic accidents/near misses and offences. In addition, measures in relation to on-road driving (ratings by appointed Grade 6 driving instructors), attitude latency data and responses to TPB questionnaires were collected.

The questionnaires used for both groups in relation to demographics, DAQ, DBQ, social desirability, personality traits, sensation seeking, and self-reported traffic accidents/near misses and offences were identical to the questionnaires used for the NDIS group in Study 1 (given in Appendix A), apart from slightly different wordings on the covering page to accommodate the difference in questionnaire administration (e.g. returning questionnaires by post or on site).

The attitude latency test was carried out by means of a DOS-based program running on a laptop computer. The test is explained in detail in the next section.

The TPB questionnaire is given in Appendix E. The identical questionnaire was used across different time points of data collection.

The scoring sheets for the driving assessment that took place in Darlington and Huddersfield are given in Appendix F.

3.1.3 Measures

Demographics

Gender, age and area of residence (urban, rural) were assessed for all respondents.

Driving behaviours

A number of measures of driving-related behaviour were assessed:

- the time since obtaining a driving licence (labelled experience in later analyses);
- the number of miles driven in a usual week (not used in later analyses because of high correlation with annual mileage);
- the number of miles driven in the past 12 months (labelled mileage in later analyses); and
- the number of miles driven in relation to work (converted to a percentage of miles driven per year for work and labelled driving for work in later analyses).

Driver Attitude Questionnaire

The DAQ was as used in Study 1.

Driver Behaviour Questionnaire

The DBQ was as used in Study 1.

Socially desirable responding

The same measure of socially desirable responding as used in Study 1 was employed.

Personality measures

The same 50-item scale from the IPIP that was used in Study 1 was employed here.

Sensation seeking

A 10-item self-report questionnaire was used to tap sensation seeking as in Study 1.

Accidents, misses and offences

For accidents, respondents were required to indicate the number of accidents he/she had been involved in over the last six months (at Time 3 and Time 4). For near misses, respondents were required to indicate the number of near misses he/she had been involved in in the last six months (at Time 3 and Time 4).

For motoring offences, respondents were required to first indicate if they had been involved in any motoring offences in the last six months (at Time 3 and Time 4). If the response was 'yes', the respondent was also required to indicate the number of offences of different types (e.g. drink/drug related, reckless driving, parking offences). Owing to the limited number of responses, only the overall rates of motoring offences were employed in the present analyses.

On-road data collection

The driving assessment part of the session was carried out in the participant's own car. Approved driving instructors conducted the assessment on equivalent routes to include several traffic situations where most accidents due to inappropriate care and attention occur. The assessors were blind to the drivers' group membership. A standard route and scoring procedure was used, and included common traffic situations where accidents in these driver groups occur.

The driving assessments took place on two matched routes in the cities of Darlington or Huddersfield. Participants in the NDIS group took part on routes in either city. However, the control group was only drawn from Darlington, and no control group participants drove the route in Huddersfield. The driving assessment was planned to be taken place in Darlington in the light of recruiting both the NDIS and control group in the same area before Durham County Council was enrolled on the scheme. Owing to difficulties in recruiting a sufficient number of volunteer drivers in time in the North East area, we had to establish a comparable route in West Yorkshire to speed up data collection. However, no control sample could be recruited in the Yorkshire area.

Each on-road driving assessment consisted of approximately 60 minutes of driving. Within the period of the driving assessment the assessor rated the driver's performance for 20 fixed manoeuvres. For each manoeuvre a series of ratings was obtained. Between 2 and 7 ratings were obtained for each manoeuvre (Appendix F).

- For all manoeuvres a rating of overall safety was obtained (e.g. 'How safely did the driver negotiate this roundabout . . . very unsafe—very safe'; scored 0–100)

by a mark on a 100mm line ($\alpha = 0.93, 0.83, 0.87, 0.67$ for Times 1, 2, 3, and 4 respectively).

- A variety of other ratings were obtained for each manoeuvre, although the precise content varied between manoeuvres. These items were responded to by ticking one of three boxes (e.g. ‘How appropriate was the choice of approach speed? too low, appropriate, too high; scored 1–3) or by marking a point on a 100mm line (e.g. ‘How much attention did the driver pay while negotiating the interchange? None—very much’; scored 0–100).

The 20 different manoeuvres could be split into two types of traffic density (rural versus urban; 10 of each) and four types of road layout (junctions, link roads, pedestrian crossings, roundabouts). Various other aspects of road conditions were also classified (dual versus single carriageway; left versus right turn; major versus minor road), although these are not analysed in detail here. Indeed the analyses focus on the overall safety ratings, although analysis of the other ratings revealed a substantively identical pattern of findings.

Latency data

Data were collected by computer to tap response times to various attitude questions. This was intended to measure implicit attitudes (Greenwald and Banaji, 1995). This involved a computer presentation of a number of statements which respondents had to respond to as quickly as possible by pressing one of two keys to indicate agreement or disagreement with the statement. There were a total of 16 statements relating to performing or refraining from four behaviours (risky overtaking, drinking and driving, speeding, and close following) combined with two evaluation words (bad and good). All questions were in the following structure: ‘For me to [behaviour] would be [word]’ (e.g. ‘For me to do risky overtaking would be bad’). The combinations are shown in Table 13.

The computer recorded the time taken to respond and whether agree or disagree was pressed. The analyses focused on reaction times to agree with statements which were positive towards safe driving (e.g. ‘For me to do risky overtaking is bad’) or to disagree with statements which were negative towards safe driving (e.g. ‘For me to do risky overtaking is good’). Opposite statements and prolonged reaction times (> 6 seconds) were eliminated from these analyses. We computed a mean score for each of the four behaviours at each time point and also a mean score across all four behaviours at a time point. In the analyses latencies were log-transformed because of their skewed nature, although we report untransformed scores for ease of interpretation.

Table 13: Questions used in the latency task in Study 2

Question ID	Behaviour	Word
1	Risky overtaking	Bad
2	Risky overtaking	Good
3	Drink and drive	Bad
4	Drink and drive	Good
5	Speeding	Bad
6	Speeding	Good
7	Close following	Bad
8	Close following	Good
9	Refrain from close following	Bad
10	Refrain from close following	Good
11	Refrain from drinking and driving	Bad
12	Refrain from drinking and driving	Good
13	Refrain from speeding	Bad
14	Refrain from speeding	Good
15	Refrain from risky overtaking	Bad
16	Refrain from risky overtaking	Good

Theory of Planned Behaviour measures

Theory of Planned Behaviour (TPB) and related measures (see Conner and Sparks, 1995) were obtained in relation to the same four behaviours used in the latency test: risky overtaking, drinking and driving, speeding, and close following (Appendix E). For each behaviour the following measures were taken:

- Intentions – four-item measure (e.g. I intend to refrain from driving 10 mph or more above the posted speed limit on an urban road during, unlikely—likely). These were rated between 1 and 7, with higher scores indicating stronger intentions. A mean was computed (mean alpha = 0.90, 0.70, 0.82 and 0.60 for Times 1, 2, 3 and 4 respectively).
- Attitudes – eight-item measure (e.g. For me to drink and drive would be . . . bad—good). These were rated between 1 and 7, with higher scores indicating more positive attitudes. One item (not at all exciting—exciting) reduced reliabilities in each case and was eliminated. A mean was computed across the remaining seven items (mean alpha = 0.92, 0.80, 0.83 and 0.95 for Times 1, 2, 3 and 4 respectively).
- Subjective norms – three-item measure (e.g. Most people who are important to me think I should wait for a safe opportunity to overtake during the day, unlikely—likely). These were rated between 1 and 7, with higher scores indicating more social pressure. A mean was computed (mean alpha = 0.78, 0.80, 0.86 and 0.74 for Times 1, 2, 3 and 4 respectively).
- Perceived behavioural control (PBC) – six-item measure (e.g. For me to maintain a safe distance between the vehicle in front and myself during the day would be . . . difficult—easy). These were rated between 1 and 7, with higher scores indicating more control. A mean was computed (mean alpha = 0.70, 0.61, 0.70 and 0.61 for Times 1, 2, 3 and 4 respectively).

- Moral norm – one-item measure (e.g. It would be quite wrong for me to drink and drive, strongly disagree—strongly agree). These were rated between 1 and 7, with higher scores indicating more moral pressure.
- Anticipated regret – two-item measure (e.g. I would regret driving 10 mph or more above the posted speed limit on an urban road during, unlikely—likely). These were rated between 1 and 7, with higher scores indicating more regret. A mean was computed (mean alpha = 0.84, 0.78, 0.81 and 0.61 for Times 1, 2, 3 and 4 respectively).
- Past behaviour – two-item measure (e.g. During the past I frequently engaged in drinking and driving, strongly disagree—strongly agree). These were rated between 1 and 7, with higher scores indicating more frequent performance in the past. A mean was computed (mean alpha = 0.81, 0.67, 0.62 and 0.62 for Times 1, 2, 3 and 4 respectively).
- Attitudinal certainty – one-item measure (e.g. How certain are you in your attitude toward waiting for a safe opportunity to overtake during the day, extremely uncertain—extremely certain). These were rated between 1 and 7, with higher scores indicating more certainty.
- Felt attitudinal ambivalence – one-item measure (e.g. I have mixed feelings about waiting for a safe opportunity to overtake during the day, strongly disagree—strongly agree). These were rated between 1 and 7, with higher scores indicating more ambivalence.
- Potential attitudinal ambivalence – two items used to tap positive (P) and negative feelings (N) (e.g. My positive feelings about waiting for a safe opportunity to overtake during the day are . . . not at all positive—extremely positive). These were rated between 1 and 7, with higher scores indicating more positive or negative feelings. The two measures were combined using the formula: $\text{ambivalence} = P + N / 2 - \text{abs}(P - N)$ (see Conner and Sparks, 2002, for details).

3.2 Analyses

This is a complex set of data open to a variety of analyses. This section sets out a number of decisions made about analyses which were taken in order to simplify the analyses and their reporting. This section also sets out the structure of the results section that follows.

The initial analyses focused on describing the sample and on establishing the comparability of different sub-samples at the outset of the study. In particular, we examined the similarity of the control and NDIS groups at the start of the study in order to ensure that they were directly comparable on various measures. We next examined the differences between those who participated in all the rounds of data collection with those who participated in the initial round and then dropped out at

some later stage. This provides some information on any biases in the sample. Analyses then considered the degree of overlap between the dependent variables.

The major focus of the analyses was then on comparing the NDIS and control groups on the major dependent variables. These analyses focused on that sub-set of the sample that completed all rounds of data collection. This limits the sample sizes but allows us to use more powerful within-subject analyses.

For the main analyses, the key dependent variables in this research were: DAQ scores; DBQ lapse scores, DBQ error scores, DBQ violation scores; self-reported accidents, misses and offences; on-road driving measures; attitude latency data; and TPB measures. The key independent variables in this research were group (NDIS versus control) and time (time point at which data was collected; four time points for most measures). Owing to concerns about the potential impacts of socially desirable responding on self-report data (all dependent variables except on-road driving measures), we also collected a measure of such responding thereby allowing us to covary out any effects. Finally, there were a series of measured variables which might be expected to influence the findings (e.g. moderate the impact of the intervention). We refer to these as moderators. These include personality variables, sensation seeking, demographics (gender, age), and driver characteristics (experience, miles driven, driving for work). As already noted, this provides a complex dataset to analyse and requires a number of decisions to be made about the way in which the main analyses be conducted.

First, the dependent variables are likely to be inter-related. The degree of inter-relation is explored below. Nevertheless, despite this degree of inter-dependence we decided to analyse each variable separately. This decision was based on the modest degree of inter-relationship observed and the fact that different variables were measured a different number of times, requiring different approaches to the analysis.

Second, the key analyses focused on group by time analyses. In effect we expected the NDIS and control groups to be initially (prior to the NDIS course) very similar. We then expected the NDIS group to show changes from pre- to post-intervention (Time 1 versus Time 2). By Times 3 and 4 we hope this change in the NDIS group is maintained. Importantly, at Times 3 and 4 the NDIS group should show differences from the control group. Thus the main analyses are 2×4 mixed design ANOVAs (time point 2 cannot be included in some analyses because it was not assessed in the control group and 2×3 ANOVAs were used in these cases), with post-hoc tests used to explore significant differences. For the on-road measures, which were collected in different cities over different driving routes, we compared the control group with each of the NDIS groups from the two cities.

Third, given concerns over biases in the sample due to socially desirable responding and attrition, we repeated the above analysis using socially desirable responding as a covariate. However, given the lack of effects on the key results, these analyses are

not reported here (socially desirable responding had a significant main effect on a number of dependent variables but not significant interactive effects).

Fourth, additional analyses examined if differences by time and group were influenced by various other measured variables (i.e. moderators). This analysis was only performed for the sub-sample who provided data at every time point. In examining various moderators we made the decision to dichotomise variables in order to simplify analyses (i.e. to employ ANOVA rather than regression models). In relation to moderators, we were interested in their impact on the main effects of time or condition and particularly on the condition \times time interaction. The moderators examined were:

- gender (male versus female);
- age (median split: young versus old);
- length of time holding a licence (experience; median split: high versus low);
- miles driven per year (miles driven; median split: high versus low);
- driving mainly for work (work-related driving; median split on proportion of miles driven are for work: high versus low);
- personality – openness (median split: high versus low);
- personality – conscientiousness (median split: high versus low);
- personality – extraversion (median split: high versus low);
- personality – agreeableness (median split: high versus low);
- personality – neuroticism (median split: high versus low); and
- sensation seeking (median split: high versus low).

Again these effects were examined using mixed ANOVA designs. Given the large number of moderators, we employed the conservative procedure of analysing one moderator at a time but employing an adjusted p value (only p s < 0.01 were examined). Higher order interactions among moderators were not examined due to limited sample sizes. This procedure for an exploratory analysis of moderators is relatively common where there are a number of moderators to examine (e.g. Terry and Hogg, 1996).

In summary, the analyses examined:

- sample descriptives and sub-sample comparisons;
- attrition analyses;
- inter-relationships of dependent variables;

- main group \times time analyses on dependent variables; and
- examination of moderation effects.

This is the order in which the results are reported.

3.3 Results

3.3.1 *Sample description and sub-sample comparisons*

The total sample consisted of 78 respondents (70 NDIS participants; eight control participants), although there were complete data at each round of data collection available from only 66 respondents (60 NDIS participants; six control participants). Most were men (66%) with a median age of 38.0 years (range: 18–75 years). Approximately 74% lived in urban areas. On average, the sample had held licences for 21 years, drove around 380 miles per week, had driven approximately 17,000 miles in the past year, of which two-thirds (approximately 12,000) were driven for work purposes.

Analyses indicated that the two NDIS groups and control group were roughly comparable on the demographic variables assessed. For this reason it was considered unnecessary to control for demographic or driving characteristics in subsequent analyses (although we do later consider these variables as potential moderators of the results).

3.3.2 *Attrition analyses*

The next stage of the analyses was to compare respondents who only completed part of the study ($N = 12$; from the control group only two provided data at Time 1; from the NDIS group only two provided data at Time 1, only five at Times 1 and 2; and only two at Times 1 and 3) with those who completed all time points ($N = 66$) on the key variables assessed at Time 1 (DAQ scores, DBQ measures, on-road data, latency scores and TPB scores). This was conducted using MANOVA with group (NDIS versus control) and completeness (every time point completed versus other) as independent variables. This revealed no main effects of group (Wilk's Lambda $F(18,47) = 1.13$, ns), completeness (Wilk's Lambda $F(18,47) = 0.61$, ns) and no significant interaction (Wilk's Lambda $F(18,47) = 0.66$, ns). These findings support the decision to focus the analyses on the sub-sample who completed all time points of the study and for this reason we do not separately report analyses on all respondents available at any time point.

3.3.3 *Inter-relationships of dependent variables*

We were next interested in the inter-relationships (correlations) among the various dependent variables across the whole sample. However, given the large number of dependent variables, only a summary is provided here. Table 14 shows the

correlations of DAQ scores; DBQ lapse scores, DBQ error scores, DBQ violation scores; socially desirable responding; sensation seeking; personality measures; and on-road safe driving measure (all assessed at Time 1). It is interesting to note that while the DBQ scores show relatively strong correlations with one another, DAQ shows weaker relationships, except with DBQ violations. On-road safer driving is significantly positively related to DAQ scores and negatively related to DBQ error and DBQ violation scores. Table 15 reports the inter-relationships of DAQ, socially desirable responding, sensation seeking, response latencies and intention measures (for speeding, overtaking, close following and drink driving) at Time 1.

In summary, the intercorrelation among our dependent variables indicate a number of interesting relationships. These may have some effects on the findings reported in later sections.

Table 14: Correlations among time measures for Study 2

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. DAQ score		-0.07	-0.21	-0.58**	0.30*	-0.29*	-0.11	0.17	0.24	0.04	0.15	0.44**
2. DBQ lapse score			0.29*	0.23	-0.08	-0.17	-0.01	0.01	-0.15	-0.10	0.05	0.14
3. DBQ error score				0.65**	-0.01	-0.12	-0.14	-0.04	-0.10	-0.28*	-0.13	-0.42**
4. DBQ violation score					-0.25*	0.12	0.06	-0.13	-0.21	-0.19	-0.05	-0.45**
5. Social desirability score						-0.16	-0.16	0.26*	-0.06	0.13	0.05	0.04
6. Sensation-seeking score							0.23	0.07	-0.23	0.25*	0.25*	-0.02
7. Extraversion								0.20	0.05	0.14	0.11	0.25
8. Agreeableness									0.31*	0.18	0.51**	-0.03
9. Conscientiousness										0.15	0.13	0.20
10. Neuroticism											0.10	0.11
11. Openness												0.10
12. On-road safe driving score												

Notes:
 1. N = 66.
 2. * denotes the correlation is significant at the 0.05 level.
 3. ** denotes the correlation is significant at the 0.01 level.

Table 15: Further correlations among time measures for Study 2

Variables	1	2	3	4	5	6	7	8	9
1. DAQ score		0.30*	-0.29*	0.44**	0.14	0.37**	0.17	0.24	0.03
2. Social desirability score			-0.16	0.04	0.02	0.13	-0.11	-0.06	0.08
3. Sensation-seeking score				-0.20	-0.31*	-0.20	-0.13	-0.26*	-0.02
4. On-road safe driving score					-0.12	0.24	0.12	0.13	0.15
5. Response latency						0.02	0.12	0.24	-0.14
6. Intention to speeding							0.19	0.29*	0.10
7. Intention to overtaking								0.59**	0.20
8. Intention to close following									0.08
9. Intention to drink driving									

Notes:
 1. N = 64.
 2. * denotes the correlation is significant at the 0.05 level.
 3. ** denotes the correlation is significant at the 0.01 level.

3.3.4 Main group × time analyses

In the following analyses, for simplicity, we report the analyses excluding socially desirable responding. Repeating the analyses using socially desirable responding as a covariate did not substantively alter the findings, although the covariate did have a significant effect in most cases. There were no significant interactions with the covariate. The analyses are reported for NDIS versus control groups. However, the analyses were repeated for the three groups (i.e. NDIS – Darlington; NDIS – Huddersfield; control – Darlington) and where difference emerged both sets of results are reported.

DAQ scores

Table 16 reports the mean DAQ scores for the two groups (NDIS and control) for each time point at which they were assessed. The effects were tested formally by ANOVA. A two-way ANOVA (group × time), with time points 1, 2, 3 and 4 included, indicated a non-significant main effect of group ($F(2,58) = 2.76, p = 0.07$) and non-significant effects of both time ($F(3,116) = 0.92, ns$) and the time by group interaction ($F(4,116) = 0.66, ns$). Thus, although as expected the NDIS group shows slightly higher scores on the DAQ at each time point, this difference was not significant. This offers little support for an effect of the NDIS course on changes in DAQ scores.

Table 16: DAQ scores for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

Group	Time 1		Time 2		Time 3		Time 4	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Control	6	3.57 (0.40)	6	3.61 (0.31)	6	3.50 (0.33)	6	3.53 (0.30)
NDIS	60	3.80 (0.42)	60	3.83 (0.31)	55	3.94 (0.43)	60	3.86 (0.44)
Total	66	3.77 (0.42)	66	3.81 (0.31)	61	3.90 (0.44)	66	3.83 (0.43)

DBQ scores

Table 17 reports the mean DBQ scores for the two groups (NDIS and control) for each time point at which they were assessed. The effects were again tested formally by ANOVA and post-hoc t-tests. Each of the DBQ measures was strongly skewed towards zero, however, dichotomising the data and reanalysing did not substantively alter the findings and therefore the original analyses are reported.

For DBQ lapse scores, a two-way ANOVA (group \times time), with time points 1, 3 and 4 included, indicated a significant main effect of time ($F(2,57) = 14.2, p = 0.03$), but no group ($F(2,58) = 0.02, ns$) or time by group interaction ($F(4,116) = 0.28, ns$). The effects were explored by post-hoc t-tests. These post-hoc t-tests make clear that lapses were significantly higher at Time 1 than at Time 3 ($t(60) = 5.95, p < 0.001$) or Time 4 ($t(64) = 6.06, p < 0.001$). However, this offers little support for an effect of the NDIS course on changes in DBQ-lapse scores as there were no significant time \times group interactions.

For DBQ error scores, a two-way ANOVA (group \times time), with time points 1, 3 and 4 included, indicated no significant main effect of group ($F(1,59) = 0.99, ns$), a significant effects for time ($F(2,118) = 6.61, p < 0.001$) and a non-significant effect for the time by group interaction ($F(2,118) = 0.19, ns$). The effects were explored by post-hoc t-tests. These post-hoc t-tests make clear that errors were significantly higher at Time 1 than at Time 3 ($t(60) = 3.95, p < 0.001$) or Time 4 ($t(64) = 5.32, p < 0.001$). This offers little support for an effect of the NDIS course on changes in DBQ error scores as there were no significant time \times group interactions.

For DBQ violation scores, a two-way ANOVA (group \times time), with time points 1, 3 and 4 included, indicated no significant main effect of group ($F(1,59) = 0.22, ns$), a significant effect for time ($F(2,118) = 4.22, p < 0.01$) and no significant time by group interaction ($F(2,118) = 0.003, ns$). The effects were explored by post-hoc t-tests. These post-hoc t-tests make clear that violations were significantly higher

at Time 1 than at Time 3 ($t(60) = 2.95, p < 0.01$) or Time 4 ($t(64) = 64.30, p < 0.001$). This offers little support for an effect of the NDIS course on changes in DBQ violation scores as there were no significant time \times group interactions.

Table 17: DBQ scores for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

DBQ score	Group	Time 1		Time 3		Time 4	
		N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Lapse	Control	6	1.00 (0.35)	6	0.69 (0.31)	6	0.64 (0.31)
	NDIS	60	0.94 (0.44)	55	0.68 (0.42)	60	0.67 (0.44)
	Total	66	0.95 (0.43)	61	0.68 (0.41)	66	0.67 (0.43)
Error	Control	6	0.38 (0.32)	6	0.17 (0.15)	6	0.10 (0.12)
	NDIS	60	0.47 (0.39)	55	0.30 (0.37)	60	0.28 (0.36)
	Total	66	0.46 (0.39)	61	0.28 (0.36)	66	0.27 (0.35)
Violation	Control	6	0.71 (0.57)	6	0.56 (0.46)	6	0.48 (0.29)
	NDIS	60	0.64 (0.42)	55	0.46 (0.47)	60	0.40 (0.43)
	Total	66	0.64 (0.63)	61	0.47 (0.36)	66	0.40 (0.42)

Self-reported accidents, misses and offences

Table 18 reports the mean accidents, near misses and traffic violations for the two groups (NDIS and control) for each time point at which they were assessed (Times 3 and 4 only). The effects were tested by ANOVA and post-hoc t-tests. Each of the measures was strongly skewed towards zero, however, dichotomising the data and reanalysing did not substantively alter the findings and therefore the original analyses are reported.

For accidents, a two-way ANOVA (group \times time) indicated no significant main effect of group ($F(1,58) = 0.61, ns$), time ($F(1,58) = 1.11, ns$) or the time by group interaction ($F(1,58) = 2.73, ns$). This offers little support for an effect of the NDIS course on changes in self-reported accidents.

For near misses, a two-way ANOVA (group \times time) indicated no significant main effect of group ($F(1,58) = 0.12, ns$), but a significant time ($F(1,58) = 8.44, p < 0.01$) and time by group interaction ($F(1,58) = 5.71, p < 0.05$). Examination of the means (Table 18) indicate that these significant effects are attributable to a dramatic increase in self-reported near misses in the control group with little change in the NDIS group. It is difficult to plausibly interpret this pattern of findings as offering

support for an effect of the NDIS course on changes in self-reported near misses (i.e. one would need to assume that the number of near misses were generally increasing across this time period but that this increase was attenuated in those exposed to the NDIS intervention).

For offences, a two-way ANOVA (group × time) indicated no significant main effect of group ($F(1,56) = 0.01$, ns), time ($F(1,56) = 0.36$, ns) or the time by group interaction ($F(1,56) = 0.77$, ns). This offers little support for an effect of the NDIS course on changes in self-reported accidents.

Table 18: Accidents, near misses and offences for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

Measure	Group	Time 3		Time 4	
		N	Mean (SD)	N	Mean (SD)
No. of accidents in last 6 months	Control	6	0.17 (0.40)	6	0.00 (0.00)
	NDIS	55	0.04 (0.19)	59	0.07 (0.25)
	Total	61	0.05 (0.22)	65	0.06 (0.24)
No. of near misses in last 6 months	Control	6	0.33 (0.52)	6	1.67 (2.88)
	NDIS	55	0.60 (0.90)	59	0.69 (1.25)
	Total	61	0.57 (0.87)	65	0.78 (1.46)
Involvement in motoring offence in last 6 months	Control	6	1.67 (0.52)	5	1.60 (0.55)
	NDIS	54	1.70 (0.46)	59	1.75 (0.47)
	Total	60	1.70 (0.46)	64	1.73 (0.48)

On-road driving

Table 19 reports the mean safety ratings for the two groups (NDIS and control) for each time point at which they were assessed (Times 1, 2, 3 and 4). It is worth restating that these measures are objective (i.e. non-self-report driving instructor ratings) and are the average across 20 different situations. The effects were tested by ANOVA and post-hoc t-tests.

A two-way ANOVA (group × time) indicated no significant main effect of group ($F(1,65) = 0.52$, ns), but significant effects of time ($F(3,195) = 6.67$, $p < 0.001$) and a marginally significant time by group interaction ($F(3,195) = 2.32$, $p = 0.08$). The effects were explored by post-hoc t-tests. These post-hoc t-tests make clear that the

two groups did not differ in safety ratings at Time 1 ($t(65) 1.30$, ns). However, while the control group showed no significant changes over time (largest $t(5) = -1.26$, ns), the NDIS group showed significantly higher safety ratings immediately after the training (i.e. t_2 compared to t_1 : $t(60) = -5.59$, $p < 0.001$) and this difference was maintained six months later (i.e. t_3 compared to t_1 : $t(60) = -6.05$, $p < 0.001$) and 12 months later (i.e. t_4 compared to t_1 : $t(60) = -7.49$, $p < 0.001$).

Table 19: Driving instructor ratings of safety for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

Group	Time 1		Time 2		Time 3		Time 4	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Control	6	91.95 (8.31)	6	91.25 (3.31)	6	95.69 (3.68)	6	95.42 (2.06)
NDIS	61	86.20 (10.48)	61	93.63 (4.00)	61	94.02 (3.84)	61	95.89 (2.02)
Total	67	86.71 (10.38)	67	93.42 (3.99)	67	94.17 (3.83)	67	95.85 (2.01)

However, at no time point were the NDIS safety ratings significantly higher than the control group. These results are only modestly supportive of an effect of attending a NDIS course because they do not show results significantly different from the control group. This may be attributable to the modest size of the control group.

Examination of these differences by splitting the NDIS group into those tested in Darlington versus Huddersfield (Table 20) revealed a very similar pattern of findings in the two NDIS groups, i.e. evidence of higher safety ratings at each testing point when compared with the first testing point.

Table 20: Driving instructor ratings of safety for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2 based on test sites

Group	Time 1		Time 2		Time 3		Time 4	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Control	6	91.95 (8.31)	6	91.25 (3.31)	6	95.69 (3.68)	6	95.42 (2.06)
NDIS Darlington	31	88.76 (6.85)	31	93.11 (4.99)	31	93.92 (4.44)	31	95.80 (1.86)
NDIS Huddersfield	30	83.55 (12.82)	30	94.16 (2.62)	30	94.13 (3.16)	30	95.99 (2.21)
Total	67	86.71 (10.38)	67	93.42 (3.99)	67	94.17 (3.83)	67	95.85 (2.01)

We further explored the safety ratings by separately examining those for rural versus urban manoeuvres, and for those involving junctions, link roads, pedestrian crossings and roundabouts. The pattern of findings reported above was replicated in each case.

In summary, the data from the on-road testing offer only partial support for the effectiveness of the NDIS intervention. Significant improvements in performance were observed in the NDIS group following course attendance and this was maintained at 6 and 12 months. However, the levels of performance in the NDIS group were never significantly higher than the control sample. This pattern of findings appears to be attributable to a failure to adequately match the NDIS and control groups at baseline (i.e. the control group showed marginally higher levels of performance at baseline). In addition, it may be that the failure to find significant differences is attributable to the ceiling effects in both groups (i.e. scores close to the maximum value).

Attitude response latency

Table 21 reports the mean latencies (response times in milliseconds) for the two groups (NDIS and control) for each time point at which they were assessed (Times 1, 2, 3 and 4). These are the mean response times in milliseconds averaged across 18 different questions. The data were log-transformed for analysis, although for ease of interpretation the untransformed data are reported here. The effects were tested by ANOVA and post-hoc t-tests. Lower scores can be interpreted as more positive responses (i.e. quicker reactions to positive driving behaviours).

Table 21: Attitude response latencies for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

Group	Time 1		Time 2		Time 3		Time 4	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Control	6	2,453 (1,029)	6	2,011 (533)	6	2,213 (391)	6	2,148 (505)
NDIS	57	2,579 (676)	60	2,358 (686)	60	2,328 (699)	61	2,438 (799)
Total	63	2,567 (706)	66	2,327 (678)	66	2,317 (675)	67	2,412 (779)

A two-way ANOVA (group × time) indicated no significant main effect of group ($F(1,58) = 0.65$, ns), time ($F(3,174) = 1.06$, ns) or time by group interaction ($F(3,174) = 0.29$, ns). Examination of the means (Table 21) indicated a tendency towards shorter latencies (i.e. stronger attitudes towards safer driving) in the control group compared with the NDIS group. We also examined differences in response

latencies for each of the four different attitude objects (i.e. speeding, overtaking, close following and drink driving), however, in no case were the differences significant. In each case the broad pattern of slightly shorter latencies in the control group compared with the NDIS group was observed.

The present data offer little support for an impact of the intervention on response latencies either in the short or longer term following NDIS course attendance.

Theory of Planned Behaviour measures

The TPB data were collected in relation to four behaviours (speeding, overtaking, close following and drink driving). For simplicity we chose to analyse each construct (e.g. intention, attitude, etc.) in independent analyses but considered all four behaviours in the same analysis. Thus the analysis is based on a series of group \times time \times behaviour ANOVAs.

Table 22 reports the mean intention ratings for the two groups (NDIS and control) for each time point at which they were assessed (Times 1, 2, 3 and 4) for each behaviour (speeding, overtaking, close following and drink driving). ANOVA indicated no significant main effect of group ($F(1,55) = 0.07$, ns), time ($F(3,495) = 1.26$, ns) or time by group interaction ($F(3,495) = 0.25$, ns), although there was a significant effect of behaviour ($F(3,495) = 9.79$, $p < 0.001$) but no behaviour by group ($F(3,495) = 1.08$, ns), behaviour by time ($F(9,495) = 0.51$, ns) or behaviour by time by group interactions ($F(9,495) = 0.79$, ns). Examination of the means indicated significantly stronger intentions to not drink and drive than to not speed, not close follow and not overtake.

Table 22: Intention scores for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

Intention score	Group	Time 1		Time 2		Time 3		Time 4	
		N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Speeding	Control	6	5.83 (1.24)	6	5.63 (1.63)	6	5.92 (1.77)	6	5.53 (1.53)
	NDIS	58	5.55 (1.25)	60	5.84 (1.15)	55	6.18 (1.03)	59	5.96 (1.32)
	Total	64	5.57 (1.24)	66	5.83 (1.19)	61	6.15 (1.11)	65	5.92 (1.34)
Overtaking	Control	6	6.54 (0.71)	6	6.21 (1.17)	6	7.00 (0.00)	6	6.79 (0.40)
	NDIS	58	6.52 (0.76)	60	6.54 (0.93)	55	6.67 (0.62)	59	6.68 (0.67)
	Total	64	6.52 (0.75)	66	6.51 (0.95)	61	6.70 (0.60)	65	6.69 (0.65)
Close following	Control	6	6.33 (1.21)	6	6.17 (1.30)	6	6.17 (1.13)	6	6.24 (1.18)
	NDIS	58	6.39 (0.81)	60	6.48 (0.89)	55	6.64 (0.60)	58	6.58 (0.88)
	Total	64	6.38 (0.84)	66	6.45 (0.93)	61	6.59 (0.67)	64	6.54 (0.91)
Drink driving	Control	6	6.50 (0.84)	6	6.58 (0.66)	6	6.75 (0.61)	6	6.83 (0.41)
	NDIS	58	6.46 (1.10)	60	6.25 (1.16)	54	6.44 (1.00)	59	6.55 (0.91)
	Total	64	6.46 (1.07)	66	6.28 (1.13)	60	6.47 (0.97)	65	6.58 (0.88)

Table 23 reports the mean attitude ratings for the two groups (NDIS and control) for each time point at which they were assessed (Times 1, 2, 3 and 4) for each behaviour (speeding, overtaking, close following and drink driving). ANOVA indicated no significant main effect of group ($F(1,53) = 0.13$, ns), time ($F(3,477) = 0.37$, ns) or time by group interaction ($F(3,477) = 0.70$, ns), although there was a significant effect of behaviour ($F(3,477) = 11.1$, $p < 0.001$) but no behaviour by group ($F(3,477) = 1.49$, ns), behaviour by time ($F(9,477) = 0.54$, ns) or behaviour by time by group interactions ($F(9,477) = 0.89$, ns). Examination of the means indicated significantly stronger attitudes to not drink and drive than to not speed, not close follow and not overtake.

Table 23: Attitude scores for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

Attitude score	Group	Time 1		Time 2		Time 3		Time 4	
		N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Speeding	Control	6	5.14 (1.99)	6	5.79 (1.20)	6	5.77 (0.59)	6	5.64 (1.18)
	NDIS	58	4.96 (1.53)	60	5.35 (1.40)	54	4.96 (1.61)	59	5.47 (1.59)
	Total	64	4.97 (1.57)	66	5.39 (1.38)	60	5.04 (1.56)	65	5.49 (1.55)
Overtaking	Control	6	6.52 (0.34)	6	6.26 (0.81)	6	6.45 (0.43)	6	6.46 (0.58)
	NDIS	58	6.26 (0.89)	60	6.44 (0.75)	55	6.52 (0.68)	59	6.47 (0.68)
	Total	64	6.28 (0.85)	66	6.42 (0.75)	61	6.51 (0.66)	65	6.47 (0.67)
Close following	Control	6	6.10 (0.64)	6	6.14 (1.22)	6	6.21 (0.82)	6	6.09 (0.82)
	NDIS	58	6.29 (0.89)	60	6.54 (0.57)	55	6.64 (0.58)	58	6.49 (0.72)
	Total	64	6.27 (0.87)	66	6.50 (0.65)	61	6.60 (0.61)	64	6.45 (0.73)
Drink driving	Control	6	6.86 (0.22)	6	5.84 (2.20)	6	6.69 (0.40)	6	6.83 (0.27)
	NDIS	58	6.15 (1.62)	60	6.36 (1.39)	53	6.22 (1.57)	59	5.98 (1.85)
	Total	64	6.22 (1.56)	66	6.32 (1.47)	59	6.27 (1.50)	65	6.06 (1.78)

Table 24 reports the mean subjective norm ratings for the two groups (NDIS and control) for each time point at which they were assessed (Times 1, 2, 3 and 4) for each behaviour (speeding, overtaking, close following and drink driving). ANOVA indicated no significant main effect of group ($F(1,52) = 0.03$, ns), time ($F(3,468) = 01.91$, ns) or time by group interaction ($F(3,468) = 0.58$, ns), although there was a significant effect of behaviour ($F(3,468) = 11.7$, $p < 0.001$) but no behaviour by group ($F(3,468) = 0.36$, ns), behaviour by time ($F(9,468) = 1.89$, ns) or behaviour by time by group interactions ($F(9,468) = 0.80$, ns). Examination of the means indicated significantly stronger subjective norms to not drink and drive than to not speed, not close follow and not overtake.

Table 24: Subjective norm scores for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

Subjective norm score	Group	Time 1		Time 2		Time 3		Time 4	
		N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Speeding	Control	5	5.27 (1.74)	5	5.53 (2.06)	6	5.94 (1.64)	6	5.44 (1.18)
	NDIS	57	5.29 (1.42)	60	6.02 (1.12)	53	6.16 (1.24)	58	5.93 (1.20)
	Total	62	5.28 (1.44)	65	5.98 (1.20)	59	6.14 (1.27)	64	5.88 (1.24)
Overtaking	Control	6	6.50 (1.22)	5	6.20 (1.30)	5	6.67 (0.75)	6	6.50 (1.22)
	NDIS	57	6.50 (1.01)	60	6.47 (1.00)	54	6.66 (0.83)	58	6.73 (0.65)
	Total	63	6.50 (1.02)	65	6.45 (1.02)	59	6.66 (0.82)	64	6.71 (0.71)
Close following	Control	6	6.06 (1.36)	5	6.00 (1.41)	5	6.60 (0.89)	5	6.60 (0.89)
	NDIS	57	6.53 (0.86)	60	6.50 (0.85)	54	6.50 (0.93)	57	6.65 (0.65)
	Total	63	6.48 (0.91)	65	6.46 (0.90)	59	6.51 (0.92)	62	6.64 (0.66)
Drink driving	Control	6	6.33 (1.03)	5	6.60 (0.89)	5	6.60 (0.89)	5	7.00 (0.00)
	NDIS	57	6.53 (1.27)	60	6.43 (1.10)	53	6.74 (0.77)	58	6.82 (0.66)
	Total	63	6.51 (1.24)	65	6.45 (1.08)	58	6.72 (0.77)	63	6.83 (0.63)

Table 25 reports the mean perceived behavioural control ratings for the two groups (NDIS and control) for each time point at which they were assessed (Times 1, 2, 3 and 4) for each behaviour (speeding, overtaking, close following and drink driving). ANOVA indicated no significant main effect of group ($F(1,57) = 0.17$, ns), time ($F(3,513) = 0.30$, ns) or time by group interaction ($F(3,513) = 0.73$, ns), although there was a significant effect of behaviour ($F(3,513) = 10.4$, $p < 0.001$) but no behaviour by group ($F(3,513) = 0.76$, ns), behaviour by time ($F(9,513) = 1.67$, ns) or behaviour by time by group interactions ($F(9,513) = 1.78$, ns). Examination of the means indicated significantly weaker perceived behavioural control to not drink and drive than to not speed, not close follow and not overtake.

Table 25: Perceived behavioural control scores for control and experimental groups at each time point for the sub-sample that provided data at every time point for Study 2

Perceived behavioural control score	Group	Time 1		Time 2		Time 3		Time 4	
		N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Speeding	Control	6	6.00 (1.04)	6	6.06 (1.00)	6	6.22 (0.80)	6	5.75 (1.68)
	NDIS	58	5.63 (1.01)	60	5.99 (0.89)	55	6.19 (0.80)	59	6.09 (0.93)
	Total	64	5.67 (1.01)	66	5.99 (0.89)	61	6.20 (0.80)	65	6.06 (1.00)
Overtaking	Control	6	6.31 (0.78)	6	6.44 (0.85)	6	6.69 (0.75)	6	6.69 (0.75)
	NDIS	58	6.47 (0.69)	60	6.40 (0.81)	55	6.59 (0.63)	59	6.57 (0.66)
	Total	64	6.46 (0.69)	66	6.40 (0.81)	61	6.60 (0.63)	65	6.59 (0.66)
Close following	Control	6	6.18 (1.05)	6	5.97 (1.16)	6	5.58 (1.37)	6	6.19 (1.05)
	NDIS	58	6.09 (0.85)	60	6.25 (0.81)	55	6.42 (0.70)	59	6.35 (0.79)
	Total	64	6.10 (0.87)	66	6.23 (0.84)	61	6.33 (0.82)	65	6.34 (0.81)
Drink driving	Control	6	6.64 (0.44)	6	6.69 (0.40)	6	6.25 (0.80)	6	6.53 (0.58)
	NDIS	58	6.63 (0.65)	60	6.44 (0.91)	55	6.75 (0.50)	59	6.58 (0.90)
	Total	64	6.63 (0.63)	66	6.47 (0.88)	61	6.70 (0.55)	65	6.57 (0.88)

Similar findings were found for the other measures taken (past behaviour, regret, moral norm, ambivalence), although these analyses are not reported here.

3.3.5 Moderation analyses

As we were interested principally in the effects of moderators on the pattern of results reported earlier, generally we restricted our analyses to considering each moderator independently, i.e. interactions among moderators were not considered. The focus was on the effect of each moderator on group \times time effects. This was partly because small sample sizes in some cells restricted the consideration of multiple moderators simultaneously. As in the earlier analyses for simplicity, we focused on the analyses excluding socially desirable responding. Repeating the analyses using socially desirable responding as a covariate did not substantively alter the findings, although the covariate did have a significant effect. There were also a number of main effects of the examined moderators. However, importantly there were no interactions with any covariate. As a relatively large number of analyses were conducted, we employed a more stringent significance level in order to minimise chances of type II errors (i.e. only effects with $p < 0.01$ are reported).

These analyses indicated that there were no significant moderators of the group \times time interaction for any of the dependent variables.

3.4 Discussion

The data from this study indicated that there were few, if any, effects that could be confidently attributed to the effects of attending the course. Only in the case of driving instructor rated safety was there any evidence of the course producing an improvement in performance. Even in this case, comparison with the control group failed to reveal significantly safer driving than the group receiving no intervention (the control group). The study failed to observe any significant difference between the control and the NDIS group in relation to scores on the DAQ, the DBQ, self-reported accident, self-reported near misses, self-reported violations, attitude response latencies, and TPB measures. Interestingly, none of these effects appeared to be significantly moderated by the demographic and psychological variables examined here. Thus the intervention appears to be equally unsuccessful for all groups. These are a disappointing set of findings in relation to the current NDIS courses. However, the current data offer little support for their effectiveness in changing driver attitudes or behaviours and would suggest that the interventions are unlikely to have much impact on actual safer driving behaviour.

One caution in relation to these conclusions must be the relatively low power of the analyses in detecting differences due to small sample sizes. The control group in particular was very modest in size and reflects the difficulty of recruiting a group to attend four sessions of testing when not also receiving some intervention. If we examine only the NDIS group over time (see the Tables of means in Section 3.3), which did not have such a limited sample, the pattern of results look somewhat different. DAQ, DBQ lapses, DBQ errors, DBQ violations, on-road driving assessment, response latencies and TPB measures all show significant improvements over time from before to after the intervention. These effects are particularly impressive for the on-road measures and the three DBQ measures (significant changes following the intervention which were maintained at 6 and 12 months). Hence, using such a (clearly weaker) pre-post design (but with adequate sample sizes) we might reach quite different conclusions about the effectiveness of the NDIS intervention. However, we should be cautious in interpreting the data in this way. Similar patterns of change were evident for the NDIS group in Study 1 (on DBQ and DAQ measures), although differences from the control group were generally non-significant. These results were not based on a modest-sized control group, suggesting that the modest size of the control group in Study 2 may not be the reason for failing to observe significant differences. An alternative explanation is that the improvement evident in the NDIS group here was attributable to the practice effects from repeated testing.

In summary, the present findings might be interpreted as offering little clear support to the value of NDIS courses in relation to changing the variables measured here. No significant improvements compared to the comparison control group were observed. However, there were some significant improvements from before to after the intervention for some measures that were maintained at 6 and 12 months (e.g. on-road measures and the three DBQ measures).

4 GENERAL DISCUSSION

The current evaluation of the effectiveness of NDIS courses consisted of two studies:

- a nationwide questionnaire survey of course attendees and a comparison sample at several time points over the course of a year to examine impacts on self-reported driving attitudes and behaviours; and
- a study of on-road driving behaviour in a sample of course attendees and a comparison sample at several time points over the course of a year to examine impacts on non-self-report driving behaviours.

In the first study, questionnaires were completed prior to attending a course, immediately after (NDIS group only), and then 6 and 12 months later. The principal dependent variables were scores on the DAQ and the DBQ. The data offer support for a modest impact of the NDIS intervention compared with controls at six months, which is maintained at 12 months on some measures. In particular, for the DAQ and DBQ error scores, a modest but significant effect of NDIS course attendance on data collected at six months was apparent, although this effect has disappeared by 12 months. For DBQ lapses and DBQ violations there was a significant effect at both 6 and 12 months. There were few variables which appeared to moderate these effects. For self-reported accidents, the NDIS group experienced fewer accidents in the first six months following course attendance when compared with the control group, although this difference was not apparent over the next six months (months 7 to 12). For self-reported near misses, although the NDIS group did not experience significantly fewer accidents in the first six months following course attendance when compared with the control group, this difference was significant in the following six months. There were no significant differences in self-reported violations. These effects were not significantly moderated by demographic, driving or psychological variables (i.e. similar effects were apparent for all the sub-groups of drivers).

In the second study, questionnaires and an on-road driving safety assessment by a qualified advanced driving instructor were completed prior to attending a course, immediately after (NDIS group only), and then 6 and 12 months later. The principal dependent variables were rated driving safety and self-reported scores on the DAQ and the DBQ. The data from this study indicated that there were few, if any, effects that could be confidently attributed to the effects of attending the course. Only in the case of driving instructor rated safety was there any evidence of the course producing an improvement in performance. Even in this case, comparison with the control group failed to reveal significantly safer driving in the NDIS group compared with the group receiving no intervention (the control group). The study failed to observe any significant difference between the control group and the NDIS group in relation to scores on the DAQ, the DBQ, self-reported accident, self-

reported near misses, self-reported violations, attitude response latencies and TPB measures. Interestingly, none of these effects appeared to be significantly moderated by the demographic and psychological variables examined here. Thus the intervention appears to be equally unsuccessful for all sub-groups. Nevertheless, examination of the NDIS group alone indicated that DAQ, DBQ lapses, DBQ errors, DBQ violations, on-road driving assessment, response latencies and TPB measures all show significant improvements over time from before to after the intervention. These effects were particularly impressive for the on-road measures and the three DBQ measures (significant changes following the intervention which were maintained at 6 and 12 months).

The current evidence is broadly consistent with previous work. Like Burgess and Webley (1999), some improvements in driver attitudes and self-reported behaviour (as assessed by the DAQ and DBQ) were apparent among NDIS course attendees and maintained up until 12 months post-course. However, the more powerful comparison with the control group did not usually indicate safer attitudes or behaviours in the NDIS group compared with the control group. Similarly, for the objective on-road driving measures, while some improvement was apparent in the NDIS course attendees, this group did not significantly differ from the comparison control group. Thus it would appear that any effects that NDIS course attendance has are rather modest and may be insufficient to be translated into safer driving behaviour.

Although in the current research we found evidence of a modest improvement in attitudes towards safe driving for those who attend the course compared with a similar control group, we did not find reliable evidence that this translates into improved driving performance on the road. The lack of impact on subsequent accidents and careless driving offences reported by Buckle *et al.* (2005) lends further support to our conclusion that attending NDIS courses has only a modest impact on attitudes, and this is not strong enough to translate into safety gains. Based on the data from our and the Buckle *et al.* study, modification of the NDIS courses in order to improve their effectiveness may be warranted.

5 REFERENCES

Ajzen (1991)

Buckle, G.S., Buttress, S. and Pearce, L.M. (2005). *Further research into the National Drivers Improvement Scheme*. Report to the Road Safety Division of the Department for Transport.

Burgess, C. and Webley, P. (1999). Evaluating the effectiveness of the UK's National Driving Improvement Scheme. *Behavioural Research in Road Safety IX*, TRL Report.

Conner, M.T. and Sparks, P. (1995). The theory of planned behaviour and health behaviours. In M. Conner and P. Norman (Eds), *Predicting health behaviour: Research and practice with social cognition models* (pp. 121–162). Milton Keynes: Open University Press.

Conner, M. and Sparks, P. (2002). Ambivalence and attitudes. *European Review of Social Psychology*, 12, 37–70.

Crowne, D.P. and Marlowe, D. (1961). Social desirability and response to perceived situational demands. *Journal of Consulting Psychology*, 25, 109–115.

Edwards, I. (2003). *Initial analysis of speed questionnaire data*. Unpublished report: Association of National Driver Improvement Scheme Providers.

Greenwald, A.G. and Banaji, M.R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, 102, 4–27.

International Personality Item Pool (2002). A Scientific Collaboratory for the Development of Advanced Measures of Personality Traits and Other Individual Differences (<http://ipip.ori.org/>). Internet website.

Meadows, M.L. (2003). *Evaluation of Lancashire County Council's speed awareness course*. Unpublished report.

Parker, D, Stradling, S.G. and Manstead, A.S.R. (1996). Modifying beliefs and attitudes to exceeding the speed limit: An intervention study based on the theory of planned behaviour. *Journal of Applied Social Psychology*, 26, 1–19.

Reason, J.T., Manstead, A.S.R., Stradling, S.G., Baxter, J.S. and Campbell, K.A. (1990). Errors and violations on the road: A real distinction? *Ergonomics*, 33, 1315–1332.

Terry, D.J. and Hogg, M.A. (1996). Group norms and the attitude-behavior relationship: A role for group identification. *Personality and Social Psychology Bulletin*, 22, 776–793.

Zuckerman, M. (1994). *Behavioural expressions and biosocial bases of Sensation Seeking*. Cambridge: Cambridge University Press.

APPENDIX A

Questionnaire used for the NDIS group in Study 1

YOU AND YOUR DRIVING

Part One

This questionnaire is the first part of a study that aims to understand how people feel about their driving. You will be requested to fill in the second part after you have completed your course.

In order to gather all your answers from different parts of the questionnaires together, we should be very grateful if you could provide your driving licence number in the box below. Your driving licence number will not be used for any other purposes apart from this study.

YOUR DRIVING LICENCE NUMBER IS

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The information you give in this questionnaire is treated in the STRICTEST CONFIDENCE and will only be used for the purpose of this research. Neither the Police, DVLA, nor NDIS course provider will have access to this information.

Please read the questions carefully and respond to each one of them as honestly as you can. After completing the questionnaire, please take it with you when attending the driver improvement course. The course staff will prepare a large envelope or a box at the venue for you to hand the questionnaire in confidentially.

If you have any queries about this questionnaire survey, please do not hesitate to contact Frank Lai via any of the means provided at the top right corner of the cover letter.

The laws of the road

Sometimes the laws of the road seem either too strict or not strict enough. Please let us know how you feel about some of these laws. For EACH LINE in the table below, please indicate TO WHAT EXTENT YOU AGREE OR DISAGREE with that specific statement. Please indicate this by circling a number in the grid next to each line.

To what extent do you agree with EACH of the following statements?

	I strongly disagree	I disagree	I neither agree nor disagree	I agree	I strongly agree
Some people can drive perfectly safely after drinking three or four pints of beer	1	2	3	4	5
People stopped by the police for close-following are unlucky because lots of people do it	1	2	3	4	5
I would welcome further use of the double white lines to let me know when it is unsafe to overtake	1	2	3	4	5
Speed limits are often set too low, with the result that many drivers ignore them	1	2	3	4	5
I think the police should start breathalysing a lot more drivers around pub closing times	1	2	3	4	5
It is quite acceptable to take a slight risk when overtaking	1	2	3	4	5
Close following isn't really a serious problem at the moment	1	2	3	4	5
I know exactly how fast I can drive and still drive safely	1	2	3	4	5
Some drivers can be perfectly safe overtaking in situations which would be risky for others	1	2	3	4	5
Even one drink make you drive less safely	1	2	3	4	5
I would favour stricter enforcement of the speed limit on 30 mph roads	1	2	3	4	5
Some people can drive safely even though they only leave a small gap behind the vehicle in front	1	2	3	4	5
The aim of the police should be to stop as many people as possible overtaking in risky circumstances	1	2	3	4	5
Even driving slightly faster than the speed limit makes you less safe as a driver	1	2	3	4	5
It's hard to have a good time if everyone else is drinking but you have to limit yourself because you're driving	1	2	3	4	5
I would be happier if close-following regulations were more strictly applied	1	2	3	4	5
Stricter enforcement of speed limits on 30 mph roads would be effective in reducing the occurrence of road accidents	1	2	3	4	5
Even driving slightly too close to the car in front makes you less safe as a driver	1	2	3	4	5
I think it is okay to overtake in risky circumstances as long as you drive within your own capabilities	1	2	3	4	5
The law should be changed so that drivers aren't allowed to drink any alcohol	1	2	3	4	5

Your usual driving

Every driver makes occasional mistakes. Even the best drivers make errors or bend the rules sometimes. For each behaviour described in the table below, please indicate **HOW OFTEN** the behaviour happened to you **IN THE LAST 3 MONTHS**. Please indicate this by circling a number in the grid next to EACH LINE. We do not expect precise answers, just your best guesses, so please do not linger too long over one line.

1. How often did you do EACH of the following IN THE LAST 3 MONTHS?

	Never	Hardly Ever	Occasionally	Quite Often	Frequently	Nearly All The Time
Attempt to drive away from traffic lights in third gear	0	1	2	3	4	5
Become impatient with a slow driver in the outer lane and overtake on the inside	0	1	2	3	4	5
Drive especially close to the car in front as a signal to the driver to go faster or get out of the way	0	1	2	3	4	5
Attempt to overtake someone that you hadn't noticed to be taking a right turn	0	1	2	3	4	5
Forget where you left your car in the car park	0	1	2	3	4	5
Switch on one thing, such as headlights, when you meant to switch on something else, such as wipers	0	1	2	3	4	5
Realize that you have no clear recollection of the road along which you have just been travelling	0	1	2	3	4	5
Cross a junction knowing that the traffic lights have already turned against you	0	1	2	3	4	5
Fail to notice that pedestrians are crossing when turning into a side road from a main road	0	1	2	3	4	5
Angered by another driver's behaviour, you gave chase with the intention of giving him/her a piece of your mind	0	1	2	3	4	5
Misread the signs and exit from a roundabout on the wrong road	0	1	2	3	4	5
Disregard the speed limits late at night or early in the morning	0	1	2	3	4	5
On turning left, nearly hit a cyclist who has come up on your inside	0	1	2	3	4	5
Queuing to turn left onto a main road, you pay such close attention to the mainstream of traffic that you nearly hit the car in front	0	1	2	3	4	5
Drive even though you realize you might be over the legal blood alcohol level	0	1	2	3	4	5
Have an aversion to a particular class of road user, and indicate your hostility by whatever means you can	0	1	2	3	4	5
Underestimate the speed of an oncoming vehicle when overtaking	0	1	2	3	4	5
Hit something reversing that you had not previously seen	0	1	2	3	4	5
Intending to drive to destination A, you 'wake up' to find yourself on a road to destination B, perhaps because the latter is your more usual destination	0	1	2	3	4	5
Get into the wrong lane approaching a roundabout or junction	0	1	2	3	4	5
Miss 'Give Way' signs, and narrowly avoid colliding with traffic having the right of way	0	1	2	3	4	5
Fail to check your rear-view mirror before pulling out, changing lanes, etc.	0	1	2	3	4	5
Get involved in unofficial 'races' with other drivers	0	1	2	3	4	5
Brake too quickly on a slippery road, or steer the wrong way into a skid	0	1	2	3	4	5

YOU

In order to make sense of the large amount of information in this research, we would like a little information about you and the kind of driving you usually do.

Please TICK the appropriate BOXES or write in the space provided.

1. Your gender: Male
 Female
2. Your age, in years, at the last birthday _____ years old
3. What type of area do you live in? Mainly built up, urban area
 Mainly countryside, rural area
4. How long ago did you obtain your driving licence?
_____ years ago **OR** _____ months ago (if under one year)
5. How many miles do you drive in a usual week? _____ miles in a usual week
6. How many miles did you drive in the past 12 months? _____ miles in the past 12 months
7. How many of these miles you drive in relation to your job? _____ miles in the past 12 months
8. Please indicate if you agree or disagree with the sentences below by circling a number in the grid next to EACH LINE.

	YES	NO
I am always willing to admit it when I make a mistake	1	2
I always try to practice what I preach	1	2
I never resent being asked to return a favour	1	2
I have never irked when people expressed ideas very different from my own	1	2
I have never deliberately said something that hurt someone's feelings	1	2
I like to gossip at times	1	2
There have been occasions when I took advantage of someone	1	2
I sometimes try to get even rather than forgive and forget	1	2
At times I have really insisted on having things my own way	1	2
There have been occasions when I felt like smashing things	1	2

9. Please indicate how accurately does each statement in the table below describe **you**. Please do this by circling one number for EACH LINE. Describe yourself as honestly as you can, in relation to other people you know of the same sex and roughly the same age as you.

How accurately does EACH statement below describe YOU?

	Very inaccurate	Moderately Inaccurate	Neither inaccurate nor accurate	I agree	Nearly All The Time
I am the life of the party	1	2	3	4	5
I feel concern for others	1	2	3	4	5
I am always prepared	1	2	3	4	5
I get stressed out easily	1	2	3	4	5
I have a rich vocabulary	1	2	3	4	5
I don't talk a lot	1	2	3	4	5
I am interested in people	1	2	3	4	5
I leave my belongings around	1	2	3	4	5
I am relaxed most of the time	1	2	3	4	5
I have difficulty understanding abstract ideas	1	2	3	4	5
I feel comfortable around people	1	2	3	4	5
I insult people	1	2	3	4	5
I pay attention to details	1	2	3	4	5
I worry about things	1	2	3	4	5
I have a vivid imagination	1	2	3	4	5
I keep in the background	1	2	3	4	5
I sympathize with others' feelings	1	2	3	4	5
I make a mess of things	1	2	3	4	5
I seldom feel blue	1	2	3	4	5
I am not interested in abstract ideas	1	2	3	4	5
I start conversations	1	2	3	4	5
I am not interested in other people's problems	1	2	3	4	5
I get chores done right away	1	2	3	4	5
I am easily disturbed	1	2	3	4	5
I have excellent ideas	1	2	3	4	5
I have little to say	1	2	3	4	5
I have a soft heart	1	2	3	4	5
I often forget to put things back in their proper place	1	2	3	4	5
I get upset easily	1	2	3	4	5
I do not have a good imagination	1	2	3	4	5
I talk to a lot of different people at parties	1	2	3	4	5
I am not really interested in others	1	2	3	4	5
I like order	1	2	3	4	5
I change my mood a lot	1	2	3	4	5
I am quick to understand things	1	2	3	4	5
I don't like to draw attention to myself	1	2	3	4	5
I take time out for others	1	2	3	4	5
I shirk my duties	1	2	3	4	5
I have frequent mood swings	1	2	3	4	5
I use difficult words	1	2	3	4	5
I don't mind being the centre of attention	1	2	3	4	5
I feel others' emotions	1	2	3	4	5
I follow a schedule	1	2	3	4	5
I get irritated easily	1	2	3	4	5
I spend time reflecting on things	1	2	3	4	5
I am quiet around strangers	1	2	3	4	5
I make people feel at ease	1	2	3	4	5
I am exacting in my work	1	2	3	4	5
I often feel blue	1	2	3	4	5
I am full of ideas	1	2	3	4	5

YOUR THOUGHTS

Please use this space to let us know what you think and feel about the experiences you had so far in relation to the accident and the referral to the National Driver Improvement Scheme. Your thoughts will be most appreciated.

Thank you very much for completing this questionnaire.

Please take it with you when attending the driver improvement course. The course staff will prepare a large envelope or a box at the venue for you to hand the questionnaire in confidentially.

YOU AND YOUR DRIVING

Part Two

This questionnaire is the second part of a study that aims to understand how people feel about their driving. In order to gather all your answers from different parts of the questionnaires together, we should be very grateful if you could provide your driving licence number in the box below. Your driving licence number will not be used for any other purposes apart from this study.

YOUR DRIVING LICENCE NUMBER IS

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The information you give in this questionnaire is treated in the **STRICTEST CONFIDENCE** and will only be used for the purpose of this research. Neither the Police nor the people providing the improvement course will have access to this information.

Please read the questions carefully and respond to each one of them as honestly as you can.

PLEASE HAND IT IN BEFORE YOU LEAVE THE COURSE CENTRE.

The course staff will prepare a large envelope or a box for you to hand the questionnaire in confidentially.

The laws of the road

Sometimes the laws of the road seem either too strict or not strict enough. Please let us know how you feel about some of these laws. For EACH LINE in the table below, please indicate TO WHAT EXTENT YOU AGREE OR DISAGREE with that specific statement. Please indicate this by circling a number in the grid next to each line.

<i>To what extent do you agree with EACH of the following statements?</i>	I strongly disagree	I disagree	I neither agree nor disagree	I agree	I strongly agree
I think it is OK to overtake in risky circumstances as long as you drive within your own capabilities	1	2	3	4	5
The law should be changed so that drivers aren't allowed to drink any alcohol	1	2	3	4	5
It is quite acceptable to drive after only one or two drinks	1	2	3	4	5
On the whole people aren't aware of the dangers involved in close following	1	2	3	4	5
Even overtaking in a slightly risky situation makes you less safe as a driver	1	2	3	4	5
I would be happier if the speed limits were more strictly enforced	1	2	3	4	5
The aim of the police should be to stop as many drink drivers as possible	1	2	3	4	5
People stopped by the police for risky overtaking are unlucky because lots of people do it	1	2	3	4	5
Harsher penalties should be introduced for drivers who drive too close to the car in front	1	2	3	4	5
It's OK to drive faster than the speed limit as long as you drive carefully	1	2	3	4	5
I know exactly what risks I can take when I overtake	1	2	3	4	5
Random breath testing of drivers should be introduced	1	2	3	4	5
People stopped by the police for speeding are unlucky because lots of people do it	1	2	3	4	5
I think the stopping distances in the Highway Code are too great for people to take notice of them	1	2	3	4	5
I would be happier if there was a clamp down on dangerous overtaking	1	2	3	4	5
Speeding is one of the main causes of road accidents	1	2	3	4	5
I think I know exactly how much I can drink and still be under the limit	1	2	3	4	5
It is quite acceptable to drive close to the car in front than is recommended	1	2	3	4	5
Sometimes you have to drive in excess of the speed limit in order to keep up with the flow of traffic	1	2	3	4	5
I would favor a clamp down on drivers who drive too close to the vehicle in front	1	2	3	4	5
Risky overtaking isn't really a serious problem as the moment	1	2	3	4	5
The amount of alcohol you're allowed to drink before driving is too high	1	2	3	4	5

YOU

In order to make sense of the large amount of information in this research, we would like a little information about you and the kind of driving you usually do. Please TICK the appropriate BOXES or write in the space provided.

1. Your gender: Male Female
2. Your age, in years, at the last birthday _____ years old
3. What type of area do you live in? Mainly built up, urban area Mainly countryside, rural area

4. The table below contains pairs of two choices, A and B. For each pair, please choose the one that best describes your likes or the way you feel. In some cases both choices might describe your likes or feelings; please choose the one that describes them **best**. In other cases you may not like any choice; if so, please mark the choice you dislike **the least**. Please do not leave any items blank.

It is important that for each pair in the table below you pick **only one choice**, A **or** B. We are interested only in **your** likes or feelings, not in how other people feel or how one is supposed to feel about these things.

Choose between:		Write your choice here
A	I often wish I could be a mountain climber	
B	I can't understand people who risk their necks climbing mountains	
Choose between:		
A	A sensible person avoids activities that are dangerous	
B	I sometimes like to do things that are a little frightening	
Choose between:		
A	I would like to take up the sport of water skiing	
B	I would not like to take up water skiing	
Choose between:		
A	I would like to try surf board riding	
B	I would not like to try surf board riding	
Choose between:		
A	I would not like to learn to fly an airplane	
B	I would like to learn to fly an airplane	
Choose between:		
A	I prefer the surface of the water to the depths	
B	I would like to go scuba diving	
Choose between:		
A	I would like to try parachute jumping	
B	I would never want to try jumping out of a plane with or without a parachute	
Choose between:		
A	I like to dive off the high board	
B	I don't like the feeling I get standing on the high board (or I don't go near it at all)	
Choose between:		
A	Sailing long distances in small sailing crafts is foolhardy	
B	I would like to sail in a small but seaworthy sailing craft	
Choose between:		
A	Skiing down a high mountain slope is a good way to end up on crutches	
B	I think I would enjoy the sensations of skiing very fast down a high mountain slope	

YOUR THOUGHTS

Please use this space to let us know what you think and feel about the course you've just completed and the whole experience involving the police and the people who provide the Driver Improvement Scheme. Your thoughts will be most appreciated.

Thank you very much for completing this questionnaire.

PLEASE HAND IT IN BEFORE YOU LEAVE THE COURSE CENTRE.

The course staff will prepare a large envelope or a box for you to hand the questionnaire in confidentially.

YOU AND YOUR DRIVING

Part Three

This questionnaire is the third part of a study that aims to understand how people feel about their driving. We will invite you to complete the final part of this questionnaire study in six months time.

YOUR DRIVER NUMBER IS

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The information you give in this questionnaire is treated in the **STRICTEST CONFIDENCE** and will only be used for the purpose of this research. Neither the Police nor the people providing the improvement course will have access to this information.

Please read the questions carefully and respond to each one of them as honestly as you can.

After completing the questionnaire, please post it to us using the FREEPOST envelope provided.

Your usual driving

Every driver makes occasional mistakes. Even the best drivers make errors or bend the rules sometimes. For each behaviour described in the table below, please indicate **HOW OFTEN** the behaviour happened to you **IN THE LAST 3 MONTHS**. Please indicate this by circling a number in the grid next to **EACH LINE**. We do not expect precise answers, just your best guesses, so please do not linger too long over one line.

1. How often did you do EACH of the following IN THE LAST 3 MONTHS?

	Never	Hardly Ever	Occasionally	Quite Often	Frequently	Nearly All The Time
Attempt to drive away from traffic lights in third gear	0	1	2	3	4	5
Become impatient with a slow driver in the outer lane and overtake on the inside	0	1	2	3	4	5
Drive especially close to the car in front as a signal to the driver to go faster or get out of the way	0	1	2	3	4	5
Attempt to overtake someone that you hadn't noticed to be taking a right turn	0	1	2	3	4	5
Forget where you left your car in the car park	0	1	2	3	4	5
Switch on one thing, such as headlights, when you meant to switch on something else, such as wipers	0	1	2	3	4	5
Realise that you have no clear recollection of the road along which you have just been travelling	0	1	2	3	4	5
Cross a junction knowing that the traffic lights have already turned against you	0	1	2	3	4	5
Fail to notice that pedestrians are crossing when turning into a side road from a main road	0	1	2	3	4	5
Angered by another driver's behaviour, you gave chase with the intention of giving him/her a piece of your mind	0	1	2	3	4	5
Misread the signs and exit from a roundabout on the wrong road	0	1	2	3	4	5
Disregard the speed limits late at night or early in the morning	0	1	2	3	4	5
On turning left, nearly hit a cyclist who has come up on your inside	0	1	2	3	4	5
Queuing to turn left onto a main road, you pay such close attention to the mainstream of traffic that you nearly hit the car in front	0	1	2	3	4	5
Drive even though you realise you might be over the legal blood alcohol level	0	1	2	3	4	5
Have an aversion to a particular class of road user, and indicate your hostility by whatever means you can	0	1	2	3	4	5
Underestimate the speed of an oncoming vehicle when overtaking	0	1	2	3	4	5
Hit something reversing that you had not previously seen	0	1	2	3	4	5
Intending to drive to destination A, you 'wake up' to find yourself on a road to destination B, perhaps because the latter is your more usual destination	0	1	2	3	4	5
Get into the wrong lane approaching a roundabout or junction	0	1	2	3	4	5
Miss 'Give Way' signs, and narrowly avoid colliding with traffic having the right of way	0	1	2	3	4	5
Fail to check your rearview mirror before pulling out, changing lanes, etc.	0	1	2	3	4	5
Get involved in unofficial 'races' with other drivers	0	1	2	3	4	5
Brake too quickly on a slippery road, or steer the wrong way into a skid	0	1	2	3	4	5

Your recent driving

We would like you to tell us about your driving experience **IN THE LAST SIX MONTHS**. We would be very grateful if you could answer the questions as honestly as you can.

Please be assured that your answers will be treated in the strictest confidence and neither the Police nor the DVLA have access to this information.

A. Adverse traffic events

Almost every driver becomes involved in an adverse traffic event (accident or near-miss) of some sort during their driving years. We would like to know how often people experience such events. We would therefore be very grateful if you could let us know how many ACCIDENTS or NEAR MISSES that you have been involved in during **the last six months**.

We refer accident to any collision that occurred on the public roads (please exclude those that occurred on private property – e.g. hitting a post while pulling out of your drive), while you were the driver of the vehicle and irrespective of who was at fault.

1. In the last six months, I have been involved in _____ accidents.

We refer near miss to situations when you narrowly missed being involved in an accident. Again, we are interested in those near misses that occurred on public roads, while you were the driver of the vehicle and irrespective of who was at fault.

2. In the last six months, I have been involved in _____ near misses.

B. Traffic offences

Nearly all drivers commit traffic offences occasionally (these include speeding, illegal parking, driving without insurance, seat belt offences and others), and we would like to estimate how often these happen to ordinary motorists. We therefore would be very grateful if you could let us know whether you have committed any traffic offence **in the last six months**.

1. Have you been involved in any motoring offences **in the last six months**? Yes No

2. If yes, for each of the offences below please indicate approximately how many times these happened **in the last six months**. *Please write the number of times in the space provided.*

Offence type	Number of times	Offence type	Number of times
Drink/drug related		Reckless driving	
Driving without due care		Taking vehicle without consent	
Racing on the highway		Driving without insurance	
Driving while disqualified		Tailgating (close following)	
Vehicle tax offences		Failure to report an accident	
Dangerous overtaking		Seat belt offences	
Jumping red lights		Speeding	
Failure to stop after an accident		Parking offences	

The laws of the road

Sometimes the laws of the road seem either too strict or not strict enough. Please let us know how you feel about some of these laws. For EACH LINE in the table below, please indicate TO WHAT EXTENT YOU AGREE OR DISAGREE with that specific statement. Please indicate this by circling a number in the grid next to each line.

To what extent do you agree with EACH of the following statements?

	I strongly disagree	I disagree	I neither agree nor disagree	I agree	I strongly agree
Some people can drive perfectly safely after drinking three or four pints of beer	1	2	3	4	5
People stopped by the police for close-following are unlucky because lots of people do it	1	2	3	4	5
I would welcome further use of the double white lines to let me know when it is unsafe to overtake	1	2	3	4	5
Speed limits are often set too low, with the result that many drivers ignore them	1	2	3	4	5
I think the police should start breathalysing a lot more drivers around pub closing times	1	2	3	4	5
It is quite acceptable to take a slight risk when overtaking	1	2	3	4	5
Close following isn't really a serious problem at the moment	1	2	3	4	5
I know exactly how fast I can drive and still drive safely	1	2	3	4	5
Some drivers can be perfectly safe overtaking in situations which would be risky for others	1	2	3	4	5
Even one drink make you drive less safely	1	2	3	4	5
I would favour stricter enforcement of the speed limit on 30 mph roads	1	2	3	4	5
Some people can drive safely even though they only leave a small gap behind the vehicle in front	1	2	3	4	5
The aim of the police should be to stop as many people as possible overtaking in risky circumstances	1	2	3	4	5
Even driving slightly faster than the speed limit makes you less safe as a driver	1	2	3	4	5
It's hard to have a good time if everyone else is drinking but you have to limit yourself because you're driving	1	2	3	4	5
I would be happier if close-following regulations were more strictly applied	1	2	3	4	5
Stricter enforcement of speed limits on 30 mph roads would be effective in reducing the occurrence of road accidents	1	2	3	4	5
Even driving slightly too close to the car in front makes you less safe as a driver	1	2	3	4	5
I think it is okay to overtake in risky circumstances as long as you drive within your own capabilities	1	2	3	4	5
The law should be changed so that drivers aren't allowed to drink any alcohol	1	2	3	4	5

YOUR THOUGHTS

Please use this space to let us know how you feel about your driving experiences so far, since you had attended the Driver Improvement Course. Your thoughts will be most appreciated.

**Thank you very much for completing this questionnaire.
Please post it to us using the FREEPOST envelope provided (No stamp required).**

YOU AND YOUR DRIVING

Part Four

In order to gather all your answers in different parts of the questionnaire together, we would be very grateful if you could provide your driving licence number in the box below. Please be assured that your driving licence number will NOT be used for any other purposes apart from this research.

YOUR DRIVING LICENCE NUMBER IS

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The information you give in this questionnaire is treated in the STRICTEST CONFIDENCE and will only be used for the purpose of this research. Neither the Police nor the DVLA will have access to this information.

Please read the questions carefully and respond to each one of them as honestly as you can.

After completing the questionnaire, please post it to us using the FREEPOST envelope provided.

Your usual driving

Every driver makes occasional mistakes. Even the best drivers make errors or bend the rules sometimes. For each behaviour described in the table below, please indicate **HOW OFTEN** the behaviour happened to you **IN THE LAST 3 MONTHS**. Please indicate this by circling a number in the grid next to **EACH LINE**. We do not expect precise answers, just your best guesses, so please do not linger too long over one line.

1. How often did you do EACH of the following IN THE LAST 3 MONTHS?

	Never	Hardly Ever	Occasionally	Quite Often	Frequently	Nearly All The Time
Attempt to drive away from traffic lights in third gear	0	1	2	3	4	5
Become impatient with a slow driver in the outer lane and overtake on the inside	0	1	2	3	4	5
Drive especially close to the car in front as a signal to the driver to go faster or get out of the way	0	1	2	3	4	5
Attempt to overtake someone that you hadn't noticed to be taking a right turn	0	1	2	3	4	5
Forget where you left your car in the car park	0	1	2	3	4	5
Switch on one thing, such as headlights, when you meant to switch on something else, such as wipers	0	1	2	3	4	5
Realise that you have no clear recollection of the road along which you have just been travelling	0	1	2	3	4	5
Cross a junction knowing that the traffic lights have already turned against you	0	1	2	3	4	5
Fail to notice that pedestrians are crossing when turning into a side road from a main road	0	1	2	3	4	5
Angered by another driver's behaviour, you chase him/her up with the intention of giving him/her a piece of your mind	0	1	2	3	4	5
Misread the signs and exit from a roundabout on the wrong road	0	1	2	3	4	5
Disregard the speed limits late at night or early in the morning	0	1	2	3	4	5
On turning left, nearly hit a cyclist who has come up on the nearside	0	1	2	3	4	5
Queuing to turn left onto a main road, you pay such close attention to the mainstream of traffic that you nearly hit the car in front	0	1	2	3	4	5
Drive even though you realise you might be over the legal blood alcohol level	0	1	2	3	4	5
Have an aversion to a particular class of road user, and indicate your hostility by whatever means you can	0	1	2	3	4	5
Underestimate the speed of an oncoming vehicle when overtaking	0	1	2	3	4	5
Hit something when reversing that you had not previously seen	0	1	2	3	4	5
Intending to drive to destination A, you suddenly notice that you are on the road to destination B, perhaps because B is your more usual destination	0	1	2	3	4	5
Get into the wrong lane when approaching a roundabout or junction	0	1	2	3	4	5
Miss 'Give Way' signs, and narrowly avoid colliding with traffic having the right of way	0	1	2	3	4	5
Fail to check your rear view mirror before pulling out, changing lanes, etc.	0	1	2	3	4	5
Get involved in unofficial 'races' with other drivers	0	1	2	3	4	5
Brake too quickly on a slippery road, or steer the wrong way into a skid	0	1	2	3	4	5

The laws of the road

Sometimes the laws of the road seem either too strict or not strict enough. Please let us know how you feel about some of these laws. For EACH LINE in the table below, please indicate TO WHAT EXTENT YOU AGREE OR DISAGREE with that specific statement. Please indicate this by circling a number in the grid next to each line.

To what extent do you agree with EACH of the following statements?

	I strongly disagree	I disagree	I neither agree nor disagree	I agree	I strongly agree
I think it is OK to overtake in risky circumstances as long as you drive within your own capabilities	1	2	3	4	5
The law should be changed so that drivers aren't allowed to drink any alcohol	1	2	3	4	5
It is quite acceptable to drive after only one or two drinks	1	2	3	4	5
On the whole people aren't aware of the dangers involved in close following	1	2	3	4	5
Even overtaking in a slightly risky situation makes you less safe as a driver	1	2	3	4	5
I would be happier if the speed limits were more strictly enforced	1	2	3	4	5
The aim of the police should be to stop as many drink drivers as possible	1	2	3	4	5
People stopped by the police for risky overtaking are unlucky because lots of people do	1	2	3	4	5
Harsher penalties should be introduced for drivers who drive too close to the car in	1	2	3	4	5
It's OK to drive faster than the speed limit as long as you drive carefully	1	2	3	4	5
I know exactly what risks I can take when I overtake	1	2	3	4	5
Random breath testing of drivers should be introduced	1	2	3	4	5
People stopped by the police for speeding are unlucky because lots of people do it	1	2	3	4	5
I think the stopping distances in the Highway Code are too great for people to take notice of them	1	2	3	4	5
I would be happier if there was a clamp down on dangerous overtaking	1	2	3	4	5
Speeding is one of the main causes of road accidents	1	2	3	4	5
I think I know exactly how much I can drink and still be under the limit	1	2	3	4	5
It is quite acceptable to drive close to the car in front than is recommended	1	2	3	4	5
Sometimes you have to drive in excess of the speed limit in order to keep up with the flow of traffic	1	2	3	4	5
I would favour a clamp down on drivers who drive too close to the vehicle in front	1	2	3	4	5
Risky overtaking isn't really a serious problem as the moment	1	2	3	4	5
The amount of alcohol you're allowed to drink before driving is too high	1	2	3	4	5

Your recent driving

We would like you to tell us about your driving experience **IN THE LAST SIX MONTHS**. We would be very grateful if you could answer the questions as honestly as you can.

Please be assured that your answers will be treated in the strictest confidence and neither the Police nor the DVLA have access to this information.

A. Adverse traffic events

Almost every driver becomes involved in an adverse traffic event (accident or near-miss) of some sort during their driving years. We would like to know how often people experience such events. We would therefore be very grateful if you could let us know how many ACCIDENTS or NEAR MISSES that you have been involved in during **the last six months**.

We refer accident to any collision that occurred on the public roads (please exclude those that occurred on private property – e.g. hitting a post while pulling out of your drive), while you were the driver of the vehicle and irrespective of who was at fault.

1. In the last six months, I have been involved in _____ accidents.

We refer near miss to situations when you narrowly missed being involved in an accident. Again, we are interested in those near misses that occurred on public roads, while you were the driver of the vehicle and irrespective of who was at fault.

2. In the last six months, I have been involved in _____ near misses.

B. Traffic offences

Nearly all drivers commit traffic offences occasionally (these include speeding, illegal parking, driving without insurance, seat belt offences and others), and we would like to estimate how often these happen to ordinary motorists. We therefore would be very grateful if you could let us know whether you have committed any traffic offence **in the last six months**.

1. Have you been involved in any motoring offences **in the last six months**? Yes No

2. If yes, for each of the offences below please indicate approximately how many times these happened **in the last six months**. *Please write the number of times in the space provided.*

Offence type	Number of times	Offence type	Number of times
Drink/drug related		Reckless driving	
Driving without due care		Taking vehicle without consent	
Racing on the highway		Driving without insurance	
Driving while disqualified		Tailgating (close following)	
Vehicle tax offences		Failure to report an accident	
Dangerous overtaking		Seat belt offences	
Jumping red lights		Speeding	
Failure to stop after an accident		Parking offences	

YOUR THOUGHTS

Please use this space to let us know how you feel about your driving experiences so far, since you had attended the Driver Improvement Course. Your thoughts will be most appreciated.

Thank you very much for completing this questionnaire.

Please post it back to us via the FREEPOST envelope provided (no stamp is required).

APPENDIX B

**Questionnaire used for the control group in
Study 1**

YOU AND YOUR DRIVING

In order to gather all your answers from different parts of the questionnaire together, we would be very grateful if you could provide your driving licence number in the box below.

YOUR DRIVING LICENCE NUMBER IS

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

The information you give in this questionnaire is treated in the STRICTEST CONFIDENCE and will only be used for the purpose of this research. Neither the Police nor the DVLA will have access to this information. Please read the questions carefully and respond to each one of them as honestly as you can.

*** IMPORTANT NOTE ***

In order for us to complete this research, we need to post you two follow-up questionnaires around six months and twelve months later. We should be very grateful if you would be willing to help us out. For this purpose we will need to ask your contact details. Please be assured that we will neither disclose any of your personal details to any third parties nor bother you after this research is finished.

Upon receiving the final part of the questionnaire, your name will be entered into a draw for the chance of winning £150.

Name _____

Address _____

Postcode _____

If you have any questions or you would like more information about this research, please do not hesitate to contact us by any of the means printed on the right top corner of the cover letter.

The laws of the road

Sometimes the laws of the road seem either too strict or not strict enough. Please let us know how you feel about some of these laws. For EACH LINE in the table below, please indicate TO WHAT EXTENT YOU AGREE OR DISAGREE with that specific statement. Please indicate this by circling a number in the grid next to each line.

To what extent do you agree with EACH of the following statements?

	I strongly disagree	I disagree	I neither agree nor disagree	I agree	I strongly agree
Some people can drive perfectly safely after drinking three or four pints of beer	1	2	3	4	5
People stopped by the police for close-following are unlucky because lots of people do it	1	2	3	4	5
I would welcome further use of the double white lines to let me know when it is unsafe to overtake	1	2	3	4	5
Speed limits are often set too low, with the result that many drivers ignore them	1	2	3	4	5
I think the police should start breathalysing a lot more drivers around pub closing times	1	2	3	4	5
It is quite acceptable to take a slight risk when overtaking	1	2	3	4	5
Close following isn't really a serious problem at the moment	1	2	3	4	5
I know exactly how fast I can drive and still drive safely	1	2	3	4	5
Some drivers can be perfectly safe overtaking in situations which would be risky for others	1	2	3	4	5
Even one drink make you drive less safely	1	2	3	4	5
I would favour stricter enforcement of the speed limit on 30 mph roads	1	2	3	4	5
Some people can drive safely even though they only leave a small gap behind the vehicle in front	1	2	3	4	5
The aim of the police should be to stop as many people as possible overtaking in risky circumstances	1	2	3	4	5
Even driving slightly faster than the speed limit makes you less safe as a driver	1	2	3	4	5
It's hard to have a good time if everyone else is drinking but you have to limit yourself because you're driving	1	2	3	4	5
I would be happier if close-following regulations were more strictly applied	1	2	3	4	5
Stricter enforcement of speed limits on 30 mph roads would be effective in reducing the occurrence of road accidents	1	2	3	4	5
Even driving slightly too close to the car in front makes you less safe as a driver	1	2	3	4	5
I think it is okay to overtake in risky circumstances as long as you drive within your own capabilities	1	2	3	4	5
The law should be changed so that drivers aren't allowed to drink any alcohol	1	2	3	4	5

Your usual driving

Every driver makes occasional mistakes. Even the best drivers make errors or bend the rules sometimes. For each behaviour described in the table below, please indicate **HOW OFTEN** the behaviour happened to you **IN THE LAST 3 MONTHS**. Please indicate this by circling a number in the grid next to **EACH LINE**. We do not expect precise answers, just your best guesses, so please do not linger too long over one line.

1. How often did you do EACH of the following IN THE LAST 3 MONTHS?

	Never	Hardly Ever	Occasionally	Quite Often	Frequently	Nearly All The Time
Attempt to drive away from traffic lights in third gear	0	1	2	3	4	5
Become impatient with a slow driver in the outer lane and overtake on the inside	0	1	2	3	4	5
Drive especially close to the car in front as a signal to the driver to go faster or get out of the way	0	1	2	3	4	5
Attempt to overtake someone that you hadn't noticed to be taking a right turn	0	1	2	3	4	5
Forget where you left your car in the car park	0	1	2	3	4	5
Switch on one thing, such as headlights, when you meant to switch on something else, such as wipers	0	1	2	3	4	5
Realize that you have no clear recollection of the road along which you have just been travelling	0	1	2	3	4	5
Cross a junction knowing that the traffic lights have already turned against you	0	1	2	3	4	5
Fail to notice that pedestrians are crossing when turning into a side road from a main road	0	1	2	3	4	5
Angered by another driver's behaviour, you gave chase with the intention of giving him/her a piece of your mind	0	1	2	3	4	5
Misread the signs and exit from a roundabout on the wrong road	0	1	2	3	4	5
Disregard the speed limits late at night or early in the morning	0	1	2	3	4	5
On turning left, nearly hit a cyclist who has come up on your inside	0	1	2	3	4	5
Queuing to turn left onto a main road, you pay such close attention to the mainstream of traffic that you nearly hit the car in front	0	1	2	3	4	5
Drive even though you realize you might be over the legal blood alcohol level	0	1	2	3	4	5
Have an aversion to a particular class of road user, and indicate your hostility by whatever means you can	0	1	2	3	4	5
Underestimate the speed of an oncoming vehicle when overtaking	0	1	2	3	4	5
Hit something reversing that you had not previously seen	0	1	2	3	4	5
Intending to drive to destination A, you 'wake up' to find yourself on a road to destination B, perhaps because the latter is your more usual destination	0	1	2	3	4	5
Get into the wrong lane approaching a roundabout or junction	0	1	2	3	4	5
Miss 'Give Way' signs, and narrowly avoid colliding with traffic having the right of way	0	1	2	3	4	5
Fail to check your rear-view mirror before pulling out, changing lanes, etc.	0	1	2	3	4	5
Get involved in unofficial 'races' with other drivers	0	1	2	3	4	5
Brake too quickly on a slippery road, or steer the wrong way into a skid	0	1	2	3	4	5

YOU

In order to make sense of the large amount of information in this research, we would like a little information about you and the kind of driving you usually do.

Please TICK the appropriate BOXES or write in the space provided.

1. Your gender: Male
 Female

2. Your age, in years, at the last birthday _____ years old

3. What type of area do you live in? Mainly built up, urban area
 Mainly countryside, rural area

4. How long ago did you obtain your driving licence?
_____ years ago **OR** _____ months ago (if under one year)

5. How many miles do you drive in a usual week? _____ miles in a usual week

6. How many miles did you drive in the past 12 months? _____ miles in the past 12 months

7. How many of these miles you drive in relation to your job? _____ miles in the past 12 months

8. Please indicate if you agree or disagree with the sentences below by circling a number in the grid next to EACH LINE.

	YES	NO
I am always willing to admit it when I make a mistake	1	2
I always try to practice what I preach	1	2
I never resent being asked to return a favour	1	2
I have never irked when people expressed ideas very different from my own	1	2
I have never deliberately said something that hurt someone's feelings	1	2
I like to gossip at times	1	2
There have been occasions when I took advantage of someone	1	2
I sometimes try to get even rather than forgive and forget	1	2
At times I have really insisted on having things my own way	1	2
There have been occasions when I felt like smashing things	1	2

9. Please indicate how accurately does each statement in the table below describe *you*. Please do this by circling one number for EACH LINE. Describe yourself as honestly as you can, in relation to other people you know of the same sex and roughly the same age as you.

How accurately does EACH statement below describe YOU?

	<i>Very inaccurate</i>	<i>Moderately Inaccurate</i>	<i>Neither inaccurate nor accurate</i>	<i>I agree</i>	<i>Nearly All The Time</i>
I am the life of the party	1	2	3	4	5
I feel concern for others	1	2	3	4	5
I am always prepared	1	2	3	4	5
I get stressed out easily	1	2	3	4	5
I have a rich vocabulary	1	2	3	4	5
I don't talk a lot	1	2	3	4	5
I am interested in people	1	2	3	4	5
I leave my belongings around	1	2	3	4	5
I am relaxed most of the time	1	2	3	4	5
I have difficulty understanding abstract ideas	1	2	3	4	5
I feel comfortable around people	1	2	3	4	5
I insult people	1	2	3	4	5
I pay attention to details	1	2	3	4	5
I worry about things	1	2	3	4	5
I have a vivid imagination	1	2	3	4	5
I keep in the background	1	2	3	4	5
I sympathize with others' feelings	1	2	3	4	5
I make a mess of things	1	2	3	4	5
I seldom feel blue	1	2	3	4	5
I am not interested in abstract ideas	1	2	3	4	5
I start conversations	1	2	3	4	5
I am not interested in other people's problems	1	2	3	4	5
I get chores done right away	1	2	3	4	5
I am easily disturbed	1	2	3	4	5
I have excellent ideas	1	2	3	4	5
I have little to say	1	2	3	4	5
I have a soft heart	1	2	3	4	5
I often forget to put things back in their proper place	1	2	3	4	5
I get upset easily	1	2	3	4	5
I do not have a good imagination	1	2	3	4	5
I talk to a lot of different people at parties	1	2	3	4	5
I am not really interested in others	1	2	3	4	5
I like order	1	2	3	4	5
I change my mood a lot	1	2	3	4	5
I am quick to understand things	1	2	3	4	5
I don't like to draw attention to myself	1	2	3	4	5
I take time out for others	1	2	3	4	5
I shirk my duties	1	2	3	4	5
I have frequent mood swings	1	2	3	4	5
I use difficult words	1	2	3	4	5
I don't mind being the centre of attention	1	2	3	4	5
I feel others' emotions	1	2	3	4	5
I follow a schedule	1	2	3	4	5
I get irritated easily	1	2	3	4	5
I spend time reflecting on things	1	2	3	4	5
I am quiet around strangers	1	2	3	4	5
I make people feel at ease	1	2	3	4	5
I am exacting in my work	1	2	3	4	5
I often feel blue	1	2	3	4	5
I am full of ideas	1	2	3	4	5

YOUR THOUGHTS

Please use this space to let us know what you think and how you feel about the experiences you had in relation to the accident or motoring offence. Your thoughts will be most appreciated.

Thank you very much for completing this questionnaire.

Please post it back to us via the FREEPOST envelope provided (no stamp is required).

YOU AND YOUR DRIVING

In order to gather all your answers from different parts of the questionnaire together, we would be very grateful if you could provide your driving licence number in the box below.

YOUR DRIVING LICENCE NUMBER IS

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

The information you give in this questionnaire is treated in the **STRICTEST CONFIDENCE** and will only be used for the purpose of this research.
Neither the Police nor the DVLA will have access to this information.
Please read the questions carefully and respond to each one of them as honestly as you can.

*** IMPORTANT NOTE ***

In order for us to complete this research, we need to post you the final part of the questionnaire about six months later. We should be very grateful if you would be willing to help us out. For this purpose we will need to ask your contact details. Please be assured that we will neither disclose any of your personal details to any third parties nor bother you after this research is completed.

Upon receiving the final part of the questionnaire, your name will be entered into a draw for the chance of winning £150.

Name _____

Address _____

Postcode _____

If you have any questions or you would like more information about this research, please do not hesitate to contact us by any of the means printed on the right top corner of the cover letter.

Your usual driving

Every driver makes occasional mistakes. Even the best drivers make errors or bend the rules sometimes. For each behaviour described in the table below, please indicate **HOW OFTEN** the behaviour happened to you **IN THE LAST 3 MONTHS**. Please indicate this by circling a number in the grid next to **EACH LINE**. We do not expect precise answers, just your best guesses, so please do not linger too long over one line.

1. How often did you do EACH of the following IN THE LAST 3 MONTHS?

	Never	Hardly Ever	Occasionally	Quite Often	Frequently	Nearly All The Time
Attempt to drive away from traffic lights in third gear	0	1	2	3	4	5
Become impatient with a slow driver in the outer lane and overtake on the inside	0	1	2	3	4	5
Drive especially close to the car in front as a signal to the driver to go faster or get out of the way	0	1	2	3	4	5
Attempt to overtake someone that you hadn't noticed to be taking a right turn	0	1	2	3	4	5
Forget where you left your car in the car park	0	1	2	3	4	5
Switch on one thing, such as headlights, when you meant to switch on something else, such as wipers	0	1	2	3	4	5
Realize that you have no clear recollection of the road along which you have just been travelling	0	1	2	3	4	5
Cross a junction knowing that the traffic lights have already turned against you	0	1	2	3	4	5
Fail to notice that pedestrians are crossing when turning into a side road from a main road	0	1	2	3	4	5
Angered by another driver's behaviour, you gave chase with the intention of giving him/her a piece of your mind	0	1	2	3	4	5
Misread the signs and exit from a roundabout on the wrong road	0	1	2	3	4	5
Disregard the speed limits late at night or early in the morning	0	1	2	3	4	5
On turning left, nearly hit a cyclist who has come up on your inside	0	1	2	3	4	5
Queuing to turn left onto a main road, you pay such close attention to the mainstream of traffic that you nearly hit the car in front	0	1	2	3	4	5
Drive even though you realize you might be over the legal blood alcohol level	0	1	2	3	4	5
Have an aversion to a particular class of road user, and indicate your hostility by whatever means you can	0	1	2	3	4	5
Underestimate the speed of an oncoming vehicle when overtaking	0	1	2	3	4	5
Hit something reversing that you had not previously seen	0	1	2	3	4	5
Intending to drive to destination A, you 'wake up' to find yourself on a road to destination B, perhaps because the latter is your more usual destination	0	1	2	3	4	5
Get into the wrong lane approaching a roundabout or junction	0	1	2	3	4	5
Miss 'Give Way' signs, and narrowly avoid colliding with traffic having the right of way	0	1	2	3	4	5
Fail to check your rear-view mirror before pulling out, changing lanes, etc.	0	1	2	3	4	5
Get involved in unofficial 'races' with other drivers	0	1	2	3	4	5
Brake too quickly on a slippery road, or steer the wrong way into a skid	0	1	2	3	4	5

Your recent driving

We would like you to tell us about your driving experience **IN THE LAST SIX MONTHS**. We would be very grateful if you could answer the questions as honestly as you can.

Please be assured that your answers will be treated in the strictest confidence and neither the Police nor the DVLA have access to this information.

A. Adverse traffic events

Almost every driver becomes involved in an adverse traffic event (accident or near-miss) of some sort during their driving years. We would like to know how often people experience such events. We would therefore be very grateful if you could let us know how many ACCIDENTS or NEAR MISSES that you have been involved in during **the last six months**.

We refer accident to any collision that occurred on the public roads (please exclude those that occurred on private property – e.g. hitting a post while pulling out of your drive), while you were the driver of the vehicle and irrespective of who was at fault.

1. In the last six months, I have been involved in _____ accidents.

We refer near miss to situations when you narrowly missed being involved in an accident. Again, we are interested in those near misses that occurred on public roads, while you were the driver of the vehicle and irrespective of who was at fault.

2. In the last six months, I have been involved in _____ near misses.

B. Traffic offences

Nearly all drivers commit traffic offences occasionally (these include speeding, illegal parking, driving without insurance, seat belt offences and others), and we would like to estimate how often these happen to ordinary motorists. We therefore would be very grateful if you could let us know whether you have committed any traffic offence **in the last six months**.

1. Have you been involved in any motoring offences **in the last six months**? Yes No

2. If yes, for each of the offences below please indicate approximately how many times these happened **in the last six months**. *Please write the number of times in the space provided.*

Offence type	Number of times	Offence type	Number of times
Drink/drug related		Reckless driving	
Driving without due care		Taking vehicle without consent	
Racing on the highway		Driving without insurance	
Driving while disqualified		Tailgating (close following)	
Vehicle tax offences		Failure to report an accident	
Dangerous overtaking		Seat belt offences	
Jumping red lights		Speeding	
Failure to stop after an accident		Parking offences	

YOU

In order to make sense of the large amount of information in this research, we would like a little information about you and the kind of driving you usually do. Please TICK the appropriate BOXES or write in the space provided.

1. Your gender: Male
 Female
2. Your age, in years, at the last birthday _____ years old
3. What type of area do you live in? Mainly built up, urban area
 Mainly countryside, rural area

4. The table below contains pairs of two choices, A and B. For each pair, please choose the one that best describes your likes or the way you feel. In some cases both choices might describe your likes or feelings; please choose the one that describes them **best**. In other cases you may not like any choice; if so, please mark the choice you dislike **the least**. Please do not leave any items blank.

It is important that for each pair in the table below you pick **only one choice**, A **or** B. We are interested only in **your** likes or feelings, not in how other people feel or how one is supposed to feel about these things.

Choose between:		Write your choice here
A	I often wish I could be a mountain climber	
B	I can't understand people who risk their necks climbing mountains	
Choose between:		
A	A sensible person avoids activities that are dangerous	
B	I sometimes like to do things that are a little frightening	
Choose between:		
A	I would like to take up the sport of water skiing	
B	I would not like to take up water skiing	
Choose between:		
A	I would like to try surf board riding	
B	I would not like to try surf board riding	
Choose between:		
A	I would not like to learn to fly an airplane	
B	I would like to learn to fly an airplane	
Choose between:		
A	I prefer the surface of the water to the depths	
B	I would like to go scuba diving	
Choose between:		
A	I would like to try parachute jumping	
B	I would never want to try jumping out of a plane with or without a parachute	
Choose between:		
A	I like to dive off the high board	
B	I don't like the feeling I get standing on the high board (or I don't go near it at all)	
Choose between:		
A	Sailing long distances in small sailing crafts is foolhardy	
B	I would like to sail in a small but seaworthy sailing craft	
Choose between:		
A	Skiing down a high mountain slope is a good way to end up on crutches	
B	I think I would enjoy the sensations of skiing very fast down a high mountain slope	

The laws of the road

Sometimes the laws of the road seem either too strict or not strict enough. Please let us know how you feel about some of these laws. For EACH LINE in the table below, please indicate TO WHAT EXTENT YOU AGREE OR DISAGREE with that specific statement. Please indicate this by circling a number in the grid next to each line.

To what extent do you agree with EACH of the following statements?

	I strongly disagree	I disagree	I neither agree nor disagree	I agree	I strongly agree
Some people can drive perfectly safely after drinking three or four pints of beer	1	2	3	4	5
People stopped by the police for close-following are unlucky because lots of people do it	1	2	3	4	5
I would welcome further use of the double white lines to let me know when it is unsafe to overtake	1	2	3	4	5
Speed limits are often set too low, with the result that many drivers ignore them	1	2	3	4	5
I think the police should start breathalysing a lot more drivers around pub closing times	1	2	3	4	5
It is quite acceptable to take a slight risk when overtaking	1	2	3	4	5
Close following isn't really a serious problem at the moment	1	2	3	4	5
I know exactly how fast I can drive and still drive safely	1	2	3	4	5
Some drivers can be perfectly safe overtaking in situations which would be risky for others	1	2	3	4	5
Even one drink make you drive less safely	1	2	3	4	5
I would favour stricter enforcement of the speed limit on 30 mph roads	1	2	3	4	5
Some people can drive safely even though they only leave a small gap behind the vehicle in front	1	2	3	4	5
The aim of the police should be to stop as many people as possible overtaking in risky circumstances	1	2	3	4	5
Even driving slightly faster than the speed limit makes you less safe as a driver	1	2	3	4	5
It's hard to have a good time if everyone else is drinking but you have to limit yourself because you're driving	1	2	3	4	5
I would be happier if close-following regulations were more strictly applied	1	2	3	4	5
Stricter enforcement of speed limits on 30 mph roads would be effective in reducing the occurrence of road accidents	1	2	3	4	5
Even driving slightly too close to the car in front makes you less safe as a driver	1	2	3	4	5
I think it is okay to overtake in risky circumstances as long as you drive within your own capabilities	1	2	3	4	5
The law should be changed so that drivers aren't allowed to drink any alcohol	1	2	3	4	5

YOUR THOUGHTS

Please use this space to let us know what you think and how you feel about the experiences you had in relation to the accident or motoring offence. Your thoughts will be most appreciated.

**Thank you very much for completing this questionnaire.
Please post it to us using the FREEPOST envelope provided (No stamp required).**

YOU AND YOUR DRIVING

In order to gather all your answers from different parts of the questionnaire together, we would be very grateful if you could provide your driving licence number in the box below.

YOUR DRIVING LICENCE NUMBER IS

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

The information you give in this questionnaire is treated in the **STRICTEST CONFIDENCE** and will only be used for the purpose of this research.
Neither the Police nor the DVLA will have access to this information.
Please read the questions carefully and respond to each one of them as honestly as you can.

*** IMPORTANT NOTE ***

We are very grateful for your contribution to this research and will enter the name of the driver who has completed all three parts of the questionnaire into a draw for the chance of winning **£150 cash reward**.

Please provide your name and address in the space provided below. We will **NEVER** use your contact details for any other purposes apart from this research nor contact you again after this research is completed.

Please provide your contact details in the space below:

Name _____

Address _____

Postcode _____

If you have any questions or you would like more information about this research, please do not hesitate to contact us by any of the means printed on the right top corner of the cover letter.

The laws of the road

Sometimes the laws of the road seem either too strict or not strict enough. Please let us know how you feel about some of these laws. For EACH LINE in the table below, please indicate TO WHAT EXTENT YOU AGREE OR DISAGREE with that specific statement. Please indicate this by circling a number in the grid next to each line.

<i>To what extent do you agree with EACH of the following statements?</i>	I strongly disagree	I disagree	I neither agree nor disagree	I agree	I strongly agree
I think it is OK to overtake in risky circumstances as long as you drive within your own capabilities	1	2	3	4	5
The law should be changed so that drivers aren't allowed to drink any alcohol	1	2	3	4	5
It is quite acceptable to drive after only one or two drinks	1	2	3	4	5
On the whole people aren't aware of the dangers involved in close following	1	2	3	4	5
Even overtaking in a slightly risky situation makes you less safe as a driver	1	2	3	4	5
I would be happier if the speed limits were more strictly enforced	1	2	3	4	5
The aim of the police should be to stop as many drink drivers as possible	1	2	3	4	5
People stopped by the police for risky overtaking are unlucky because lots of people do it	1	2	3	4	5
Harsher penalties should be introduced for drivers who drive too close to the car in front	1	2	3	4	5
It's OK to drive faster than the speed limit as long as you drive carefully	1	2	3	4	5
I know exactly what risks I can take when I overtake	1	2	3	4	5
Random breath testing of drivers should be introduced	1	2	3	4	5
People stopped by the police for speeding are unlucky because lots of people do it	1	2	3	4	5
I think the stopping distances in the Highway Code are too great for people to take notice of them	1	2	3	4	5
I would be happier if there was a clamp down on dangerous overtaking	1	2	3	4	5
Speeding is one of the main causes of road accidents	1	2	3	4	5
I think I know exactly how much I can drink and still be under the limit	1	2	3	4	5
It is quite acceptable to drive close to the car in front than is recommended	1	2	3	4	5
Sometimes you have to drive in excess of the speed limit in order to keep up with the flow of traffic	1	2	3	4	5
I would favor a clamp down on drivers who drive too close to the vehicle in front	1	2	3	4	5
Risky overtaking isn't really a serious problem as the moment	1	2	3	4	5
The amount of alcohol you're allowed to drink before driving is too high	1	2	3	4	5

Your recent driving

We would like you to tell us about your driving experience **IN THE LAST SIX MONTHS**. We would be very grateful if you could answer the questions as honestly as you can.

Please be assured that your answers will be treated in the strictest confidence and neither the Police nor the DVLA have access to this information.

A. Adverse traffic events

Almost every driver becomes involved in an adverse traffic event (accident or near-miss) of some sort during their driving years. We would like to know how often people experience such events. We would therefore be very grateful if you could let us know how many ACCIDENTS or NEAR MISSES that you have been involved in during **the last six months**.

We refer accident to any collision that occurred on the public roads (please exclude those that occurred on private property – e.g. hitting a post while pulling out of your drive), while you were the driver of the vehicle and irrespective of who was at fault.

1. In the last six months, I have been involved in _____ accidents.

We refer near miss to situations when you narrowly missed being involved in an accident. Again, we are interested in those near misses that occurred on public roads, while you were the driver of the vehicle and irrespective of who was at fault.

2. In the last six months, I have been involved in _____ near misses.

B. Traffic offences

Nearly all drivers commit traffic offences occasionally (these include speeding, illegal parking, driving without insurance, seat belt offences and others), and we would like to estimate how often these happen to ordinary motorists. We therefore would be very grateful if you could let us know whether you have committed any traffic offence **in the last six months**.

1. Have you been involved in any motoring offences **in the last six months**? Yes No

2. If yes, for each of the offences below please indicate approximately how many times these happened **in the last six months**. *Please write the number of times in the space provided.*

Offence type	Number of times	Offence type	Number of times
Drink/drug related		Reckless driving	
Driving without due care		Taking vehicle without consent	
Racing on the highway		Driving without insurance	
Driving while disqualified		Tailgating (close following)	
Vehicle tax offences		Failure to report an accident	
Dangerous overtaking		Seat belt offences	
Jumping red lights		Speeding	
Failure to stop after an accident		Parking offences	

Your usual driving

Every driver makes occasional mistakes. Even the best drivers make errors or bend the rules sometimes. For each behaviour described in the table below, please indicate **HOW OFTEN** the behaviour happened to you **IN THE LAST 3 MONTHS**. Please indicate this by circling a number in the grid next to EACH LINE. We do not expect precise answers, just your best guesses, so please do not linger too long over one line.

1. How often did you do EACH of the following IN THE LAST 3 MONTHS?

	Never	Hardly Ever	Occasionally	Quite Often	Frequently	Nearly All The Time
Attempt to drive away from traffic lights in third gear	0	1	2	3	4	5
Become impatient with a slow driver in the outer lane and overtake on the inside	0	1	2	3	4	5
Drive especially close to the car in front as a signal to the driver to go faster or get out of the way	0	1	2	3	4	5
Attempt to overtake someone that you hadn't noticed to be taking a right turn	0	1	2	3	4	5
Forget where you left your car in the car park	0	1	2	3	4	5
Switch on one thing, such as headlights, when you meant to switch on something else, such as wipers	0	1	2	3	4	5
Realize that you have no clear recollection of the road along which you have just been travelling	0	1	2	3	4	5
Cross a junction knowing that the traffic lights have already turned against you	0	1	2	3	4	5
Fail to notice that pedestrians are crossing when turning into a side road from a main road	0	1	2	3	4	5
Angered by another driver's behaviour, you gave chase with the intention of giving him/her a piece of your mind	0	1	2	3	4	5
Misread the signs and exit from a roundabout on the wrong road	0	1	2	3	4	5
Disregard the speed limits late at night or early in the morning	0	1	2	3	4	5
On turning left, nearly hit a cyclist who has come up on your inside	0	1	2	3	4	5
Queuing to turn left onto a main road, you pay such close attention to the mainstream of traffic that you nearly hit the car in front	0	1	2	3	4	5
Drive even though you realize you might be over the legal blood alcohol level	0	1	2	3	4	5
Have an aversion to a particular class of road user, and indicate your hostility by whatever means you can	0	1	2	3	4	5
Underestimate the speed of an oncoming vehicle when overtaking	0	1	2	3	4	5
Hit something reversing that you had not previously seen	0	1	2	3	4	5
Intending to drive to destination A, you 'wake up' to find yourself on a road to destination B, perhaps because the latter is your more usual destination	0	1	2	3	4	5
Get into the wrong lane approaching a roundabout or junction	0	1	2	3	4	5
Miss 'Give Way' signs, and narrowly avoid colliding with traffic having the right of way	0	1	2	3	4	5
Fail to check your rear-view mirror before pulling out, changing lanes, etc.	0	1	2	3	4	5
Get involved in unofficial 'races' with other drivers	0	1	2	3	4	5
Brake too quickly on a slippery road, or steer the wrong way into a skid	0	1	2	3	4	5

YOUR THOUGHTS

Please use this space to let us know what you think and how you feel about the experiences you had in relation to the accident or motoring offence. Your thoughts will be most appreciated.

Thank you very much for completing this questionnaire.

Please post it back to us via the FREEPOST envelope provided (no stamp is required).

APPENDIX C

Additional analyses from Study 1 on respondents present at any time point

Table C.1 reports the mean DAQ scores for the two groups (NDIS and control) for each time point at which they were assessed across all respondents who were available at each time point (note higher Ns in each cell). In general the results were very similar to those reported for the sub-sample who completed measures at every time point (Table 10). Post-hoc t-tests make clear that the control and experimental groups differed significantly at Time 1 ($t(272) = -2.77, p < 0.01$), but not at Time 4 ($t(1042) = 1.15, ns$), although they were significantly different at Time 3 ($t(1191) = -4.23, p < 0.001$). This would suggest that the findings reported earlier are unlikely to be attributable to attrition biases in the sample.

Table C.1: DAQ scores for control and NDIS groups at each time point for the sub-sample who provided data at any time point in Study 1					
Report					
GROUP		Mean DAQ score Part1	Mean DAQ score Part2	Mean DAQ score Part3	Mean DAQ score Part4
Control	Mean	3.572		3.5302	3.7288
	N	235		103	67
	Std deviation	0.4339		0.43729	0.44255
NDIS	Mean	3.654	3.6101	3.7229	3.6651
	N	2323	2755	1090	977
	Std deviation	0.3841	0.39683	0.44296	0.43919
Total	Mean	3.646	3.6101	3.7063	3.6691
	N	2558	2755	1193	1044
	Std deviation	0.3896	0.39683	0.44560	0.43947

Table C.2 reports the mean DBQ scores for the two groups (NDIS and control) for each time point at which they were assessed across all respondents who were available at each time point (note higher Ns in each cell). In general the results were somewhat similar to those reported for the sub-sample who completed measures at every time point (Table 11). Post-hoc t-tests make clear that the control and experimental groups did not differ significantly at Time 1 on any of the three DBQ measures (largest $t(2560) = 1.57, ns$), were significantly different at Time 3 (smallest $t(1183) = 2.62, p < 0.01$), but were not significantly different at Time 4 (largest $t(1037) = 1.49, ns$). This would suggest that the positive findings reported earlier for Time 4 may be attributable to biases in the attrition of the sample, although this does not appear to be the case for the results reported for Time 3.

Table C.2: DBQ scores for control and NDIS groups at each time point for the sub-sample who provided data at any time point in Study 1

Report										
GROUP		Mean DBQ lapse score Part 1	Mean DBQ error score Part 1	Mean DBQ violation score Part 1	Mean DBQ lapse score Part 3	Mean DBQ error score Part 3	Mean DBQ violation score Part 3	Mean DBQ lapse score Part 4	Mean DBQ error score Part 4	Mean DBQ violation score Part 4
Control	Mean	0.78982	0.412	0.47475	0.75464	0.35000	0.4400	0.8309	0.31	
	N	235	235	235	100	100	100	68	68	
	Std deviation	0.509216	0.3857	0.515974	0.502824	0.340825	0.46242	0.47892	0.332	0.4
NDIS	Mean	0.74684	0.384	0.42703	0.62904	0.25698	0.3347	0.7434	0.30	
	N	2327	2327	2327	1085	1085	1085	971	971	9
	Std deviation	0.475273	0.3683	0.435216	0.425411	0.312355	0.37631	0.46755	0.323	0.4
Total	Mean	0.75078	0.386	0.43141	0.63964	0.26483	0.3435	0.7491	0.30	
	N	2562	2562	2562	1185	1185	1185	1039	1039	10
	Std deviation	0.478543	0.3699	0.443337	0.433647	0.315765	0.38521	0.46857	0.323	0.4

Table C.3 makes clear that the same pattern of findings were apparent for each of these measures when examining the full sample (note larger Ns) (compared to Table 12).

Table C.3: Accidents, near misses and offences for control and NDIS groups at each time point for the sub-sample who provided data at any time point in Study 1							
Report							
GROUP		No. of accidents in last 6 months (Part 3)	No. of near misses in last 6 months (Part 3)	Involvement in motoring offence in last 6 months (Part 3)	No. of accidents in last 6 months (Part 4)	No. of near misses in last 6 months (Part 4)	Involvement in motoring offence in last 6 months (Part 4)
Control	Mean	0.14	0.74	1.68	0.09	1.09	1.77
	N	101	100	101	68	67	65
	Std deviation	0.401	1.488	0.468	0.334	2.227	0.425
NDIS	Mean	0.05	0.43	1.79	0.07	0.73	1.76
	N	1091	1081	1086	979	976	977
	Std deviation	0.230	0.967	0.407	0.283	2.696	0.426
Total	Mean	0.06	0.46	1.78	0.07	0.75	1.76
	N	1192	1181	1187	1047	1043	1042
	Std deviation	0.250	1.024	0.413	0.287	2.669	0.426

APPENDIX D

Additional analyses from Study 1 on moderating variables

Moderation analyses

As we were interested principally in the effects of moderators on the pattern of results reported earlier, generally we restricted our analyses to considering each moderator independently, i.e. interactions among moderators were not considered. The focus was on the effect of each moderator on group, time or group \times time effects. This was partly because small sample sizes in some cells restricted the consideration of multiple moderators simultaneously. As in the earlier analyses for simplicity, we report the analyses excluding socially desirable responding. Repeating the analyses using socially desirable responding as a covariate did not substantively alter the findings, although the covariate did have a significant effect. There were no interactions with the covariate. As a relatively large number of analyses were conducted, we employed a more stringent significance level in order to minimise chances of type II errors (i.e. only effects with $p < 0.01$ are reported). The effects are summarised in Table D.1 and for simplicity are presented first for demographic moderators and then for psychological moderators.

	Demographic measures		Psychological measures	
	Main effects	Interactions	Main effects	Interactions
DAQ	Age	–	Cons, Agree	–
DBQ lapses	–	–	–	–
DBQ errors	–	–	–	Neuroticism
DBQ violations	Gender, age, experience, miles	$T \times G \times M^1$	–	Neuroticism $T \times A$
Self-reported accidents	–	–	–	–
Self-reported near misses	–	–	–	–
Self-reported violations	–	–	–	–

1. $T \times G \times M$ – time by group by miles driven interaction; $T \times A$ – time by agreeableness interaction.

Demographic moderators

There were relatively few effects of the demographic variables as moderators. These are summarised in Table D.2. For DAQ scores there was a main effect of age ($F(1,440) = 9.79, p < 0.01$) but no significant interactions involving gender, age,

length of experience, miles driven per year, or driving mainly for work. Examination of the mean scores revealed DAQ scores to be higher in older participants ($M = 3.70, SD = 0.36$) compared with younger participants ($M = 3.61, SD = 0.41$).

Table D.2: DBQ violation scores for control and NDIS groups at each time point split by low and high miles drivers per year for Study 1

GROUP × MILESP × TIME Measure: MEASURE_1						
GROUP	MILESP	TIME	Mean	Std error	95% confidence interval	
					Lower bound	Upper bound
Control	1.00	1	0.413	0.057	0.300	0.525
		2	0.334	0.052	0.233	0.436
		3	0.434	0.055	0.325	0.543
	2.00	1	0.495	0.074	0.350	0.640
		2	0.568	0.067	0.437	0.699
		3	0.479	0.072	0.338	0.620
NDIS	1.00	1	0.278	0.022	0.235	0.321
		2	0.242	0.020	0.203	0.281
		3	0.257	0.021	0.215	0.299
	2.00	1	0.517	0.037	0.443	0.590
		2	0.384	0.034	0.317	0.451
		3	0.403	0.036	0.332	0.475

* MILESP = Miles driven per year split into high and low.

For the DBQ lapses measure there were no significant main effects of the demographic moderators or interactions.

For the DBQ errors measure there were no significant main effects of the demographic variables or interactions.

For the DBQ violations measure there were main effects for gender ($F(1,439) = 10.2, p < 0.01$), age ($F(1,440) = 24.9, p < 0.001$), experience ($F(1,439) = 15.4, p < 0.001$) and miles driven ($F(1,423) = 11.6, p < 0.001$). A higher number of DBQ violations were reported by men ($M = 0.485, SD = 0.45$; women $M = 0.291, SD = 0.32$), younger participants ($M = 0.515, SD = 0.48$; older $M = 0.32, SD = 0.33$), those with less experience ($M = 0.495, SD = 0.48$; more experience $M = 0.333, SD = 0.34$) and those who had driven more miles ($M = 0.512, SD = 0.44$; less miles driven $M = 0.380, SD = 0.40$). There was one significant interaction: time × group × miles ($F(2,846) = 5.23, p < 0.01$). We explored this interaction by comparing the means in the 12 different groups and then examining significant differences using post-hoc tests (LSD). The results are shown in Table D.2. The data would appear to indicate two things. First, the levels of DBQ violations are particularly low in the NDIS group who drive fewer miles per year compared with the other groups. Second, the trend for DBQ violation scores to drop across successive time points is only apparent in the NDIS high mileage group. Together

these findings would suggest that the NDIS intervention was only successful in reducing DBQ violation scores among those with a high annual mileage. The lack of effect in the low mileage group may be attributable to initially low DBQ violation scores in this group.

For the self-reported accidents, self-reported near misses and self-reported traffic violations there were no main effects or interactions for demographic variables once the data had been transformed to take account of the skewed nature of these data.

Psychological moderators

There were relatively few effects of the psychological variables as moderators. These are summarised in Table D.1. For DAQ this analysis revealed a main effect of conscientiousness ($F(1,447) = 14.8, p < 0.001$) and agreeableness ($F(1,447) = 11.8, p < 0.001$), but no significant interactions with any personality variables. Examination of the mean scores revealed DAQ scores to be higher in more conscientious participants ($M = 3.71, SD = 0.39$) compared with less conscientious participants ($M = 3.60, SD = 0.39$); and also higher in more agreeable participants ($M = 3.72, SD = 0.38$) compared with less agreeable participants ($M = 3.58, SD = 0.38$). Also, for the DAQ measure this analysis revealed no main effects of sensation seeking and no significant interactions with sensation seeking.

For the DBQ lapses measure there were no significant main effects of the personality or sensation-seeking moderators or interactions.

For the DBQ errors measure there was a significant main effect of neuroticism ($F(1,447) = 10.0, p < 0.01$), but no significant interactions with the personality measures and sensation seeking. Examination of the mean scores revealed DBQ errors to be higher in less neurotic participants ($M = 0.417, SD = 0.37$) compared with more neurotic participants ($M = 0.307, SD = 0.32$).

For the DBQ violations measure there was a significant main effects of neuroticism ($F(1,445) 9.25, p < 0.01$) and a significant time by agreeableness interaction ($F(2,894) = 5.02, p < 0.01$). Examination of the mean scores revealed DBQ violations to be higher in less neurotic participants ($M = 0.495, SD = 0.46$) compared with more neurotic participants ($M = 0.347, SD = 0.38$). Examination of the interaction (Table D.3) indicated that DBQ violation scores dropped more strongly across time points for the less agreeable compared with the more agreeable participants (who always gave lower ratings).

For the self-reported accidents, self-reported near misses and self-reported traffic violations there were no main effects or interactions for personality variables or sensation seeking once the data had been transformed to take account of the skewed nature of these data.

Table D.3: DBQ violation scores at each time point split by low and high agreeableness score for Study 1					
ASP × TIMES					
Measure: MEASURE_1					
ASP	TIME	Mean	Std error	95% confidence interval	
				Lower bound	Upper bound
1.00	1	0.424	0.026	0.373	0.475
	2	0.374	0.024	0.326	0.421
	3	0.351	0.025	0.301	0.401
2.00	1	0.296	0.024	0.249	0.342
	2	0.250	0.022	0.207	0.294
	3	0.297	0.023	0.252	0.343

* ASP = agreeableness split into high and low.

APPENDIX E

Theory of Planned Behaviour questionnaire used in Study 2

Your feelings about various driving situations

We are interested in how you feel about various driving situations described in this questionnaire. Over the next few pages we will provide with various driving scenarios. Each scenario is followed by a number of statements and responses relating to your thoughts and beliefs. The statements ask you to rate your responses on a numbered scale from strongly agree to strongly disagree, likely to unlikely, easy to difficult etc. Carefully read both statement and response before circling the number which best reflects your position on the scale. Some questions require you to circle a number on several lines.

Following the example given below, how do you feel if you were to drive in a storm?

For me to drive in a storm would be...

Extremely pleasant	1	2	3	4	5	6	7	Extremely unpleasant
Safe	1	2	3	4	5	6	7	Unsafe

In the responses addressing **extremely pleasant** and **extremely unpleasant**, if you feel it would be extremely unpleasant for you to drive in a storm, you may circle **7**. If you feel it would be somewhat unpleasant but not extremely unpleasant, you might want to just circle **5**.

Similarly, in the responses addressing **safe** and **unsafe**, if you feel it would be no problems at all to drive in a storm, you may circle **1**. If you feel it would be fairly unsafe to drive in a storm but not extremely unsafe, you might want to just circle **6**.

Please bear in mind that

- we are interested in how you *actually* feel rather than how you *are supposed to* feel about these driving situations.
- do not circle more than one number in each set of descriptions.
- do complete all sets of responses attached to each statement.

If you have any queries about completing this questionnaire, please contact Frank Lai at Institute for Transport Studies, University of Leeds. Please take the completed questionnaire with you when attending your driving study.

1. For me to refrain from driving 10 mph or more above the posted speed limit would be... (circle one number per line)

Dangerous	1	2	3	4	5	6	7	Safe
Useful	1	2	3	4	5	6	7	Useless
Unpleasant	1	2	3	4	5	6	7	Pleasant
Beneficial	1	2	3	4	5	6	7	Harmful
Not at all exciting	1	2	3	4	5	6	7	Exciting
Positive	1	2	3	4	5	6	7	Negative
Stress free	1	2	3	4	5	6	7	Stressful
Bad	1	2	3	4	5	6	7	Good

2. How certain are you in your attitude towards refraining from driving 10 mph or more above the posted speed limit?

Extremely uncertain	1	2	3	4	5	6	7	Extremely certain
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3. I have mixed feelings about stopping myself from driving 10 mph or more above the posted speed limit.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
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4. I intend to stop myself from driving 10 mph or more above the posted speed limit.

Unlikely	1	2	3	4	5	6	7	Likely
Definitely do	1	2	3	4	5	6	7	Definitely do not

5. I want to stop myself from driving 10 mph or more above the post speed limit.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

6. I plan to stop myself from driving 10 mph or more above the posted speed limit.

Definitely do	1	2	3	4	5	6	7	Definitely do not
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7. Most people who are important to me think I should stop myself from driving 10 mph or more above the posted speed limit.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
Likely	1	2	3	4	5	6	7	Unlikely

8. People who are important to me would

Disapprove	1	2	3	4	5	6	7	Approve
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of me stopping myself from driving 10 mph or more above the posted speed limit.

9. For me to stop myself from driving 10 mph or more above the posted speed limit would be

Easy	1	2	3	4	5	6	7	Difficult
-------------	---	---	---	---	---	---	---	------------------

10. If I wanted to I could easily stop myself from driving 10 mph or more above the posted speed limit.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

11. How much control do you have over stopping yourself from driving 10 mph or more above the posted speed limit?

Complete control 1 2 3 4 5 6 7 **No control**

12. I feel in complete control of whether or not I stop myself from driving 10 mph or more above the posted speed limit.

Strongly disagree 1 2 3 4 5 6 7 **Strongly agree**

13. It is entirely up to me whether or not I stop myself from driving 10 mph or more above the posted speed limit.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

14. How confident are you that you will be able to stop yourself from driving 10 mph or more above the posted speed limit?

Not very confident 1 2 3 4 5 6 7 **Very confident**

15. It would be quite wrong for me to drive 10 mph or more above the posted speed limit.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

16. I would regret driving 10 mph or more above the posted speed limit.

Unlikely 1 2 3 4 5 6 7 **Likely**

17. Having driven 10 mph or more above the posted speed limit, I would feel sorry for doing so.

Likely 1 2 3 4 5 6 7 **Unlikely**

18. How often have you driven 10 mph or more above the posted speed limit?

Never 1 2 3 4 5 6 7 **Frequently**

19. During the past I frequently drove 10 mph or more above the posted speed limit.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

20. My positive feelings towards driving 10 mph or more above the posted speed limit are

Not at all positive 1 2 3 4 5 6 7 **Extremely positive**

21. My negative feelings towards driving 10 mph or more above the posted speed limit are

Not at all negative 1 2 3 4 5 6 7 **Extremely negative**

1. For me to wait for a safe opportunity to overtake would be... (circle one number per line)

Dangerous	1	2	3	4	5	6	7	Safe
Useful	1	2	3	4	5	6	7	Useless
Unpleasant	1	2	3	4	5	6	7	Pleasant
Beneficial	1	2	3	4	5	6	7	Harmful
Not at all exciting	1	2	3	4	5	6	7	Exciting
Positive	1	2	3	4	5	6	7	Negative
Stress free	1	2	3	4	5	6	7	Stressful
Bad	1	2	3	4	5	6	7	Good

2. How certain are you in your attitude towards waiting for a safe opportunity to overtake?

Extremely uncertain	1	2	3	4	5	6	7	Extremely certain
----------------------------	---	---	---	---	---	---	---	--------------------------

3. I have mixed feelings about waiting for a safe opportunity to overtake.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

4. I intend to wait for a safe opportunity to overtake.

Unlikely	1	2	3	4	5	6	7	Likely
Definitely do	1	2	3	4	5	6	7	Definitely do not

5. I want to wait for a safe opportunity to overtake.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

6. I plan to wait for a safe opportunity to overtake.

Definitely do	1	2	3	4	5	6	7	Definitely do not
----------------------	---	---	---	---	---	---	---	--------------------------

7. Most people who are important to me think I should wait for a safe opportunity to overtake.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
Likely	1	2	3	4	5	6	7	Unlikely

8. People who are important to me would

Disapprove	1	2	3	4	5	6	7	Approve
-------------------	---	---	---	---	---	---	---	----------------

of me waiting for a safe opportunity to overtake.

9. For me to wait for a safe opportunity to overtake would be

Easy	1	2	3	4	5	6	7	Difficult
-------------	---	---	---	---	---	---	---	------------------

10. If I wanted to I could easily wait for a safe opportunity to overtake.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

11. How much control do you have over waiting for a safe opportunity to overtake?

Complete control 1 2 3 4 5 6 7 **No control**

12. I feel in complete control of whether or not I wait for a safe opportunity to overtake.

Strongly disagree 1 2 3 4 5 6 7 **Strongly agree**

13. It is entirely up to me whether or not I wait for a safe opportunity to overtake.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

14. How confident are you that you will be able to wait for a safe opportunity to overtake?

Not very confident 1 2 3 4 5 6 7 **Very confident**

15. It would be quite wrong for me not to wait for a safe opportunity to overtake.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

16. I would regret not waiting for a safe opportunity to overtake.

Unlikely 1 2 3 4 5 6 7 **Likely**

17. Having not waited for a safe opportunity to overtake, I would feel sorry for doing so.

Likely 1 2 3 4 5 6 7 **Unlikely**

18. How often have you waited for a safe opportunity to overtake?

Never 1 2 3 4 5 6 7 **Frequently**

19. During the past I frequently waited for a safe opportunity to overtake.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

20. My positive feelings towards waiting for a safe opportunity to overtake are

Not at all positive 1 2 3 4 5 6 7 **Extremely positive**

21. My negative feelings towards waiting for a safe opportunity to overtake are

Not at all negative 1 2 3 4 5 6 7 **Extremely negative**

1. For me to maintain a safe distance between the vehicle in front and myself would be... (circle one number per line)

Dangerous	1	2	3	4	5	6	7	Safe
Useful	1	2	3	4	5	6	7	Useless
Unpleasant	1	2	3	4	5	6	7	Pleasant
Beneficial	1	2	3	4	5	6	7	Harmful
Not at all exciting	1	2	3	4	5	6	7	Exciting
Positive	1	2	3	4	5	6	7	Negative
Stress free	1	2	3	4	5	6	7	Stressful
Bad	1	2	3	4	5	6	7	Good

2. How certain are you in your attitude towards maintaining a safe distance between the vehicle in front and myself?

Extremely uncertain	1	2	3	4	5	6	7	Extremely certain
----------------------------	---	---	---	---	---	---	---	--------------------------

3. I have mixed feelings about maintaining a safe distance between the vehicle in front and myself.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

4. I intend to maintain a safe distance between the vehicle in front and myself.

Unlikely	1	2	3	4	5	6	7	Likely
Definitely do	1	2	3	4	5	6	7	Definitely do not

5. I want to maintain a safe distance between the vehicle in front and myself.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

6. I plan to maintain a safe distance between the vehicle in front and myself.

Definitely do	1	2	3	4	5	6	7	Definitely do not
----------------------	---	---	---	---	---	---	---	--------------------------

7. Most people who are important to me think I should maintain a safe distance between the vehicle in front and myself.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
Likely	1	2	3	4	5	6	7	Unlikely

8. People who are important to me would

Disapprove	1	2	3	4	5	6	7	Approve
-------------------	---	---	---	---	---	---	---	----------------

of me maintaining a safe distance between the vehicle in front and myself.

9. For me to maintain a safe distance between the vehicle in front and myself would be

Easy	1	2	3	4	5	6	7	Difficult
-------------	---	---	---	---	---	---	---	------------------

10. If I wanted to I could easily maintain a safe distance between the vehicle in front and myself.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

11. How much control do you have over maintaining a safe distance between the vehicle in front and myself?

Complete control 1 2 3 4 5 6 7 **No control**

12. I feel in complete control of whether or not I maintain a safe distance between the vehicle in front and myself.

Strongly disagree 1 2 3 4 5 6 7 **Strongly agree**

13. It is entirely up to me whether or not I maintain a safe distance between the vehicle in front and myself.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

14. How confident are you that you will be able to maintain a safe distance between the vehicle in front and myself?

Not very confident 1 2 3 4 5 6 7 **Very confident**

15. It would be quite wrong for me not to maintain a safe distance between the vehicle in front and myself.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

16. I would regret not maintaining a safe distance between the vehicle in front and myself.

Unlikely 1 2 3 4 5 6 7 **Likely**

17. Having not maintained a safe distance between the vehicle in front and myself, I would feel sorry for doing so.

Likely 1 2 3 4 5 6 7 **Unlikely**

18. How often have you maintained a safe distance between the vehicle in front and myself?

Never 1 2 3 4 5 6 7 **Frequently**

19. During the past I frequently maintained a safe distance between the vehicle in front and myself.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

20. My positive feelings towards maintaining a safe distance between the vehicle in front and myself are

Not at all positive 1 2 3 4 5 6 7 **Extremely positive**

21. My negative feelings towards maintaining a safe distance between the vehicle in front and myself are

Not at all negative 1 2 3 4 5 6 7 **Extremely negative**

1. For me to not drink and drive would be... (circle one number per line)

Dangerous	1	2	3	4	5	6	7	Safe
Useful	1	2	3	4	5	6	7	Useless
Unpleasant	1	2	3	4	5	6	7	Pleasant
Beneficial	1	2	3	4	5	6	7	Harmful
Not at all exciting	1	2	3	4	5	6	7	Exciting
Positive	1	2	3	4	5	6	7	Negative
Stress free	1	2	3	4	5	6	7	Stressful
Bad	1	2	3	4	5	6	7	Good

2. How certain are you in your attitude towards not drinking and driving?

Extremely uncertain	1	2	3	4	5	6	7	Extremely certain
----------------------------	---	---	---	---	---	---	---	--------------------------

3. I have mixed feelings about drinking and driving.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

4. I intend to not drink and drive.

Unlikely	1	2	3	4	5	6	7	Likely
Definitely do	1	2	3	4	5	6	7	Definitely do not

5. I want to not drink and drive.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

6. I plan to not drink and drive.

Definitely do	1	2	3	4	5	6	7	Definitely do not
----------------------	---	---	---	---	---	---	---	--------------------------

7. Most people who are important to me think I should not drink and drive.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
Likely	1	2	3	4	5	6	7	Unlikely

8. People who are important to me would

Disapprove	1	2	3	4	5	6	7	Approve
-------------------	---	---	---	---	---	---	---	----------------

of me not drinking and driving.

9. For me to not drink and drive would be

Easy	1	2	3	4	5	6	7	Difficult
-------------	---	---	---	---	---	---	---	------------------

10. If I wanted to I could easily not drink and drive.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
--------------------------	---	---	---	---	---	---	---	-----------------------

11. How much control do you have over not drinking and driving?

Complete control 1 2 3 4 5 6 7 **No control**

12. I feel in complete control of whether or not I drink and drive.

Strongly disagree 1 2 3 4 5 6 7 **Strongly agree**

13. It is entirely up to me whether or not I not drink and drive.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

14. How confident are you that you will be able to not drink and drive?

Not very confident 1 2 3 4 5 6 7 **Very confident**

15. It would be quite wrong for me to drink and drive.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

16. I would regret drink and drive.

Unlikely 1 2 3 4 5 6 7 **Likely**

17. Having engaged in drinking and driving, I would feel sorry for doing so.

Likely 1 2 3 4 5 6 7 **Unlikely**

18. How often have you engaged in drinking and driving?

Never 1 2 3 4 5 6 7 **Frequently**

19. During the past I frequently engaged in drinking and driving.

Strongly agree 1 2 3 4 5 6 7 **Strongly disagree**

20. My positive feelings towards drinking and driving are

Not at all positive 1 2 3 4 5 6 7 **Extremely positive**

21. My negative feelings towards engaged in drinking and driving are

Not at all negative 1 2 3 4 5 6 7 **Extremely negative**

Thank you very much for completing this questionnaire.
Please take it with you when attending the driving study and hand it in when you meet our staff.

APPENDIX F

Scoring sheets for driving assessment in Study 2

Darlington driving study scoring sheet

Assessor: _____

Date: _____

Trial number: _____

1. A1(M) interchange

How **safe** did the driver negotiate this roundabout (overall safety)?

Very unsafe _____ Very safe

How appropriate was the choice of **approach lane**?

Wrong <input type="checkbox"/>	OK <input type="checkbox"/>	Good <input type="checkbox"/>
-----------------------------------	--------------------------------	----------------------------------

How appropriate was the choice of **approach speed**?

Too low <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too high <input type="checkbox"/>
-------------------------------------	---	--------------------------------------

How appropriate was the **distance to the car in front** during this roundabout?

Too close <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too far <input type="checkbox"/>
---------------------------------------	---	-------------------------------------

How much **attention to the traffic** did the driver pay while negotiating the interchange?

None _____ Very much

2. A1(M) between junctions 58 and 59

How **safe** was this drive (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **lane** behaviour?

Wrong <input type="checkbox"/>	OK <input type="checkbox"/>	Good <input type="checkbox"/>
-----------------------------------	--------------------------------	----------------------------------

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions?

Too low <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too high <input type="checkbox"/>
-------------------------------------	---	--------------------------------------

How appropriate was the **distance to the car in front** on the motorway?

Too close <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too far <input type="checkbox"/>
---------------------------------------	---	-------------------------------------

How much **attention to the traffic** did the driver pay while driving on the motorway?

None _____ Very much

3. Turn right onto Lime Lane

How **safe** did the driver negotiate this turn (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **speed** of this manoeuvre?

Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed?

Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre?

Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

4. Turn right onto Lodge Lane

How **safe** did the driver negotiate this turn (overall safety)?

Very unsafe _____ Very safe

How **appropriate** was the **speed** of this manoeuvre?

Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed?

Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre?

Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

5. Driving on Lodge Lane

How **safe** was this drive (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **lane** behaviour?

Wrong OK Good

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions?

Too low Appropriate Too high

How much **attention to the other road users** did the driver pay while driving on Lodge lane?

None _____ Very much

6. Great Stainton staggered junction

How **safe** did the driver negotiate the staggered junction (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **speed** of this manoeuvre?

Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed?

Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre?

Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

How much **attention to the other road users** did the driver pay while negotiating this junction?

None _____ Very much

7. Turn left onto Bishopton Lane

How **safe** did the driver negotiate this turn (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **speed** of this manoeuvre?

Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed?

Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre?

Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

8. Turn right onto A1150

How **safe** did the driver negotiate this turn (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **speed** of this manoeuvre?

Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed?

Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre?

Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

How much **attention to the other road users** did the driver pay while negotiating this junction?

None _____ Very much

9. A66 roundabout

How **safe** did the driver negotiate this roundabout (overall safety)?

Very unsafe _____ Very safe

How appropriate was the choice of **approach lane**?

Wrong OK Good

How appropriate was the choice of **approach speed**?

Too low Appropriate Too high

How appropriate was the **distance to the car in front** during this roundabout?

Too close Appropriate Too far

How much **attention to the traffic** did the driver pay while negotiating the roundabout?

None _____ Very much

10. Driving on A66

How **safe** was this drive (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **lane** behaviour?

Wrong OK Good

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions?

Too low Appropriate Too high

How appropriate was the **distance to the car in front** on this road?

Too close Appropriate Too far

How much **attention to the traffic** did the driver pay while driving on A66?

None _____ Very much

11. New signalised pedestrian crossing on Yarm Road

How **safe** did the driver negotiate this pedestrian crossing (overall safety)?

Very unsafe _____ Very safe

How much **attention** did the driver pay **to the pedestrians** on this road?

None _____ Very much

12. Driving on Yarm Road (up to the pedestrian refuge)

How **safe** was this drive (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **lane** behaviour?

Wrong OK Good

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions?

Too low Appropriate Too high

How appropriate was the **distance to the car in front** on this road?

Too close Appropriate Too far

How **safe** did the driver behave in relation to **pedestrians, motorcyclists and cyclists**?

Very unsafe _____ Very safe

How **safely** did the driver negotiate the **pedestrian refuge**?

Very unsafe _____ Very safe

13. Driving on Geneva Road (up to Burnside Road)

How **safe** was this drive (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **lane** behaviour?

Wrong OK Good

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions?

Too low Appropriate Too high

How appropriate was the **distance to the car in front** on this road?

Too close Appropriate Too far

How **safe** did the driver behave in relation to **pedestrians, motorcyclists and cyclists**?

Very unsafe _____ Very safe

How **safely** did the driver negotiate the **parked cars** on this road?

Very unsafe _____ Very safe

How **safely** did the driver negotiate oncoming traffic from **side roads and driveways**?

Very unsafe _____ Very safe

14. Beacon crossing on Neasham Road

How **safe** did the driver negotiate this pedestrian crossing (overall safety)?

Very unsafe _____ Very safe

How much **attention** did the driver pay **to the pedestrians** on this road?

None _____ Very much

15. Driving on Hargreave Terrace

How **safe** was the drive on this road (overall safety)?

Very unsafe _____ Very safe

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions?

Too low

Appropriate

Too high

How **safely** did the driver negotiate the **parked cars** on this road?

Very unsafe _____ Very safe

16. Turn right onto Victoria Road

How **safe** did the driver negotiate this junction (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **speed** of this manoeuvre?

Too low

Appropriate

Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed?

Too close

Appropriate

Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre?

Too close

Appropriate

Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

17. Driving on Victoria Road

How **safe** was this drive (overall safety)?

Very unsafe _____ Very safe

How appropriate was the **lane** behaviour?

Wrong OK Good

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions?

Too low Appropriate Too high

How appropriate was the **distance to the car in front** on this road?

Too close Appropriate Too far

How **safe** did the driver behave in relation to **pedestrians, motorcyclists and cyclists**?

Very unsafe _____ Very safe

How **safely** did the driver negotiate the **parked cars** on this road?

Very unsafe _____ Very safe

How **safely** did the driver negotiate the **beacon pedestrian crossing**?

Very unsafe _____ Very safe

18. Carmel Road North roundabout

How **safe** did the driver negotiate this roundabout (overall safety)?

Very unsafe _____ Very safe

How appropriate was the choice of **approach lane**?

Wrong OK Good

How appropriate was the choice of **approach speed**?

Too low Appropriate Too high

How appropriate was the **distance to the car in front** during this roundabout?

Too close Appropriate Too far

How much **attention to the traffic** did the driver pay while negotiating the roundabout?

None _____ Very much

19. The two mini-roundabouts

How **safe** did the driver negotiate these 2 roundabouts (overall safety)?

Very unsafe _____ Very safe

How appropriate was the choice of **approach lane**?

Both wrong One good Both good

How appropriate was the choice of **exit lane**?

Both wrong One good Both good

How appropriate was the choice of **approach speed**?

Too high for both Too high for one Appropriate for both Appropriate

How appropriate was the **distance to the car in front** during these two roundabouts?

Too close Appropriate Too far

How much **attention to the traffic** did the driver pay while negotiating the roundabout?

None _____ Very much

20. West Auckland Road sign alised pedestrian crossing

How **safe** did the driver negotiate this pedestrian crossing (overall safety)?

Very unsafe _____ Very safe

How appropriate was the choice of **approach speed**?

Too low Appropriate Too high

How much **attention to possible hazards and to the traffic** did the driver pay in relation to this crossing?

None _____ Very much

Huddersfield driving study scoring sheet

Assessor: _____
Date: _____
Trial number: _____

1. Turn right from Bradford Road onto Netheroyd Hill Road

How appropriate was the speed of this manoeuvre?	Too low <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too high <input type="checkbox"/>
How appropriate was the position of the car in relation to road markings on the lane where the car departed?	Too close <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too far <input type="checkbox"/>
How appropriate was the gap between the car and oncoming traffic during this manoeuvre?	Too close <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too far <input type="checkbox"/>

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance _____

How **safe** did the driver negotiate this turn (**overall** safety)?

Very unsafe _____ Very safe _____

2. Turn right from York Avenue onto Bradford Road

How appropriate was the speed of this manoeuvre?	Too low <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too high <input type="checkbox"/>
How appropriate was the position of the car in relation to road markings on the lane where the car departed?	Too close <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too far <input type="checkbox"/>
How appropriate was the gap between the car and oncoming traffic during this manoeuvre?	Too close <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too far <input type="checkbox"/>

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance _____

How much **attention to other road users** did the driver pay while negotiating this junction?

None _____ Very much _____

How **safe** did the driver negotiate this turn (**overall** safety)?

Very unsafe _____ Very safe _____

3. Driving on Bradford Road (Fartown Garden Road – Willow Lane)

How appropriate was the lane behaviour?	Wrong <input type="checkbox"/>	OK <input type="checkbox"/>	Good <input type="checkbox"/>
How appropriate was the choice of speed in relation to speed limit, road and traffic conditions?	Too low <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too high <input type="checkbox"/>
How appropriate was the distance to the car in front on this road?	Too close <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too far <input type="checkbox"/>

How **safe** did the driver behave in relation to **other road users**?

Very unsafe _____ Very safe

How **safely** did the driver negotiate the **parked cars** on this road?

Very unsafe _____ Very safe

How **safely** did the driver negotiate oncoming traffic from **side roads**?

Very unsafe _____ Very safe

How **safe** was this drive (**overall** safety)?

Very unsafe _____ Very safe

4. Kirkgate zebra crossing

How much **attention** did the driver pay to the **pedestrians** on this road?

None _____ Very much

How **safe** did the driver negotiate this pedestrian crossing (overall safety)?

Very unsafe _____ Very safe

5. Driving on Byram Street

How appropriate was the choice of speed in relation to speed limit, road and traffic conditions?	Too low <input type="checkbox"/>	Appropriate <input type="checkbox"/>	Too high <input type="checkbox"/>
---	-------------------------------------	---	--------------------------------------

How **safely** did the driver negotiate the **parked cars** on this road?

Very unsafe _____ Very safe

How **safe** was the drive on this road (**overall** safety)?

Very unsafe _____ Very safe

6. Turn right onto Lord Street

How appropriate was the **speed** of this manoeuvre? Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed? Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre? Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

How **safe** did the driver negotiate this junction (**overall** safety)?

Very unsafe _____ Very safe

7. Driving on Trinity Street

How appropriate was the **lane** behaviour? Wrong OK Good

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions? Too low Appropriate Too high

How appropriate was the **distance to the car in front** on this road? Too close Appropriate Too far

How **safe** did the driver behave in relation to **other road users**?

Very unsafe _____ Very safe

How **safely** did the driver negotiate the **pedestrian refuges**?

Very unsafe _____ Very safe

How **safe** was this drive (**overall** safety)?

Very unsafe _____ Very safe

10. New Hey Road staggered junction

How appropriate was the **speed** of this manoeuvre? Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed? Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre? Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

How much **attention to other road users** did the driver pay while negotiating this junction?

None _____ Very much

How **safe** did the driver negotiate this staggered junction (**overall** safety)?

Very unsafe _____ Very safe

11. Turn left from Longwood Edge Road onto New Hey Road

How appropriate was the **speed** of this manoeuvre? Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed? Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre? Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

How **safe** did the driver negotiate this turn (**overall** safety)?

Very unsafe _____ Very safe

12. Outlane roundabout

How appropriate was the choice of **approach lane**? Wrong OK Good

How appropriate was the choice of **approach speed**? Too low Appropriate Too high

How appropriate was the **distance to the car in front** during this roundabout? Too close Appropriate Too far

How much **attention to other road users** did the driver pay while negotiating the roundabout?

None _____ Very much

How **safe** did the driver negotiate this roundabout (**overall safety**)?

Very unsafe _____ Very safe

13. Driving on Lindley Moor Road

How appropriate was the **lane** behaviour? Wrong OK Good

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions? Too low Appropriate Too high

How much **attention to other road users** did the driver pay while driving on this road?

None _____ Very much

How **safe** was this drive (**overall safety**)?

Very unsafe _____ Very safe

14. Ainley Top Roundabout

How appropriate was the choice of **time to join the roundabout**? Wrong OK Good

How appropriate was the choice of **approach speed**? Too low Appropriate Too high

How appropriate was the **distance to the car in front** during this roundabout? Too close Appropriate Too far

How much **attention to other road users** did the driver pay while negotiating this roundabout?

None _____ Very much

How **safe** did the driver negotiate this roundabout (**overall safety**)?

Very unsafe _____ Very safe

15. M62 between J24 and J25

How appropriate was the **lane** behaviour? Wrong OK Good

How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions? Too low Appropriate Too high

How appropriate was the **distance to the car in front** on the motorway? Too close Appropriate Too far

How much **attention to potential hazards** did the driver pay while driving on the motorway?

None _____ Very much

How **safe** was this drive (**overall safety**)?

Very unsafe _____ Very safe

16. Brighthouse pelican pedestrian crossing

How much **attention** did the driver pay **to the pedestrians** on this road?

None _____ Very much

How **safe** did the driver negotiate this pedestrian crossing (**overall safety**)?

Very unsafe _____ Very safe

17. Turn right from Huddersfield Road onto Mill Royd Street

How appropriate was the **speed** of this manoeuvre?

Too low Appropriate Too high

How appropriate was the **position of the car** in relation to road markings on the lane where the car departed?

Too close Appropriate Too far

How appropriate was the **gap** between the car and oncoming traffic during this manoeuvre?

Too close Appropriate Too far

How **compliant** with the priority rules was the driver?

Total disregard _____ Total compliance

How **safe** did the driver negotiate this turn (**overall safety**)?

Very unsafe _____ Very safe

18. Double mini roundabouts

How appropriate was the **position** throughout?

Both wrong One good Both good

Was **priority** given correctly?

Both wrong One good Both good

How appropriate was the choice of **approach speed**?

Too high Appropriate Appropriate
for both for one for both

How appropriate was the **distance to the car in front** during these two roundabouts?

Too close Appropriate Too far

How much **attention to other road users** did the driver pay while negotiating the roundabout?

None _____ Very much

How **safe** did the driver negotiate this double mini roundabouts (**overall safety**)?

Very unsafe _____ Very safe

19. Driving on Clough Lane and Fixby Road

- How appropriate was the **lane** behaviour? Wrong OK Good
- How appropriate was the choice of **speed** in relation to speed limit, road and traffic conditions? Too low Appropriate Too high
- How appropriate was the **distance to the car in front** on this road? Too close Appropriate Too far

How much **attention to other road users** did the driver pay while driving on this road?

None _____ Very much

How **safe** was this drive (**overall** safety)?

Very unsafe _____ Very safe

20. Fixby roundabout

- How appropriate was the choice of **approach position**? Wrong OK Good
- How appropriate was the choice of **approach speed**? Too low Appropriate Too high
- How appropriate was the **distance to the car in front** during this roundabout? Too close Appropriate Too far

How much **attention to other road users** did the driver pay while negotiating the roundabout?

None _____ Very much

How **safe** did the driver negotiate this roundabout (**overall** safety)?

Very unsafe _____ Very safe

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