HIGHWAY CODE INTERVENTION

Evaluation Report

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Dr Elizabeth Box
Behavioural Science Consultant, Co-Pilot

About this report

This report has been prepared to summarise the results from an evaluation of the Highway Code intervention which was evaluated using both an intervention and control group on Prolific in March – May 2025.

The Highway Code intervention design and evaluation was completed by Co-Pilot. The intervention is now available to Co-Pilot members for use and is also available for purchase using the Co-Pilot Supermarket.

For more information on the Highway Code intervention, please view the Highway Code Film.

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Disclaimer

This report has been prepared by Dr Elizabeth Box who is a Behavioural Science Consultant at Co-Pilot. It has benefited from independent peer review. Responsibility for the final content, including any errors or omissions, rests solely with the author. The views expressed in this report are those of the author and do not necessarily reflect those of the reviewers.

About the author

Dr Elizabeth Box is Co-Pilot's Behavioural Science Consultant. She is an accomplished transport researcher and commissioner with over two decades of experience influencing and contributing to road safety policy outcomes at the national level.

Elizabeth's doctorate in Transport Psychology focused on developing and trialling pre-driver education interventions grounded in behavioural science, with the resulting intervention receiving a Prince Michael International Road Safety Award in 2023. On completing her doctoral studies Elizabeth founded ECM Research Solutions Ltd to provide consultancy services to public and private sector clients to support the development of high-quality evidence-based public safety interventions.

In addition to being Director of ECM Research Solutions Ltd and Co-Pilot's Behavioural Science Consultant, Elizabeth holds several other roles in the field of transport safety. Elizabeth is an advisor to a number of road safety industry and government project boards and is a judge for the Prince Michael International Road Safety Awards. She is also a Fellow of the Chartered Institute of Highways and Transportation, a technical champion for the organisation as well as a judge for the Institute's annual Road Safety Award.

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Executive summary

This report presents the findings from an evaluation of the Co-Pilot Highway Code intervention, a short film-based educational tool developed to improve experienced drivers' understanding and application of key changes made to the Highway Code in January 2022. These rule changes introduced a new hierarchy of road users and updated guidance on pedestrian and cyclist priority, cyclist riding positions, and overtaking distances - all aimed at enhancing safety for vulnerable road users.

The intervention was developed in response to national data showing limited public understanding and uptake of the revised rules, particularly among experienced drivers who may not routinely engage with the Highway Code after initial licensure. The Co-Pilot Highway Code intervention took the form of a humorous, metaphor-driven film in which an ice cream van driver guides viewers through the key changes in a light-hearted and relatable way. The film was brought to life through a voiceover by actor Martin Clunes.

The intervention was designed to help drivers increase their knowledge of rule changes, strengthen their confidence and motivation to apply the rules, and feel supported by social expectations to drive safely. These elements reflect key influences on behaviour that are explained in detail later in the report using the COM-B model (Capability, Opportunity, Motivation) and the Behaviour Change Wheel framework (Michie et al., 2014), which guided both the intervention's development and evaluation. The evaluation also applied components of the Theory of Planned Behaviour (TPB) (Ajzen, 1991) to assess how the intervention impacted on drivers' attitudes, feelings of control, social norms and behavioural intentions.

A three-arm, pre-post-follow-up experimental study was conducted using the Prolific platform in March–May 2025 to evaluate the intervention's effectiveness. A total of 254 licensed UK drivers aged 25 and over completed the pre-post survey phase and were randomly assigned to one of three groups:

- **Intervention group**: Co-Pilot film on Highway Code changes
- **Control group 1**: DfT 'Travel Like You Know Them' campaign film
- **Control group 2**: Road safety film unrelated to the Highway Code

Of these, 210 participants (83%) completed the follow-up survey 4–6 weeks later, enabling analysis of both immediate and sustained effects across all groups. The high retention rate strengthens the reliability of the findings and supports comparison between study conditions. Key outcomes measured included factual knowledge of the Highway Code rules, self-rated awareness, attitudes, intentions, perceived behavioural control (PBC), subjective norms, and perceptions of the films' usefulness and engagement.

The Co-Pilot Highway Code intervention significantly outperformed both control groups in improving participants' factual knowledge of overtaking and turning rules, with large gains observed immediately after viewing the film and substantial retention at the 4–6 week follow-up. These results indicate a strong and sustained effect on participants' understanding of key Highway Code changes. While all study groups demonstrated short-term improvements in behavioural determinants, only the Co-Pilot group showed statistically significant Time × Group interactions for intentions, perceived behavioural control (PBC), and subjective norms,

highlighting the intervention's distinctive impact on drivers' motivation, confidence, and perceived social expectations around rule adherence.

Attitudes toward rule compliance also improved over time across all groups, but these shifts likely reflect general awareness effects rather than a specific response to the intervention. Participants also rated the Co-Pilot film substantially higher than either control film on measures of cognitive validity (e.g., usefulness, importance, informativeness), engagement, and face validity (e.g., personal relevance, acquisition of new insights, and likelihood to share with others). Female participants, in particular, found the intervention more personally beneficial, suggesting potential gendered differences in resonance and receptivity.

The study design incorporated key methodological strengths, including randomised group allocation, repeated measures at three timepoints, and a theoretically grounded framework to guide intervention development and evaluation. The inclusion of two active control groups enhanced causal inference, and baseline differences in gender and driving frequency were statistically controlled. Robust analytical methods (GEE and ANOVAs) were also employed.

However, several limitations should be noted. The study relied on self-reported outcomes and a relatively short follow-up period, limiting conclusions about sustained behaviour change. The online Prolific sample may also not fully generalise to less digitally engaged driver populations. Although randomisation was used, gender imbalance emerged across groups, though this was controlled analytically. Measurement limitations include some risk of conservative responding on the overtaking distance item and potential central tendency bias due to scale design. Finally, the brief nature of the intervention and variation in film lengths (Intervention: 1:58; Control 1: 0:40; Control 2: 1:00) may have influenced participant engagement. Further research is warranted to explore real-world behavioural outcomes and the potential for reinforcement through periodic re-exposure.

Overall, the Co-Pilot Highway Code intervention emerges as a credible, engaging, and effective tool for enhancing experienced drivers' understanding and application of recent rule changes. Given its strong reception and measurable impact, the intervention is ideally positioned for integration into public road safety campaigns, workplace driver programmes, and local authority communications. Incorporating periodic re-exposure or follow-up prompts could help reinforce behaviour change over time. Now available to Co-Pilot members and for purchase via the Co-Pilot Supermarket, the intervention provides an evidence-based resource to support continued engagement with the Highway Code rules and promote safer interactions for all road users.

1.0 Introduction

This report presents the evaluation of the Highway Code intervention developed by Co-Pilot. The intervention aims to improve experienced drivers' knowledge of key Highway Code changes introduced in January 2022 and to support greater adherence to the revised rules - particularly those designed to protect vulnerable road users.

The Highway Code changes introduced in 2022 sought to create a clearer *Hierarchy of Road Users*, establishing that road users who can do the greatest harm bear the greatest responsibility to reduce the danger or threat they pose. Key changes included:

- Pedestrian priority at junctions: Drivers turning into or out of junctions must give way to pedestrians crossing or waiting to cross.
- Cyclist priority when going straight ahead at junctions.
- Clear guidance on safe passing distances: at least 1.5 metres when overtaking cyclists at speeds up to 30mph, and more space at higher speeds.
- Updated advice on cyclist positioning, such as riding centrally in the lane in certain situations to enhance visibility and safety.

The new hierarchy was intended to promote safer, more respectful interactions between different road users, particularly in mixed-use urban environments.

While the rationale for the hierarchy was widely supported by safety professionals and vulnerable road user groups, some concerns and criticisms have been raised. For example, certain user groups, such as mobility scooter users, are not explicitly referenced in the hierarchy, raising questions about their formal protection. In addition, public reaction has been mixed. Some drivers have expressed frustration or confusion about the changes, particularly regarding pedestrian priority at junctions and cyclist positioning.

Although systematic research on public acceptance remains limited, surveys such as the RAC Report on Motoring (RAC, 2022) have highlighted that 49% of drivers felt the Highway Code changes would make pedestrians less safe, while only 17% thought that the changes would increase their safety. Similarly, an AA survey reported that 61% of drivers had not read the updated Highway Code several months after its introduction (BBC News, 2022). Media reporting has also described public uncertainty and varied levels of support for the rule changes. These challenges highlight the importance of clear communication and education to support public understanding and acceptance of the rule changes.

In response, THINK! road safety launched a two-phase public education approach. The first phase, beginning in January 2022, focussed on disseminating factual information about the rule changes. This was followed in July 2022 by the launch of the 'Travel Like You Know Them' campaign, which sought to move beyond information provision by using campaign content targeting empathy induction and perspective-taking. The 'Travel Like You Know Them Campaign' included television adverts, online videos, outdoor posters and social media assets designed to help drivers consider how vulnerable road users experience shared road spaces. By encouraging drivers to recognise the shared humanity of pedestrians, cyclists and other road users, the campaign aimed to foster more considerate and safety-conscious behaviour, reinforcing the rule changes through an emotional and social lens.

Research conducted by the Department for Transport (DfT) THINK! campaign team[1] found that public awareness increased from 36% in January 2022 to 58% in August 2022 and that self-reported behaviours, such as leaving a 1.5-metre gap when passing cyclists, also improved. However, uptake of the required behaviours remained relatively low, with only 42% of drivers reporting that they always give pedestrians priority at junctions. Similarly, independent research commissioned by IAM RoadSmart in early 2022 found that one in five drivers (20%) were unaware of the rule changes shortly after they were introduced (IAM RoadSmart, 2022). These findings collectively suggest that, while awareness increased following the campaign launch, substantial knowledge gaps remained. Consequently, the DfT relaunched the 'Travel Like You Know Them' campaign[2] in August 2023 to further embed the changes and encourage uptake.

These findings suggest that further efforts are needed to ensure the changes are not only understood but also consistently applied, particularly by experienced drivers who may not have revisited the Highway Code since learning to drive. The initial evaluation of the 'Travel Like You Know Them' campaign by the Department for Transport primarily employed a pre-post public survey design, with non-matched samples, focusing largely on measures of campaign reach, recall, as well as self-reported awareness and behaviours. While useful for gauging public engagement with the campaign, this approach offered limited insight into causal effects or sustained behavioural impacts.

Changing driving behaviour requires more than simply telling drivers about new rules. Drawing on behavioural science, Co-Pilot sought to create an intervention that would not only inform but also motivate lasting behaviour change. Research indicates that information alone is often insufficient to drive lasting behaviour change (Raftery & Wundersitz, 2011), particularly when new behaviours challenge established driving habits. Interventions that combine knowledge provision with additional techniques, such as modelling desired behaviours, reinforcing positive social norms, building empathy between road users, and promoting self-efficacy, have been found to be more effective in promoting road safety behaviours (e.g., Lewis et al., 2007; Michie et al., 2013; Poulter & McKenna, 2010) On this basis, the Co-Pilot intervention was designed to not only inform, but also motivate drivers and reshape perceived social expectations around compliance.,

In response to this evidence gap, Co-Pilot committed to developing resources to help members promote the Highway Code changes, and to evaluating these resources using a controlled experimental design capable of assessing both immediate and longer-term changes in knowledge, motivation, and behavioural determinants.

To inform the design of the intervention, Co-Pilot first conducted a series of focus groups with experienced drivers in Autumn 2023 (Box, 2023). These groups explored participants' understanding and beliefs about the rule changes, focusing on pedestrian priority at junctions, cyclist priority, the road user hierarchy, and safe overtaking of vulnerable road users. While many participants supported the principles behind the updates, they also reported considerable uncertainty about how to apply the new rules in real-world driving situations, as well as confusion about how the Highway Code presents the information. Participants called for clearer, more engaging communication to explain the changes in a relatable and practical way.

[1] Unpublished, reported within a stakeholder meeting

[2] Government re-launch THINK! campaign in continued drive to improve road safety - GOV.UK

They emphasised the need for messaging that not only built knowledge but also fostered empathy between road users, normalised compliant behaviours, and reinforced the rationale behind the rule changes to encourage voluntary adoption.

In direct response to these insights, Co-Pilot developed a short film-based intervention designed to address these specific knowledge gaps, motivational barriers, and social norms. The intervention aimed to improve drivers' understanding, build their confidence in applying the rules, and increase social support for safe rule adherence.

The evaluation outlined in this report assessed the effectiveness of the Co-Pilot Highway code film in improving participants' understanding of the rule changes, enhancing their attitudes toward compliance, and strengthening their intention and perceived ability to apply the rules in real-world driving scenarios.

2.0 Method

2.1 Highway Code intervention

The Highway Code intervention is a short, engaging film (approximately 2 minutes long) designed to increase drivers' awareness and understanding of the recent Highway Code rule changes. Using a humorous and accessible ice cream van metaphor, the film introduces a cast of relatable characters, including a young child, a teenager, a businesswoman, and a bodybuilder, who act out road safety scenarios in a light-hearted but impactful way.

The film highlights four key Highway Code changes:

- The new hierarchy of road users
- Pedestrian priority at junctions
- Cyclist priority at junctions
- Cyclist riding position and safe overtaking distances

The metaphor of the ice cream van queue was intentionally selected as a simple, familiar scenario that visually represents the newly introduced *Hierarchy of Road Users*. In the film, the different customers at the ice cream van symbolise different levels of vulnerability:

- The **young child and the dog** represent the most vulnerable road users (comparable to pedestrians and children);
- The **teenager and businesswoman** represent moderately vulnerable road users (similar to cyclists, horse riders, and others with some exposure);
- The **bodybuilder** represents the least vulnerable group, symbolising motor vehicle drivers, who carry the greatest responsibility to protect others.

By embedding the road user hierarchy into this relatable metaphor, the film supports participants' understanding of the key rule changes while reducing defensiveness that may arise from more instructional or overly directive messaging.

The diverse characters were selected to visually model appropriate driving behaviours, demonstrating courteous, respectful interactions that drivers can adopt in real-world scenarios. This visual modelling supports the internalisation of positive social norms and builds social opportunity for safer driving practices.

Reflective motivation was addressed through the film's positive tone, humour, and use of role modelling. The goal was to encourage drivers to view rule adherence as personally achievable, socially desirable, and consistent with being a responsible and considerate driver. The central ice cream van driver, voiced by Martin Clunes, acts as a trusted narrator to guide viewers, prompt reflection, and humanise the new rules.

The intervention design was guided by established behaviour change theory (e.g., Michie et al., 2014), drawing on evidence that effective road safety interventions combine knowledge provision with additional behaviour change techniques such as modelling, empathy induction, social norm reinforcement, and self-efficacy building. Table 2-1 below outlines the purpose of each film segment and how it contributes to the intervention's behaviour change objectives:

Table 2-1: Purpose of each scene in the Co-Pilot Highway Code film

Segment	Purpose
Scene 1: Ice cream hierarchy	Introduces the concept of the Hierarchy of Road Users in a playful metaphor; frames the idea that those who pose greater risk must show greater care.
Scene 2: Pedestrian priority	Demonstrates pedestrian priority at junctions, showing a respectful interaction between a driver and a pedestrian.
Scene 3: Cyclist priority	Shows the importance of giving way to cyclists going straight ahead at junctions, with emphasis on checking mirrors and blind spots.
Scene 4: Two abreast cycling	Models appropriate driver behaviour when cyclists are riding two abreast demonstrating patience and safe overtaking.
Scene 5: Safe overtaking	Provides guidance on safe passing distances for cyclists and horse riders, reinforcing specific measurements (1.5m for cyclists, 2m for horses).
Scene 6: Conclusion	Reiterates the key message of looking out for more vulnerable road users and working together for smoother journeys.

The film concludes with the slogan "Journeys are safer and smoother when we work together", reinforcing the film's central message of shared responsibility and cooperative behaviour on the road. The full intervention plan for the Highway Code film, including behavioural change techniques and COM-B analysis, can be found in Annex A.

2.2 Study design and experimental conditions

The evaluation of the Highway Code intervention was conducted as a controlled pre-post-follow-up study using Prolific, an online platform that provides access to high-quality, diverse research participants. Participants were randomly allocated to one of three conditions (See Table 2-2).

Table 2-2: Study groups

Study group	Film content	Details
Intervention group (Co-Pilot film)	Co-Pilot Highway Code Intervention Film	LINK
Control group 1 (DfT campaign)	'Travel Like You Know Them' DfT campaign film	LINK
Control group 2 (Related but non-targeted)	Road safety film unrelated to the Highway Code (e.g. motorway film from National Highways)	LINK

Using two active control conditions were included to isolate the specific effects of the Co-Pilot Highway Code intervention. The DfT 'Travel Like You Know Them' campaign film was selected as Control Group 1 because it represents the most prominent and publicly available government messaging directly targeting the same Highway Code rule changes during the study period. Including this film allowed for a direct comparison between the Co-Pilot film and the existing government-led public education approach. The use of a recent campaign (first launched 2022, relaunched 2023) also ensured that the control condition reflected current communication standards and avoided any potential confounding effects of outdated production values or engagement formats.

Control Group 2 included a short road safety film unrelated to the Highway Code changes (e.g., motorway driving rules from National Highways) but similar in format (short film, online delivery). This allowed assessment of whether any observed effects were due to general exposure to road safety content versus specific engagement with Highway Code material. The use of a comparable but non-targeted film controlled for general participant engagement with film-based interventions, while ensuring that content overlap with the Highway Code was minimal.

All films used in the study were professionally produced to a high standard of video and audio quality, ensuring that differences in participant engagement could not be attributed to variations in production values, editing quality, or media format.

While both the Co-Pilot film (intervention group) and the DfT 'Travel Like You Know Them' campaign film (Control 1) were designed to promote adherence to the updated Highway Code rules, the two films differed in their emphasis, depth of coverage, and behavioural techniques applied. Table 2-3 summarises the degree of content alignment between the two films and the behavioural domains assessed in this evaluation.

Table 2-3: Mapping of intervention and control film (1) content to evaluated Highway Code outcomes

Highway Code Rule Content	Assessed in Survey?	Covered in Co-Pilot Film?	Covered in DfT Film?
Hierarchy of Road Users	Yes	Yes (central framing metaphor)	No (not explicitly presented)
Pedestrian priority at junctions	Yes	Yes (clear demonstration)	Yes (brief reference shown visually)
Cyclist priority at junctions	Yes	Yes (detailed modelling)	No (not covered)
Cyclist riding position (lane positioning)	Yes	Yes (modelled with explanation)	Yes (brief visual depiction)
Safe overtaking distances	Yes	Yes (explicit distance given for cyclists and horse riders)	No (not covered)

2.3 Hypotheses

The evaluation tested the overall hypothesis that exposure to the Co-Pilot Highway Code film would produce greater positive change than either control condition across key behavioural determinants. Specifically, compared to participants in the two control groups, participants in the intervention group were expected to show:

- **H1 (Knowledge):** Greater increases in factual knowledge of Highway Code rule changes.
- **H2 (Attitudes):** More safety-supportive attitudes towards compliance with Highway Code rules.
- **H3 (Intentions):** Stronger intentions to comply with Highway Code rules.
- **H4 (Perceived Behavioural Control):** Higher perceived confidence and ability to comply with Highway Code rules.
- **H5 (Subjective Norms):** Stronger perceptions that important others expect them to comply with Highway Code rules.
- **H6 (Acceptability):** Higher post-intervention ratings of cognitive validity, face validity, and engagement for the Co-Pilot film compared to control films.

All outcomes were measured immediately post-intervention and again at a 4–6 week follow-up to assess both immediate and longer-term effects.

2.4 Survey design and measurement approach

The evaluation utilised a repeated measures survey design comprising three timepoints: a baseline (pre-intervention) survey, an immediate post-intervention survey, and a follow-up survey administered 4–6 weeks later. The baseline and immediate post-intervention components were delivered within a single Prolific session, while the follow-up survey was administered separately, with eligible participants invited to complete the final wave.

The first session, which included both the pre- and immediate post-intervention surveys, took a median of 5–6 minutes to complete and included a short film (approximately 2 minutes), which was preceded and followed by targeted survey questions. The 4–6 week follow-up survey did not include a film and was shorter in length, with a median completion time of 1–2 minutes. All participants were compensated in line with Prolific's fair pay guidelines, and participant IDs were collected to enable both follow-up contact and accurate matching of responses across the three survey timepoints, as well as linkage to socio-demographic variables (e.g., age, gender, ethnicity) provided by the Prolific platform.

2.4.1 Participant eligibility and recruitment procedures

Participants were recruited via Prolific, an online platform offering access to diverse and pre-screened research samples. To ensure relevance to the intervention's target audience, the study employed the following inclusion criteria:

- **Age**: Participants were required to be 25 years or older, to exclude younger novice drivers still subject to post-test learning.
- **Residency**: Only current residents of the UK were eligible to ensure relevance to Highway Code knowledge.
- **Licence status**: All participants had to hold a full UK car driving licence.

- **Highway Code familiarity**: To reduce priming and contamination effects, participants were excluded if they had recently taken part in other Highway Code-related studies on Prolific.

Participants were paid in line with Prolific's fair pay guidelines, receiving approximately £0.90 for the pre-post session and £0.45 for the follow-up. Participant IDs were used to screen for duplicates, match data across the three waves, and link responses to Prolific-provided socio-demographic data such as age, gender, ethnicity, and employment status. All participants provided informed consent before beginning the study (see Annex B).

All socio-demographic information used in this evaluation (e.g., age, gender, ethnicity, employment status, licence status) was drawn directly from participants' pre-registered profiles held within the Prolific platform. This approach minimised respondent burden and survey length for non-critical demographic variables. However, to ensure accurate eligibility, additional screening questions were built into the survey at the start of data collection. These screening items directly verified that participants:

- were aged 25 years or older;
- were currently resident in the UK; and
- held a full UK car driving licence.

Participants who failed any of these eligibility checks were automatically screened out of the survey. This dual approach ensured that all final participants met the core inclusion criteria required for the study. Nonetheless, a potential limitation remains that some profile information drawn from Prolific (e.g., employment status) may not fully reflect participants' most current circumstances if profiles are not regularly updated.

2.4.1.1 Sample size rationale

No formal a priori power analysis was conducted for this study. The target sample size was informed by typical sample sizes used in similar online experimental studies of behavioural interventions using pre-post-follow-up designs (Cutello et al., 2020a; Cutello et al., 2020b). Given the random allocation to three study groups, and the inclusion of repeated measures across multiple timepoints, a sample of approximately 250 participants at baseline was judged sufficient to detect medium-sized effects while remaining feasible within the available budget and recruitment timeframe on Prolific. The Prolific platform provided access to a diverse and pre-screened sample aligned with the study's eligibility criteria, and recruitment capacity allowed for efficient enrolment of participants meeting the required characteristics. The final analytic sample, after attrition, was considered adequate to explore the study questions and examine patterns of change over time.

2.4.2 Survey content and item coding

The survey instruments were designed to assess key behavioural outcomes in line with the intervention's COM-B framework (Michie et al., 2014), which targets psychological capability (knowledge), reflective motivation (attitudes and intentions), and social opportunity (subjective norms). Measures were selected from established scales based on the Theory of Planned Behaviour (TPB) (Ajzen, 1991) and were adapted to reflect the specific Highway Code rule changes featured in the film, namely, pedestrian and cyclist priority at junctions and safe overtaking of vulnerable road users.

All survey measures were adapted from previously validated instruments based on the Theory of Planned Behaviour (Ajzen, 1991; Conner & Sparks, 2005) and were consistent with previous research evaluating road safety interventions (e.g., Rowe et al., 2016; Cuenen et al., 2016; Poulter & McKenna, 2010). Where possible, items were directly drawn from or adapted to match these established scales, ensuring content relevance to the specific Highway Code rule changes targeted in the intervention. To minimise participant burden and reduce survey length, the TPB constructs (e.g., attitudes, intentions, subjective norms and perceived behavioural control) were assessed using single-item measures. While such measures do not permit internal consistency assessment and may introduce greater measurement error than multi-item scales, their use is consistent with several previously applied road safety intervention studies where where brevity is essential (e.g., Elliott & Armitage, 2006; Gwyther & Holland, 2015). A full list of all survey items, including item wording and coding structure, is provided in Annex C.

Participants completed these measures at three timepoints: pre-intervention (baseline), immediately post-intervention, and at a 4–6 week follow-up. Across all waves, the survey assessed participants' knowledge, attitudes, intentions, perceived behavioural control, and subjective norms. Items were scored using 7-point Likert-type scales and reverse-coded where necessary so that lower scores consistently indicated more safety-supportive responses.

To evaluate the intervention's acceptability and perceived impact, additional process evaluation items were included in the post-intervention survey. These assessed the film's cognitive validity (e.g., perceived credibility and usefulness), face validity (e.g., relevance and likelihood of sharing), and engagement (e.g., enjoyment and interest). Responses were aggregated into composite scores for each construct following internal consistency checks (see Section 3.3). These composite scores supported further subgroup analyses by study group and gender.

2.4.3 Data preparation and analysis

All survey data were downloaded from Prolific and analysed using IBM SPSS Statistics (Version 30.0.0.0). A comprehensive data cleaning process was undertaken prior to analysis to ensure data integrity and consistency across the three measurement waves. This included the following steps:

- **Verification of data completeness and validity**: All cases were reviewed for missing data and response validity. Cases with excessive missingness or clearly invalid responses (e.g. patterned responses across scales) were excluded.
- **De-duplication**: Any duplicate entries based on Prolific ID or response patterns were identified and removed to ensure each participant contributed only once.
- **Matching of survey waves:** Unique Prolific participant IDs were used to match individual responses across the pre-post-survey, and follow-up survey waves. This allowed for longitudinal within-subject analysis of change over time. For the longitudinal outcome analyses, only participants who completed all three measurement waves (T1, T2, and T3) were included. While Generalized Estimating Equations (GEE) can accommodate incomplete data under missing-at-random assumptions, a complete-case approach was adopted for simplicity and to ensure consistent sample composition across timepoints.
- **Recoding of variables:** Several items were reverse-coded to ensure internal consistency across constructs (i.e. lower scores reflecting more safety-supportive responses).

- **Computation of composite scores:** Multi-item constructs (e.g., cognitive validity, engagement, face validity) were aggregated into mean composite scores following internal consistency reliability checks (see Section 3.3).

Following data cleaning, the analysis proceeded in three stages. First, descriptive statistics were calculated to summarise the demographic, behavioural, and baseline psychological characteristics of participants across the three study groups (intervention, control 1, and control 2). To assess the equivalence of groups at baseline, chi-square tests and one-way analyses of variance (ANOVAs) were conducted. These tests ensured that any observed differences in outcomes could be more confidently attributed to the intervention itself rather than pre-existing group differences.

Second, attrition analyses were conducted to compare participants who completed the final follow-up survey (T3) with those who did not, based on key demographic and behavioural variables. This step was critical for establishing that the final analytic sample remained broadly representative of the initial baseline group and that the risk of attrition bias was minimised.

Third, inferential analyses were performed to evaluate the intervention's effectiveness over time and relative to the two control conditions. GEE was used to model longitudinal changes in key outcome variables, including Highway Code knowledge, attitudes, intentions, perceived behavioural control, and subjective norms. These models accounted for within-subject correlations across timepoints and employed the appropriate link functions depending on the type of outcome variable (binary or continuous). Relevant baseline covariates such as gender and driving frequency were included in the models to adjust for potential confounding effects. Estimated marginal means were used to explore the nature and direction of significant effects, and subgroup differences were interpreted based on model outputs.

In all GEE models, *Time* was treated as a categorical variable to allow for non-linear patterns of change across the three measurement waves (pre-intervention, post-intervention, and follow-up). For significant Time × Study Group interactions, pairwise comparisons of estimated marginal means (EMMs) were conducted to explore simple effects. These pairwise comparisons were conducted using SPSS's Estimated Marginal Means (EMM) procedures, allowing comparisons both between groups at each timepoint and within groups across time. These comparisons tested for statistically significant differences:

- between study groups at each individual timepoint (i.e. intervention vs. control groups at pre, post, and follow-up);
- within groups across time (i.e. pre-post change and post-follow-up change within each study group).

This approach allowed for a more detailed examination of both the immediate and sustained effects of the intervention across knowledge, attitudinal, and motivational outcomes. In addition to the longitudinal analyses, separate one-way and two-way ANOVAs were conducted to examine participants' immediate (T2) perceptions of the intervention's cognitive validity, engagement, and face validity. These analyses were based on composite scores derived from internally consistent item sets. One-way ANOVAs compared mean ratings across the three study groups, while two-way ANOVAs explored potential gender differences and interactions. Where group differences were significant, appropriate post hoc tests (e.g., Tukey HSD, Games–Howell) were used, depending on the outcome of Levene's test for equality of variances.

This complementary analysis approach allowed for a richer understanding of how participants evaluated the intervention materials, alongside the main outcome evaluation. This rigorous and transparent approach to data preparation and analysis ensures that the findings presented in this report are both robust and credible, allowing for a confident interpretation of the intervention's effectiveness in influencing knowledge and behavioural determinants related to the Highway Code.

3.0 Results

This section presents the findings from the Highway code intervention evaluation, beginning with descriptive statistics of the participant groups to establish baseline comparability. Following these descriptive analyses, statistical analyses are presented to examine changes in knowledge, attitudes, intentions, and perceived behavioural control from pre-post- and 4-6 weeks post intervention, comparing outcomes between the intervention and control groups. Key findings on the intervention's cognitive impact, usefulness, and participant ratings of the films are also detailed.

3.1 Descriptives

To establish a foundation for evaluating the impact of the Highway code intervention, descriptive statistics were first analysed to understand the demographic and background characteristics of participants in both the intervention and control groups. This preliminary analysis ensures that any observed differences in outcomes can be attributed more confidently to the intervention itself, rather than to variations in group composition. Figure 3-1 illustrates the structure of the measurement sessions conducted for this evaluation, outlining the timeline and sequence of assessments. Table 3-1 outlines the descriptive statistics for the participants involved in the Highway Code evaluation.

Figure 3-1: Measurement sessions for Highway Code intervention evaluation

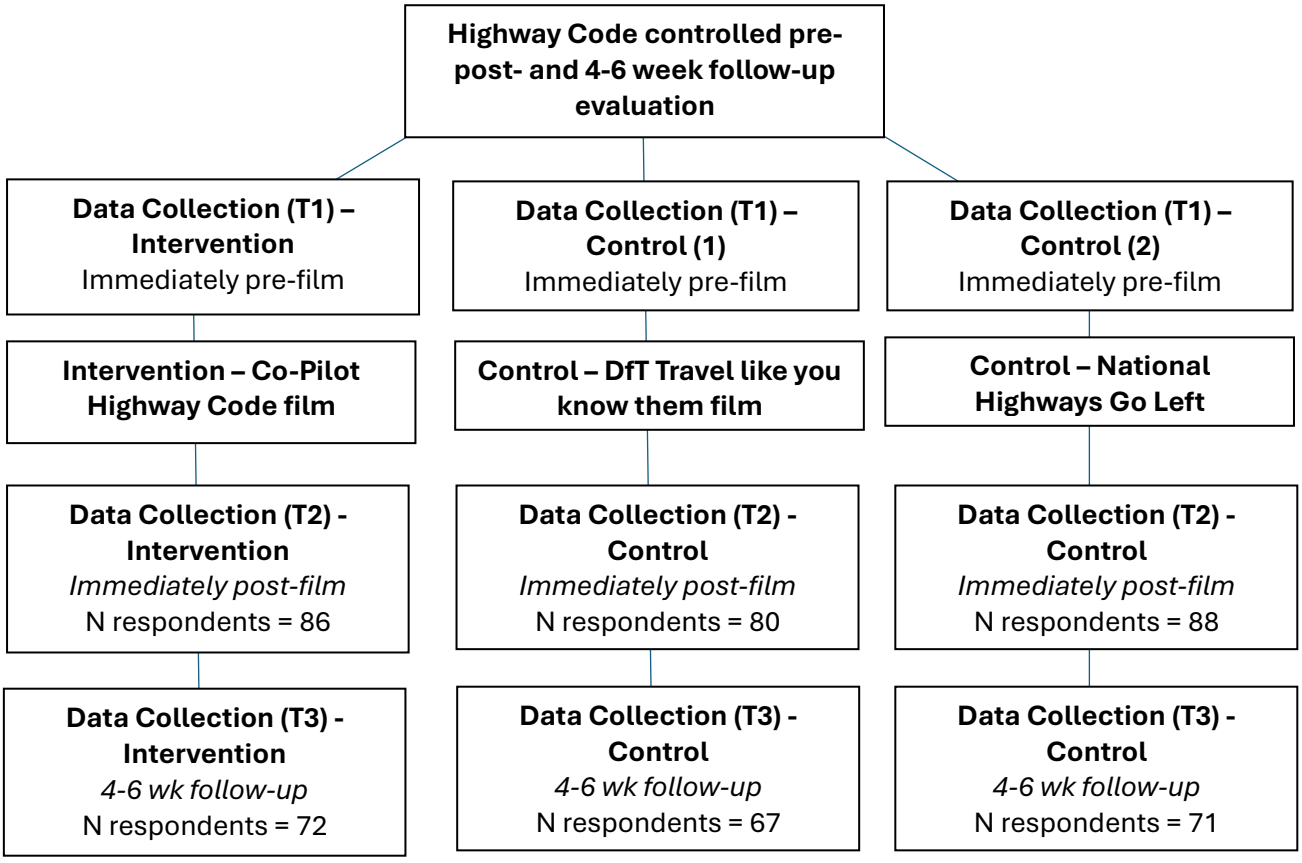


Table 3-1: Descriptive statistics of participants in the Highway Code evaluation (T1, T2 & T3) (n = 210)

		Intervention group	Control group (1)	Control group (2)
N participants		72	67	71
Age (*SE*)		42.96 (1.40)	46.79 (1.50)	47.21 (1.54)
Gender	Male (%)	23 (31.9%)	25 (37.3%)	37 (52.1%)
	Female (%)	49 (68.1%)	42 (62.7%)	34 (47.9%)
Ethnicity	White (%)	68 (94.4%)	61 (91.0%)	62 (87.3%)
	Non-white (%)	4 (5.6%)	6 (9.0%)	9 (6.4%)
Language	English (%)	68 (94.4%)	65 (97.0%)	66 (93.0%)
	Non-English (%)	4 (5.6%)	2 (3.0%)	5 (7.0%)
Employment status	Full-time (%)	36 (50.0%)	28 (41.8%)	36 (50.7%)
	Part-time (%)	10 (13.9%)	10 (14.9%)	10 (14.1%)
	Not currently in work (%)	7 (9.7%)	11 (16.4%)	10 (14.1%)
	Unknown (%)	19 (26.4%)	18 (26.9%)	15 (21.1%)
Licensure duration	Under 3 years	2 (2.8%)	0 (0.0%)	3 (4.2%)
	3-10 years	16 (22.2%)	12 (17.9%)	14 (19.7%)
	11 – 20 years	14 (19.4%)	20 (29.9%)	16 (22.5%)
	Over 20 years	40 (55.6%)	35 (52.2%)	38 (53.5%)
Car Access	Yes	69 (95.8%)	67 (100%)	68 (95.8%)
	No	3 (4.2%)	0 (0.0%)	3 (4.2%)
Driving frequency [1]	Very frequently	58 (80.6%)	38 (56.7%)	47 (66.2%)
	Frequently	11 (15.3%)	20 (29.9%)	16 (22.5%)
	Occasionally	0 (0.0%)	6 (9.0%)	2 (2.8%)
	Rarely/Never	3 (4.2%)	3 (4.5%)	6 (8.5%)
Mode usage	Single-mode users	5 (6.9%)	6 (9.0%)	6 (8.5%)
	Dual/multi-mode users	56 (77.8%)	47 (70.1%)	50 (70.4%)
	Highly multi-modal	11 (15.3%)	14 (20.9%)	15 (21.1%)
Walking in a typical week	Yes	64 (88.9%)	60 (89.6%)	6 (8.5%)
	No	8 (11.1%)	7 (10.4%)	65 (91.5%)
Cycling in a typical week	Yes	4 (5.6%)	6 (9.0%)	11 (15.5%)
	No	68 (94.4%)	61 (91.0%)	60 (84.5%)
Vulnerable road user in a typical week	Yes	65 (90.3%)	60 (89.6%)	66 (93.0%)
	No	7 (9.7%)	7 (10.4)	5 (7.0%)
Public transport user in a typical week	Yes	17 (23.6%)	19 (28.4%)	19 (26.8%)
	No	55 (76.4%)	48 (71.6%)	52 (73.2%)
Last read Highway Code	Recently (within the last year)	8 (11.1%)	7 (10.4%)	6 (8.5%)
	Not recently (More than a year ago)	59 (81.9%)	55 (82.1%)	53 (74.6%)
	Never/unsure	5 (6.9%)	5 (7.5%)	12 (16.9%)
Knowledge of updated Highway code (*SE*) (1 = A lot, 5 = A little)		3.79 (0.13)	4.07 (0.13)	3.85 (0.13)

1 Components of responses: Very frequently (Every day or almost every day), Frequently (a few times a week, once or twice a week); Occasionally (Once or twice a month, Once every couple of months) and Rarely (Once or twice in the last 12 months, Not at all in the last 12 months)

Chi-square tests were conducted to examine whether there were any significant differences between the intervention and control groups across key demographic and background variables, including gender, ethnicity, language, employment status, driving frequency, car access, licensure duration, transport mode usage, and engagement with active and public transport. Independent-samples ANOVAs were also used to compare mean age and self-reported Highway Code knowledge. With the exception of gender and driving frequency, no statistically significant differences were found between groups (all *p[s]* > .05), including for age. This indicates that the three groups were broadly comparable at baseline, supporting the validity of subsequent comparisons of intervention outcomes. Given the significant group differences in gender distribution and driving frequency, these variables were taken into account in subsequent analyses to ensure any observed effects are not confounded by these imbalances.

Attrition analyses were also conducted to compare those who completed T1/T2 only with those who completed all three waves (T1/T2, and T3). Independent-samples t-tests and chi-square tests revealed no significant differences between these two groups across key demographic and behavioural variables, including age, gender, ethnicity, language, car access, licensure duration, driving frequency, mode usage, and Highway Code engagement (all $p > .05$), with the exception of employment status. Part-time workers were significantly less likely to complete the T3 follow-up compared to full-time and non-working participants ($\chi^2(3, N = 254) = 9.88$, $p = .020$). Overall, the T3 sample appears largely representative of the full sample, and differences in employment status will be noted in interpreting outcome findings.

To assess baseline comparability across psychological determinants of behaviour, participants' responses to items informed by the Theory of Planned Behaviour (TPB) (Ajzen, 1991) were analysed. Table 3-2 presents the mean scores and standard errors for attitudes (ATT), intentions (INT), perceived behavioural control (PBC), and subjective norms (SNORM) across the three study groups pre-intervention (T1). Scores were rated on a 1–7 scale, where lower scores indicate more road safety supportive responses. To determine whether any pre-intervention group differences were present, a series of one-way ANOVAs were conducted for each construct.

Table 3-2: Mean (SE) scores on Theory of Planned Behaviour constructs by study group (T1)

	Intervention group (n = 72)	Control group (1) (n = 67)	Control group (2) (n = 71)
Attitudes (ATT)	2.21 (.14)	2.21 (.14)	2.23 (.14)
Intentions (INT)	2.29 (.15)	2.42 (.14)	2.25 (.16)
Perceived Behavioural Control (PBC)	2.64 (.14)	2.97 (.17)	2.70 (.14)
Subjective norms (SNORM)	2.53 (.20)	2.09 (.16)	1.99 (.14)

Note: Values represent mean (standard error) scores on a 1–7 scale, where lower scores indicate more road safety supportive responses. TPB constructs (Attitudes, Intentions, Perceived Behavioural Control, Subjective Norms) were assessed using single-item measures (see Methods and Annex C for full item wording).

A one-way ANOVA was conducted to examine whether attitudes (ATT), intentions (INT), perceived behavioural control (PBC), and subjective norms (SNORM) differed significantly across the three study groups at baseline (T1).

There were no statistically significant differences between groups in:

- **Attitudes**, $F(2, 207) = 0.01$, $p = .995$, $\eta^2 < .001$
- **Intentions**, $F(2, 207) = 0.33$, $p = .723$, $\eta^2 = .003$
- **Perceived behavioural control**, $F(2, 207) = 1.32$, $p = .269$, $\eta^2 = .013$

A marginally significant difference was found for:

- **Subjective norms**, $F(2, 207) = 3.04$, $p = .050$, $\eta^2 = .028$

A Levene's test indicated a violation of the assumption of equal variances ($p < .001$), so a Games–Howell post hoc test was used to explore this difference. The difference between the intervention group and Control Group 2 approached significance ($p = .066$), but none of the pairwise comparisons met the conventional threshold ($p < .05$). In summary, the three study groups were broadly equivalent at baseline across all TPB measures. Although there was a slight trend toward higher (i.e., less safety supportive) subjective norm scores in the intervention group compared to Control Group 2, this was not statistically significant and is unlikely to have influenced the results.

To assess whether Highway Code knowledge was comparable across the three study groups at baseline (T1), participants were asked two factual questions relating to recent rule changes:

- **Overtaking distance question**: At speeds up to 30mph, how much space should drivers leave when overtaking a cyclist? (Response options: Less than 1 metre; At least 1 metre; At least 1.5 metres; At least 2 metres; More than 2 metres; I don't know.)
- **Turning priority question**: When turning into a side road and a pedestrian is waiting to cross, who has priority? (Response options: The pedestrian; The driver; The cyclist; I'm not sure.)

Table 3-3 presents the frequency and percentage of correct and incorrect responses by group for each question.

Table 3-3: Frequency and percentage of correct and incorrect Highway Code responses at baseline (T1), by study group

	Intervention group (n = 72)		Control group (1) (n = 67)		Control group (2) (n = 71)	
	Correct	**Incorrect**	**Correct**	**Incorrect**	**Correct**	**Incorrect**
Knowledge Overtaking (%)	26 (36.1%)	46 (63.9%)	24 (35.8%)	43 (64.2%)	20 (28.2%)	51 71.8%)
Knowledge Turning (%)	47 (65.3%)	25 (34.7%)	42 (62.7%)	25 (37.3%	47 (66.2%)	24 (33.8%)

Chi-square tests were conducted to determine whether there were any statistically significant differences in the proportion of correct responses across the three groups. No significant differences were found for either knowledge item:

- **Turning rule**: $\chi^2(2, N = 210) = 0.20$, $p = .905$
- **Overtaking rule**: $\chi^2(2, N = 210) = 1.29$, $p = .525$

These findings suggest that all three groups were broadly similar in their knowledge of the Highway Code at baseline, further supporting the comparability of groups prior to the intervention.

Overall, the descriptive and inferential baseline analyses suggest that the intervention and control groups were broadly comparable in terms of demographic characteristics, travel behaviours, psychological determinants of behaviour (TPB constructs), and knowledge of Highway Code rules.

Although minor differences were observed in gender distribution and self-reported driving frequency, these variables were statistically controlled for by including them as covariates in the GEE models. The consistency across most other variables (e.g. age, language, factual knowledge of the Highway Code etc) strengthens the validity of subsequent group comparisons. As such, observed post-intervention differences in outcomes can be more confidently attributed to the effects of the intervention, rather than to pre-existing baseline imbalances.

3.2 Outcome evaluation results

This section presents the results of the outcome evaluation for the Co-Pilot Highway Code intervention. Outcomes were analysed across three timepoints, pre-intervention (T1), immediately post-intervention (T2), and follow-up (T3, 4–6 weeks later). GEE were used to model longitudinal changes, with Time treated as a categorical variable. For knowledge items with binary outcomes, binary logistic models were applied; continuous outcomes were analysed using linear identity links. For significant interactions, pairwise comparisons of estimated marginal means (EMMs) were conducted to explore group differences at each timepoint and change within groups over time. Full details of the analytic procedures are provided in Section 2.4.3.

The results indicate that the Co-Pilot film produced statistically significant improvements in several domains, including Highway Code knowledge, perceived behavioural control, and subjective norms. While the effects were most pronounced immediately after the intervention, several benefits were sustained at follow-up.

The following sub-sections provide a detailed breakdown of each outcome area, including knowledge gains and changes in Theory of Planned Behaviour (TPB) constructs: attitudes, intentions, perceived behavioural control, and subjective norms.

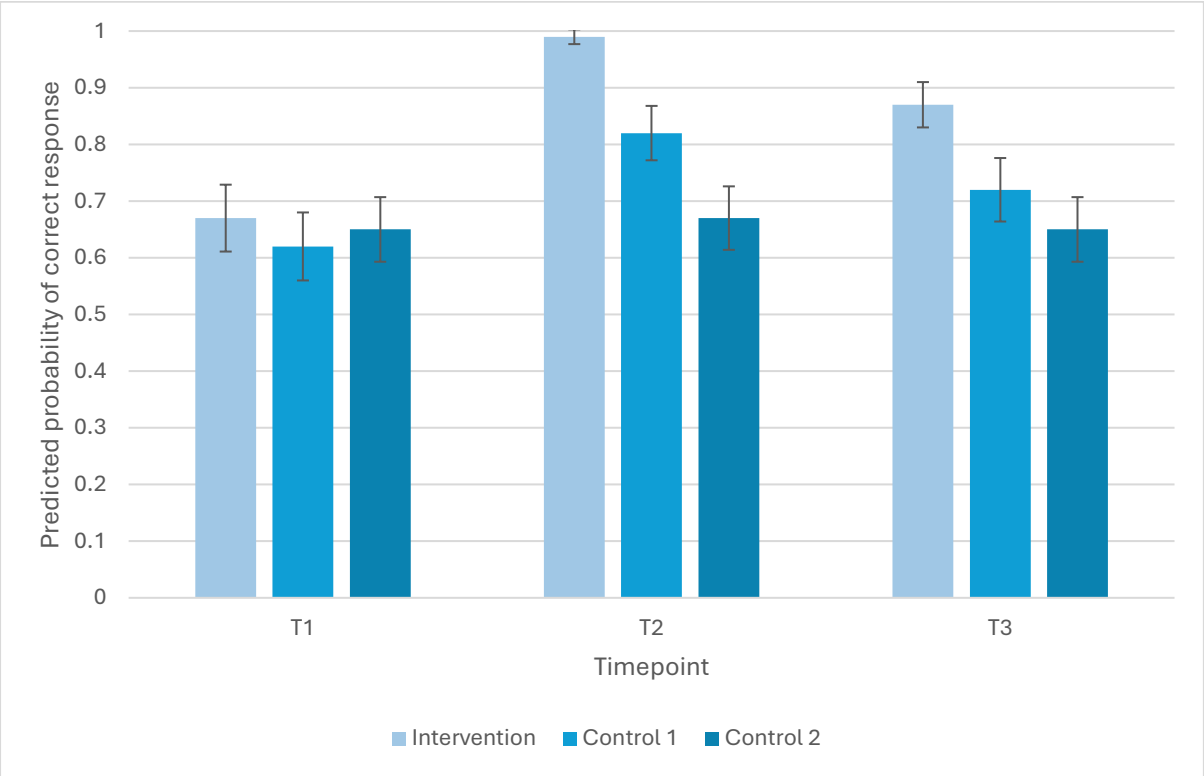
3.2.1 Knowledge

The Co-Pilot Highway Code intervention produced significant improvements in all knowledge-related outcomes compared to both control groups. The pattern of results was broadly consistent across turning rule knowledge, overtaking distance knowledge, and perceived Highway Code knowledge.

3.2.1.1 Turning when approaching a junction with a pedestrian waiting

At baseline, correct response rates were low and similar across groups (Intervention: 67%, Control 1: 62%, Control 2: 65%). Following the intervention (T2), the Intervention group showed a sharp increase to 99% correct responses, compared with 82% in Study 2 and 67% in Study 3. Although scores declined slightly at follow-up (T3), the Intervention group maintained a lead at 87%, compared to 72% and 65% in the control groups (See Figure 3-2).

Figure 3-2: Predicted probability of correct responses to the Highway Code turning rule by study group and timepoint (*SE*)



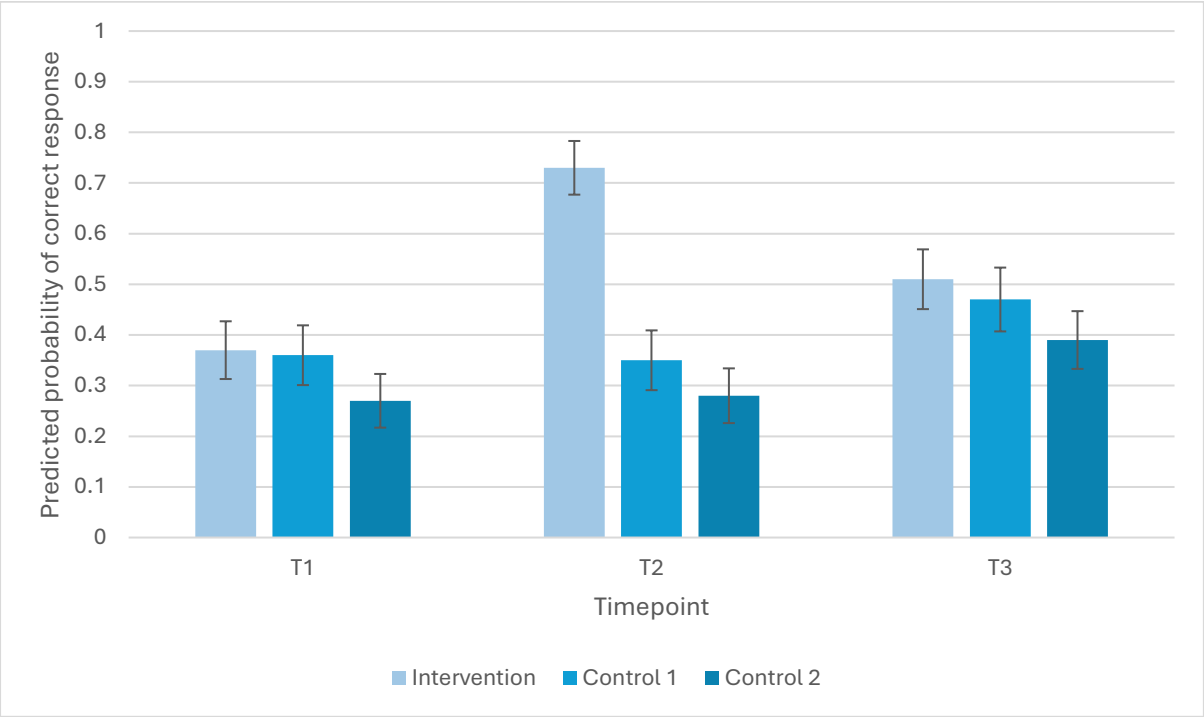
Significant main effects of Time (Wald $\chi^2(2) = 26.27$, $p < .001$) and Study Group (Wald $\chi^2(2) = 12.20$, $p = .002$) were observed, with a significant Time × Study Group interaction (Wald $\chi^2(4) = 24.52$, $p < .001$) indicating differing knowledge improvements across groups. Pairwise comparisons indicated that correct responses increased significantly from T1 to T2 in the intervention group ($p < .001$), and remained significantly higher than both control groups at both T2 and T3 (all $p < .01$). Gender and Driving Frequency were not significant predictors.

These findings indicate that the Co-Pilot Highway Code film led to a large and immediate improvement in turning rule knowledge, with effects that persisted at follow-up. The significant interaction confirms that this improvement was unique to the intervention group.

3.2.1.2 Overtaking distance to be provided to cyclists by drivers when travelling at 30mph

At baseline, knowledge levels were modest across all groups: 37% of the Intervention group answered correctly, alongside 36% in Control 1 and 27% in Control 2. By the immediate post-intervention timepoint (T2), the Intervention group's performance had nearly doubled to 73%, while Control 1 and Control 2 remained largely unchanged at 35% and 28%, respectively. Although there was some decline by the follow-up (T3), the Intervention group retained an advantage, with 51% correct responses compared to 47% in Control 1 and 39% in Control 2 (See Figure 3-3).

Figure 3-3: Predicted probability of correct responses to the Highway Code overtaking rule by study group and timepoint (*SE*)



Significant main effects of Time (Wald $\chi^2(2) = 22.22$, $p < .001$) and Study Group (Wald $\chi^2(2) = 13.38$, $p = .001$) were found, along with a significant Time x Study Group interaction (Wald $\chi^2(4) = 23.65$, $p < .001$), indicating that knowledge gains varied across conditions. Pairwise comparisons showed significant improvement from T1 to T2 in the intervention group ($p < .001$), with performance remaining significantly better than both control groups at follow-up (T3; all $p < .05$). Gender approached significance ($p = .057$), suggesting a trend toward lower accuracy among female participants, while driving frequency was not associated with performance ($p = .917$).

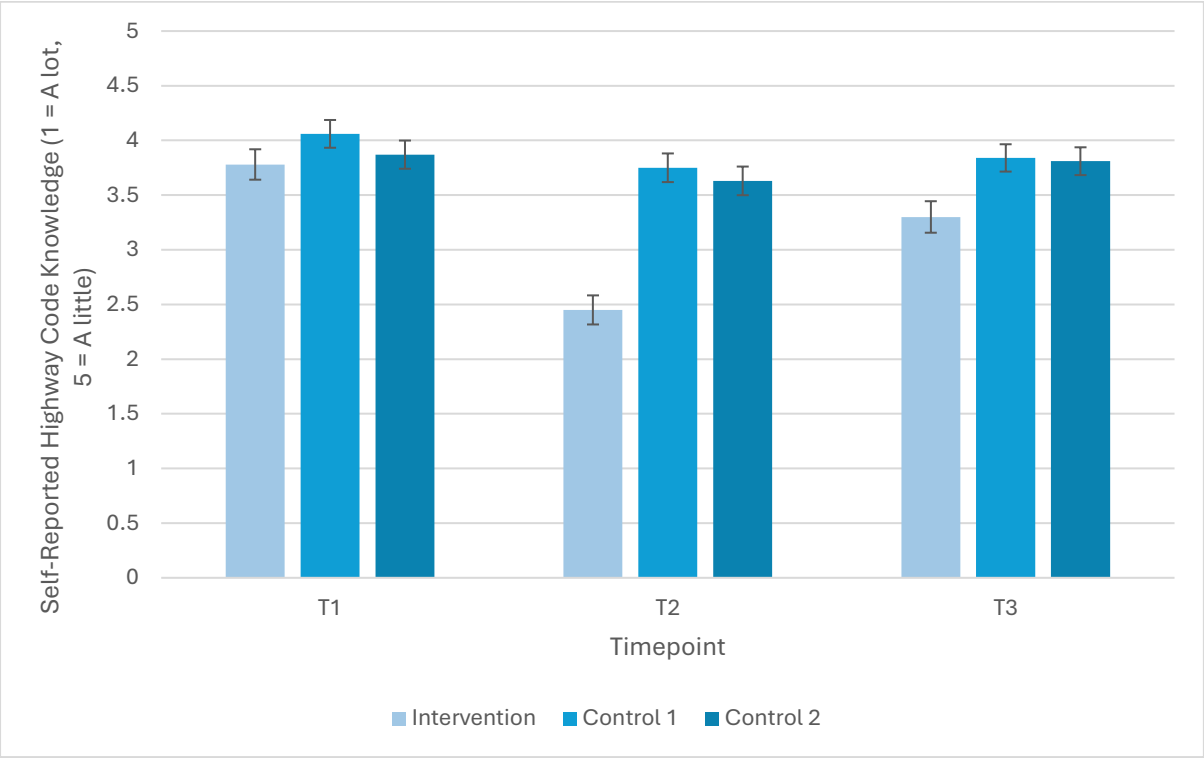
These results indicate that the Co-Pilot intervention produced a clear and immediate increase in knowledge of safe overtaking distances, with partial retention of this knowledge several weeks later. The distinctive trajectory of improvement in the Intervention group, confirmed by the significant interaction, highlights the film's effectiveness in promoting accurate understanding of this specific Highway Code rule.

3.2.1.3 Knowledge of the new Highway Code

Examining estimated marginal means revealed that participants in the Intervention group reported the most pronounced improvement. Their mean self-reported knowledge score (with lower values reflecting greater knowledge) fell sharply from 3.78 at baseline to 2.45 immediately after the intervention, before rising slightly to 3.30 at follow-up. This pattern reflects a strong initial gain in perceived knowledge, with partial retention over time (See Figure 3-4).

In contrast, Control group 1 participants showed only minor change, with scores decreasing from 4.06 at T1 to 3.75 at T2 and returning to 3.84 at T3. Study 3 followed a similar trajectory, with a small initial decrease (3.87 to 3.63) and a near-complete return to baseline at T3 (3.81). For both control groups, the overlapping confidence intervals and modest score fluctuations suggest minimal substantive change.

Figure 3-4: Estimated Marginal Means of Self-Reported Highway Code knowledge across study groups and timepoints



Significant main effects of Time (Wald $\chi^2(2) = 125.32$, $p < .001$) and Study Group (Wald $\chi^2(2) = 21.22$, $p < .001$) were observed, with a strong Time × Study Group interaction (Wald $\chi^2(4) = 56.44$, $p < .001$) reflecting distinct knowledge trajectories across groups. Pairwise comparisons confirmed that the intervention group showed significantly greater improvement in self-reported knowledge between T1 and T2 ($p < .001$) compared to both control groups, and continued to differ significantly from controls at T3 (all $p < .01$). Gender and driving frequency did not significantly influence responses.

Taken together, these findings offer clear evidence of the intervention's positive impact on participants' awareness of Highway Code content. Unlike the control groups, which showed only slight and temporary shifts, the Intervention group experienced large, immediate improvements that were still evident several weeks later - underscoring the targeted and sustained effect of the Co-Pilot film.

3.2.1.4 Summary

Across all three knowledge-related measures, the Co-Pilot intervention group demonstrated significantly greater gains than both control groups. For the turning rule and overtaking distance items, participants who viewed the intervention film showed substantial and immediate increases in correct responses at post-intervention (T2), with performance remaining notably higher than control participants at follow-up (T3). Likewise, self-reported knowledge improved sharply in the intervention group, with meaningful improvements persisting several weeks later.

In contrast, participants in the control conditions showed only minor or inconsistent gains, with little evidence of sustained improvement. The significant Time × Study Group interactions across all models confirm that the observed changes were specific to the intervention and not explained by general trends or repeated measurement effects. These results provide robust

evidence that the Co-Pilot film was effective in increasing both factual and perceived knowledge of Highway Code rule changes in the short and medium term.

3.2.2 Behavioural impacts

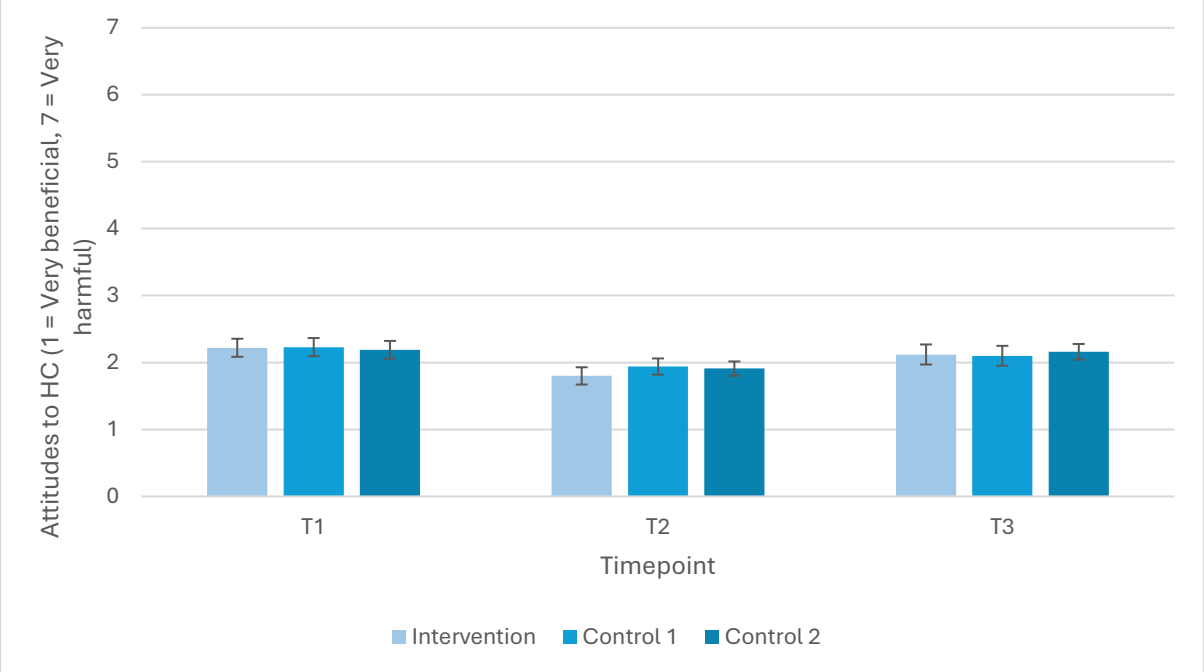
In addition to improving knowledge, the Co-Pilot intervention aimed to influence key psychological determinants of Highway Code compliance, including attitudes, intentions, perceived behavioural control, and subjective norms. These constructs, grounded in the Theory of Planned Behaviour (Ajzen, 1991), reflect the motivational and social factors that shape real-world driving decisions. The following sections present the results of GEE models used to assess changes in each construct across the three measurement points and between study groups.

Overall, the intervention had significant effects on several psychological determinants, particularly perceived behavioural control (PBC), subjective norms, and intentions. In contrast, while attitudes became more safety-supportive across all groups, these changes were not specific to the intervention group, suggesting a more general awareness or measurement effect.

3.2.2.1 Attitudes towards following Highway Code

Attitudes toward Highway Code compliance improved across all groups following the intervention, but without differential effects between groups (See Figure 3-4). This suggests a general awareness or measurement effect rather than an intervention-specific impact.

Figure 3-4: Attitudes toward following Highway Code rules by study group and timepoint (*SE*)

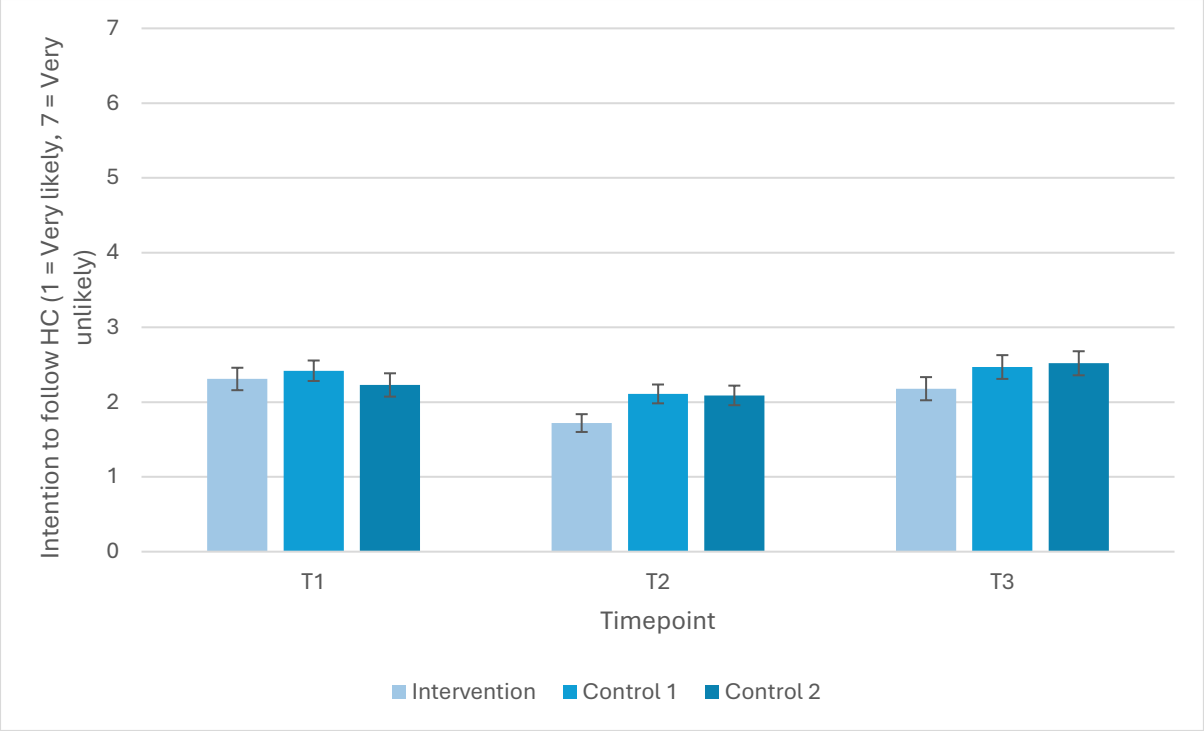


A significant main effect of Time was found (Wald $\chi^2(2) = 37.67$, $p < .001$), indicating overall improvement. However, no significant Study Group differences or Time × Study Group interaction were observed, supporting the interpretation of uniform attitude change across conditions. Gender emerged as a significant predictor (Wald $\chi^2(1) = 6.40$, $p = .011$), with females reporting more safety-conscious attitudes (i.e., lower scores) than males. Driving frequency was not significantly associated with attitudes ($p = .217$).

3.2.2.2 Intentions to follow Highway Code rules

Intentions to comply with Highway Code rules improved across all groups post-intervention, with the strongest and most sustained gains observed in the intervention group (See Figure 3-5). These findings suggest the Co-Pilot film had a specific and measurable impact on motivational readiness to follow Highway Code guidance.

Figure 3-5: Intentions to follow Highway Code rules by study group and timepoint (*SE*)



A significant main effect of Time was observed (Wald $\chi^2(2) = 45.66$, $p < .001$), along with a significant Time × Study Group interaction (Wald $\chi^2(4) = 10.55$, $p = .032$), indicating that changes in intention varied across groups. Pairwise comparisons confirmed a significant improvement in the intervention group from T1 to T2 ($p < .001$), with intentions remaining significantly stronger than both control groups at follow-up (*all* $p < .05$). Gender and driving frequency were not significant predictors.

Across the full sample, mean intention scores (where lower scores indicate stronger safety intentions) improved from 2.32 at T1 to 1.97 at T2, before increasing to 2.39 at T3. However, group-level analysis showed clear differences:

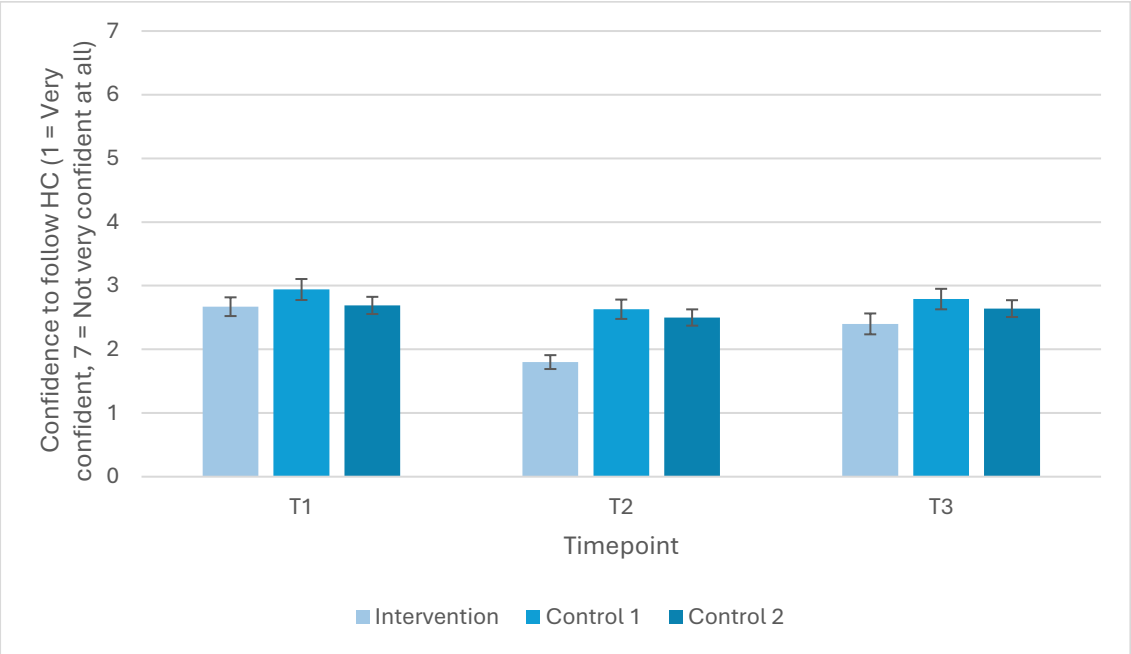
- Intervention Group: 2.31 → 1.72 → 2.18
- Control Group 1: 2.42 → 2.11 → 2.47
- Control Group 2: 2.23 → 2.09 → 2.52

These results show that while all groups experienced some improvement post-intervention, only the intervention group retained a meaningful advantage at follow-up.

3.2.2.3 Perceived Behavioural Control (PBC) regarding Highway Code compliance

Perceived behavioural control regarding Highway Code compliance improved significantly following the intervention, with the greatest and most sustained improvements observed in the intervention group (See Figure 3-6). These findings suggest the Co-Pilot film enhanced drivers' confidence in their ability to comply with updated rules.

Figure 3-6: Confidence in ability to follow Highway Code rules by study group and timepoint (*SE*)



A significant main effect of Time was observed (Wald $\chi^2(2) = 51.73$, $p < .001$), along with a significant main effect of Study Group (Wald $\chi^2(2) = 9.03$, $p = .011$), and a significant Time × Study Group interaction (Wald $\chi^2(4) = 18.47$, $p < .001$), indicating differential improvements in PBC across the three groups. Driving frequency was also a significant predictor (Wald $\chi^2(1) = 3.95$, $p = .047$), with more frequent drivers reporting higher perceived control. Gender was not a significant predictor ($p = .879$).

Pairwise comparisons showed a significant improvement in the intervention group from T1 to T2 ($p < .001$), with PBC scores at T3 remaining significantly improved in comparison to both control groups (*all* $p < .05$). Scores also remained significantly improved in comparison to the intervention group's own baseline ($p < .01$), indicating sustained gains.

At the sample level, PBC scores improved following the intervention, followed by a slight regression at follow-up. Group-level patterns were as follows:

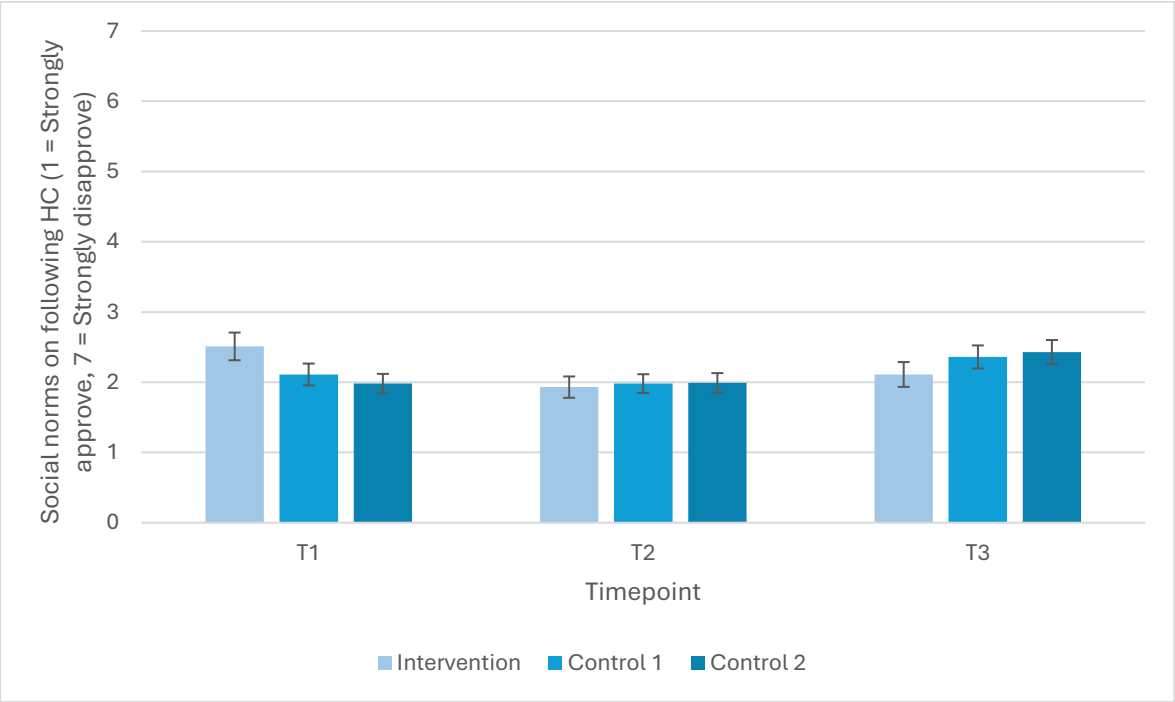
- Intervention Group: Strong improvement from baseline to post-intervention, with sustained benefits at T3.
- Control Group 1 and Control Group 2: Modest, less consistent changes across timepoints.

These findings suggest the intervention had a lasting positive impact on drivers' perceived ability to follow the Highway Code, especially when compared with control conditions.

3.2.2.4 Subjective Norms (SNORM) Regarding Highway Code compliance

Perceptions of social norms surrounding compliance with Highway Code rules shifted over time, with the intervention group experiencing a temporary but notable strengthening of normative beliefs (See Figure 3-7). These changes suggest that the Co-Pilot film may have positively influenced participants' sense of social expectations around safe driving.

Figure 3-7: Social norms associated with following Highway Code rules by study group and timepoint (*SE*)



A significant main effect of Time was observed (Wald $\chi^2(2) = 28.27$, $p < .001$), along with a significant Time × Study Group interaction (Wald $\chi^2(4) = 18.31$, $p = .001$), indicating differing trajectories in normative beliefs across groups. There was no significant main effect of Study Group, and neither Gender ($p = .413$) nor Driving Frequency ($p = .144$) were significant predictors.

Pairwise comparisons revealed that the intervention group experienced a significant improvement in subjective norms from T1 to T2 ($p < .01$), with scores at T3 remaining significantly more safety-supportive than those of the control groups ($p < .05$), despite a partial return toward baseline.

At the aggregate level, subjective norm scores decreased (i.e. strengthened) from 2.20 at T1 to 1.97 at T2, before increasing again to 2.30 at T3. However, group-level trends were more distinct:

- Intervention Group: Scores dropped from 2.51 at baseline to 1.93 post-intervention ($p = .003$), indicating a stronger sense of social obligation to follow the rules. Although scores rose to 2.11 at T3, perceived norms remained more safety-supportive than at baseline.
- Control Group 1: Slight decrease from 2.11 to 1.98, then increase to 2.36 at follow-up.
- Control Group 2: Minimal change from 1.98 to 1.99, followed by an increase to 2.43 at T3.

These results suggest that the Co-Pilot intervention was effective in temporarily reinforcing normative expectations around rule compliance, while control group participants showed a gradual weakening of perceived social norms over time.

3.2.2.5 Summary

The Co-Pilot Highway Code film produced measurable impacts across several psychological determinants of rule compliance. Perceived behavioural control and subjective norms showed the clearest intervention effects, with the intervention group demonstrating significantly greater improvements than control groups, particularly in the immediate aftermath of viewing the film. These findings suggest that the film not only increased participants' confidence in their ability to follow the rules, but also enhanced their sense that others would support or expect compliant behaviour.

For intentions, a significant interaction effect indicated that the intervention prompted stronger short-term commitments to follow the Highway Code, although some regression was observed by the follow-up. Attitudes towards compliance also improved across the sample, but this trend was consistent across all groups and is therefore likely attributable to general exposure or measurement effects rather than the intervention specifically. Taken together, these results indicate that the Co-Pilot intervention effectively influenced several key behavioural precursors in the short term. Although some effects diminished over time, the targeted shifts observed in the intervention group, particularly in perceived control, intentions, and normative beliefs, suggest that even brief, well-designed interventions can play a meaningful role in promoting rule-consistent driving behaviours.

3.3 Process evaluation results

To assess the perceived value and impact of the intervention, participants' responses to a set of process evaluation items were analysed. These were assessed at immediate follow-up (T2; N = 210) and grouped into three theoretically informed constructs: Cognitive Validity, Engagement, and Face Validity. Internal consistency and item-level correlations were first examined to verify the quality of each scale. Subsequently, one-way ANOVAs were conducted to compare mean scores across the three study groups, with Levene's test used to assess homogeneity of variance.

3.3.1 Cognitive validity

This construct assessed the film's perceived credibility, usefulness, importance, and informativeness (COG_1_1 to COG_4_1). The four items demonstrated excellent internal consistency (Cronbach's α = .868), with corrected item-total correlations ranging from .609 to .805. No item removal would have improved reliability.

A one-way ANOVA showed a significant difference between groups, $F(2, 207) = 14.04$, $p < .001$, with a medium effect size ($\eta^2 = .119$) (See Figure 3-8). Levene's test indicated equal variances ($p = .231$). Tukey post hoc comparisons revealed that the intervention group ($M = 1.43$, $SD = 0.48$) rated the film significantly more positively for cognitive validity than both Control Group 1 ($M = 1.93$, $SD = 0.72$; $p < .001$) and Control Group 2 ($M = 1.92$, $SD = 0.71$; $p < .001$). No significant difference emerged between the two control groups ($p = .995$).

3.3.2 Engagement

Engagement was measured via two affective items: enjoyment (COG_5_1) and boredom (COG_6_1), with the latter reverse-coded. The two items were strongly correlated ($r = .694$, $p < .001$), and internal consistency was good for a two-item scale ($\alpha = .819$). Composite engagement scores were computed, with higher scores indicating greater engagement.

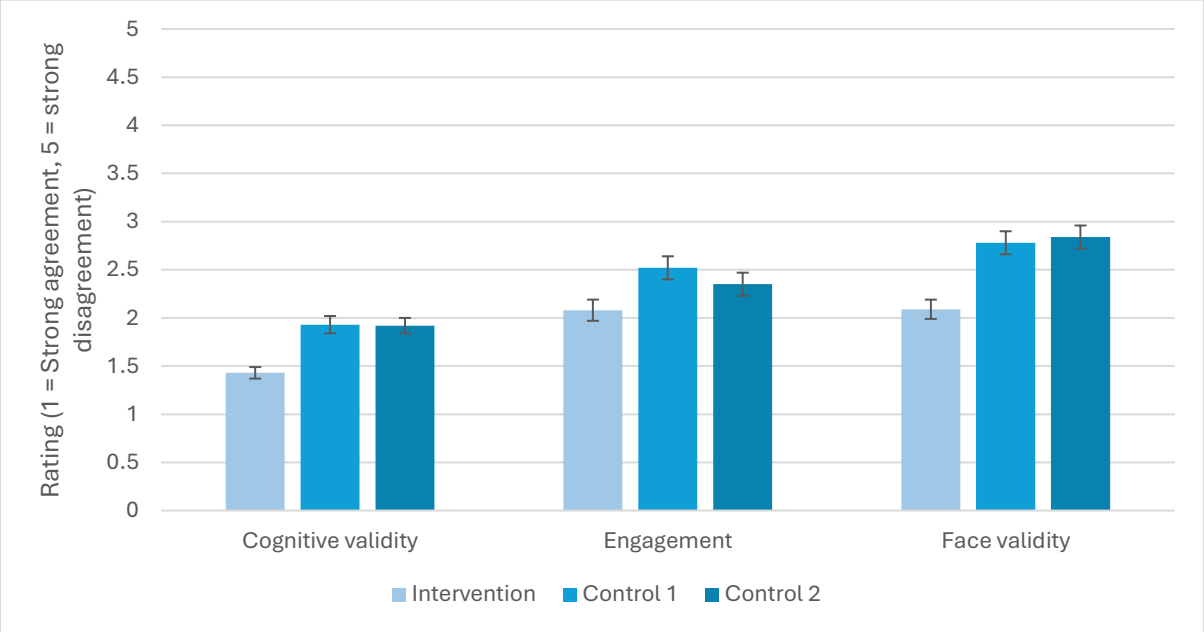
A significant group effect was found, $F(2, 207) = 3.69$, $p = .027$, with a small effect size ($\eta^2 = .034$) (See Figure 3-8). Levene's test showed no violation of variance equality ($p = .829$). Tukey HSD tests revealed that the intervention group ($M = 2.08$, $SD = 0.95$) rated the film as significantly more engaging than Control Group 1 ($M = 2.52$, $SD = 0.96$; $p = .021$). However, differences between the intervention group and Control Group 2 ($M = 2.35$, $SD = 0.97$; $p = .236$), and between the two control groups ($p = .525$), were not statistically significant.

3.3.3 Face validity

Face Validity captured participants' sense of personal benefit, insight gained, and likelihood of sharing the film (FC_VALD1_1 to FC_VALD3_1). Internal reliability was excellent ($\alpha = .909$), with item-total correlations ranging from .759 to .853.

A one-way ANOVA revealed significant differences by condition, $F(2, 207) = 11.75$, $p < .001$, with a medium effect size ($\eta^2 = .102$) (See Figure 3-8). As Levene's test indicated unequal variances ($p = .004$), Games–Howell post hoc tests were used. The intervention group ($M = 2.09$, $SD = 0.85$) rated the film significantly higher in face validity than both Control Group 1 ($M = 2.78$, $SD = 1.01$; $p < .001$) and Control Group 2 ($M = 2.84$, $SD = 1.18$; $p < .001$). No difference was observed between the two control groups ($p = .946$).

Figure 3-8: Mean ratings of cognitive validity, engagement, and face validity by study group



3.3.4 Gender differences

Gender differences in participants' responses were also explored using two-way ANOVAs with study condition and gender as factors. There were no significant gender differences in cognitive validity ratings ($F(1, 204) = 0.89$, $p = .345$) or engagement scores ($F(1, 204) = 3.76$, $p = .054$), and

no interaction effects between gender and study condition for either construct. However, for face validity, a significant main effect of gender was observed, $F(1, 204) = 5.82$, $p = .017$, with female participants ($M = 2.39$) providing more supportive ratings than males ($M = 2.77$). This suggests that while perceptions of cognitive merit and engagement were similar across genders, women were more likely to view the materials as personally relevant and impactful. No interaction was found between study condition and gender for face validity ($p = .451$), indicating that this gender difference held across all study groups.

3.3.5 Summary

These findings indicate that participants in the intervention group viewed the film more positively than those in either control group, across cognitive, emotional, and personal-relevance dimensions. Ratings of cognitive merit and enjoyment were higher, and participants felt the intervention was more personally meaningful. These effects were particularly pronounced for women in terms of face validity, highlighting the film's broad appeal and impact.

4.0 Discussion

This evaluation of the Highway Code intervention developed by Co-Pilot offers compelling evidence for its effectiveness in enhancing experienced drivers' understanding of key rule changes introduced in the 2022 Highway Code update. By employing a behaviourally informed design and comparing the intervention against both a government Highway Code campaign and a non-targeted road safety film, the evaluation was able to isolate the specific effects of the Co-Pilot intervention and assess its immediate and sustained impact.

4.1 Knowledge gains and retention

The most robust findings were seen in knowledge-related outcomes. Participants who viewed the Co-Pilot film demonstrated substantial and statistically significant improvements in both factual knowledge (e.g., turning and overtaking rules) and self-reported awareness of Highway Code changes. While knowledge gains were observed immediately post-intervention across all groups, the Co-Pilot group consistently outperformed the control groups, with improvements that were not only larger in magnitude but also more durable at follow-up. These effects are particularly relevant given the persistent knowledge gaps among experienced drivers who may not have revisited the Highway Code since licensure. The inclusion of modelling, narrative structure, humour, and a credible voiceover is likely to have contributed to both comprehension and retention.

4.2 Behavioural determinants

The Co-Pilot Highway Code intervention produced measurable improvements across several behavioural determinants of rule compliance, consistent with the theoretical foundations of the COM-B model (Michie et al., 2014) and the Theory of Planned Behaviour (Ajzen, 1991). Although changes in attitudes, intentions, perceived behavioural control (PBC), and subjective norms were observed across all groups, participants in the intervention group reported more favourable immediate improvements across key motivational constructs.

Significant Time × Study Group interactions were observed for intentions, PBC, and subjective norms, indicating that the intervention had a differential effect over time relative to control groups. While these gains partially regressed by the 4–6 week follow-up, scores in the

intervention group remained improved from baseline, suggesting some retention of effect and a foundation for longer-term change if periodically reinforced.

The absence of a group-level effect for attitudes is consistent with expectations. Attitudes toward Highway Code compliance were already relatively positive at baseline, leaving limited room for change. Additionally, attitudes tend to be more stable and less responsive to brief interventions. In contrast, the intervention had a more pronounced influence on drivers' sense of capability (PBC) and motivational commitment (intentions).

The temporary increase in subjective norms may reflect the film's use of relatable characters and clear role modelling, supported by an authoritative yet approachable narrator. These elements likely contributed to participants perceiving Highway Code compliance as a socially expected and supported behaviour. This aligns with evidence from prior research suggesting that observational modelling can influence normative beliefs, even in short-format interventions (e.g., Lewis et al., 2007; Cuenen et al., 2016), especially in contexts where new rules have not yet fully permeated everyday driving culture.

Taken together, the results suggest that light-touch, film-based interventions like Co-Pilot can effectively enhance drivers' motivation, perceived ability, and perceived social support for compliant behaviour. However, to sustain these effects, supplementary measures, such as periodic re-exposure or integration with wider communications, may be necessary. The Co-Pilot film's immediate impact on behavioural precursors highlights its value as part of a broader strategy to embed updated road rules into driver mindsets and practices.

4.3 Perceptions of the intervention

The process evaluation confirmed that the intervention was well received. Participants rated the Co-Pilot film significantly more positively than both control conditions on cognitive validity, face validity, and engagement. These ratings are indicative of the intervention's relevance, usefulness, and appeal. The findings also suggest that participants felt the film provided them with new insights and that they would be likely to share it with others, both key indicators of potential social diffusion.

Interestingly, gender differences were observed in face validity ratings, with female participants perceiving greater personal benefit from the intervention. This finding warrants further exploration but may relate to differential perceptions of risk, safety responsibility, or engagement with road safety content across genders.

4.4 Strengths and limitations

This evaluation demonstrates several notable strengths. The intervention design was grounded in established behaviour change theory (COM-B, Michie et al., 2014; TPB; Ajzen, 1991), ensuring strong theoretical alignment between intervention content and measured outcomes. A robust randomised controlled design was employed, with assignment to three study conditions, repeated measurement across multiple timepoints, and statistical adjustment for potential confounding factors. The inclusion of two active control groups further enhances causal inference by accounting for general exposure to road safety messaging. Additionally, process evaluation measures confirmed the intervention's acceptability, engagement, and perceived usefulness.

Nonetheless, some limitations should be acknowledged. First, reliance on self-reported outcomes introduces the potential for social desirability bias or response reactivity. Second, the follow-up period was relatively short, limiting conclusions regarding long-term behaviour change. Third, the online nature of the study and use of the Prolific platform may limit generalisability to some driver populations.

Although random allocation was used, an imbalance in gender distribution emerged between groups, likely due to chance variation related to the use of modest sample sizes. Gender was included as a covariate to mitigate any confounding effects, reducing the likelihood of bias. Attrition was generally low and balanced across groups, though complete-case analyses were employed for longitudinal models, and it remains possible that unobserved differences existed between completers and non-completers.

Measurement considerations also warrant mention. The overtaking distance knowledge item included multiple response options, some of which reflected overly cautious, but still safe, behaviours. Therefore declines in 'correct' responses at follow-up may partly reflect conservative responding rather than true knowledge decay. The centrally positioned correct answer also introduces some risk of central tendency bias, though this would be consistent across groups and timepoints. Furthermore, while the intervention successfully influenced knowledge and broad motivational constructs (e.g., intentions, PBC, subjective norms), more specific attitudes, such as towards cyclists or pedestrians, were not directly assessed. It is possible that improved knowledge may positively influence such attitudes, supporting longer-term behaviour change even after specific rule knowledge fades. Future studies might seek to incorporate such broader attitudinal measures.

Finally, the brief intervention format, while practical and scalable, may limit deeper cognitive reflection for some participants. Variations in film length (Intervention: 1:58mins; controls: 0:40mins and 1:00mins) may also have influenced engagement or processing, though all films were professionally produced and concise. Future work could explore how periodic re-exposure to brief interventions, consistent with Co-Pilot's delivery model, can help reinforce knowledge, attitudinal shifts, and sustained behaviour change. Additionally, subsequent evaluations could incorporate behavioural tracking or naturalistic observation to capture real-world effects.

5.0 Conclusion

This evaluation provides strong evidence that the Co-Pilot Highway Code intervention is an effective and engaging tool for improving experienced drivers' knowledge and behavioural readiness regarding recent Highway Code rule changes. The intervention demonstrated:

- Significant improvements in knowledge accuracy and self-reported awareness of Highway Code updates, with sustained effects at follow-up;
- Statistically significant short-term gains in behavioural intentions, perceived control, and normative beliefs;
- High participant ratings on credibility, relevance, and personal impact, indicating strong face and cognitive validity.

These findings suggest that the Co-Pilot intervention offers a valuable supplement to existing government campaigns, particularly for targeting experienced drivers who may not routinely revisit the Highway Code.

Its accessible tone and illustrative approach seem to facilitate understanding and may contribute to greater intention and self-efficacy in applying the Highway Code rules.

To maximise its impact, the intervention should be integrated into broader road safety education initiatives, such as workplace driver training, local authority communications, fleet management programmes, and refresher courses. Its accessible and engaging format makes it well suited for public awareness campaigns and digital learning environments.

Importantly, this evaluation was designed to assess the intervention's effectiveness following a single exposure. The issue of optimal dosage and the potential added value of repeated exposure remains an important area for future research. However, the findings do support the potential benefits of reinforcement through periodic re-exposure (e.g. via follow-up prompts, digital nudges, or platform integration) to help embed the behavioural shifts observed and strengthen long-term rule adherence.

By tackling both knowledge gaps and motivational drivers of behaviour, the intervention offers a practical route to improving rule compliance among experienced drivers. In doing so, it has the potential to support safer conditions for vulnerable road users, who are often the most affected by lapses in driver awareness and adherence. With wider dissemination and strategic reinforcement, the Co-Pilot film could play a valuable role in promoting more considerate and safety-conscious interactions on the road.

6.0 References

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Annex A: Highway Code intervention plan

Q1. What is the aim of the intervention To ensure experienced drivers maintain and/or improve their working knowledge of the rules of the road
Q2. Who is the target audience All drivers who own or use a car who have three plus years of independent driving experience (nb. Young/novice drivers have been excluded from the target audience as they will be receiving this information from other sources as part of learning to drive).
Q3. What do they need to do differently to achieve the desired change? To be able to recall road rules, particularly recent changes to the Highway Code, and adhere to them whilst driving.
Q4. When do they need to do this behaviour? At all times when they are driving a car
Q5. Where do they need to be to do it? In a car, when travelling
Q6. How often do they need to perform the behaviour? Every time they drive
Q7. With whom do they need to perform the behaviour with? With other road users
Q8. What needs to change (applying COM-B)? There is a need to influence behaviour across all COM-B (i.e., Capability, Opportunity and Motivation) components: *Physical capability* – N/A (Drivers have the physical skills and ability to adhere to the rules) *Psychological capability* – Have knowledge about the changes that have been made to the Highway Code and why this is important for road safety *Physical opportunity* – Have time to comprehend recent changes to the Highway Code and respond to appropriate triggers in the road environment Social opportunity – To have a cultural norm/social expectation that enacting the recent Highway Code changes is the norm *Reflective motivation* – Plan to enact the new Highway Code rules by seeking to override previous advice *Automatic motivation* – Not acting on previous knowledge about Highway Code rules, which is now out of date

Q9. What intervention functions should be employed?

Education – Increase knowledge and understanding of recently changed Highway Code rules
Persuasion – Using communication to induce positive feelings about adhering to the new Highway code rules and increase negative feelings around not doing so
Training – Imparting skills about how to assess road situations and apply Highway code correctly
Modelling – Providing an example of people to aspire to or imitate those who are already enacting and benefiting from the revised Highway Code rules
Enablement – Reduce barriers to remembering the revised Highway Code rules

Q10. What BCTs should be employed

Education – Information about others approval of the new Highway Code Changes (BCT 6.3), Information about social consequences of not following new Highway Code Changes (BCT 5.3)

Persuasion – Information provided by a credible source (BCT 9.1) (i.e., target audience peers), Verbally persuade audience that they can successfully adapt to the revised Highway Code rules (BCT 15.1), despite it being different to what they are used to. Suggest that target audience think of the changes as making them a nicer person to share the road with, rather than as being a set of changes that make negotiating other users as more difficult (BCT 13.2), inform the target audience that if they follow the new rules, they are a good example to other road users (and where appropriate their children) (BCT 13.1), compare own behaviours to those of others since the new changes have been brought in (BCT 6.2)

Training – Demonstrate how people should behave based on the revised highway code (BCT 6.1), Provide instruction about how to enact different elements of the Highway Code Changed (BCT 4.1)

Modelling – Demonstrate how people should behave based on the revised Highway Code (BCT 6.1)

Enablement – Set goal to enact the new Highway Code rules every time driving in the car (BCT 1.1). Ask target audience to affirm a strong commitment to enacting the revised Highway Code rules (BCT 1.9). Draw attention to target audiences non-compliance with Highway Code rules and their self-identification as a responsible and good driver (BCT 13.3).

Q11. What is the logic model for this intervention

Inputs – Providing an intervention that increases drivers knowledge about Highway Code changes will…

Immediate impacts – Result in the delivery of the intervention to drivers which will…

Short term impacts – Result in changes in the number of recipients knowing the new Highways Code rules, who feel positive about adhering to the new rules, who feel able to enact them in a supportive social environment…

Behavioural impacts – Will result in an increased adherence to the revised rules, which will ultimately,

Health Outcomes – Make the roads safer for all road users and increase the confidence of those travelling using vulnerable modes
Q12. What would need to be measured, before and after the intervention was delivered, to establish whether it is successful? Recipients' knowledge of the Highway Code Changes Recipients' adherence to rules Recipients' attitudes towards changes Perceived behavioural control (ability to perform behaviours) Social norm (others' views) ratings towards rules

Source: Adapted from intervention design process described in Michie et al (2014).

Intervention summary

Aim	COM-B component	Type	Description	Intervention functions	BCTS
To improve the knowledge of Highway Code Changes and enable recipients to adhere to the rules, and feel positive about doing so.	Capability	Psychological	Have knowledge about the Highway Code changes, be able to recall changes to the Highway Code and how they impact on driving, be able to identify hazards in the environment and employ decision making processes based on the surrounding environment	Education, Persuasion, Training, Modelling	1.1 Goal setting (behaviour) 1.2 Problem solving 1.9 Commitment 4.1 Instruction on how to perform the behaviour 5.3 Information about social and environmental consequences 6.1 Demonstration of the behaviour 6.3 Information about others' approval 7.1 Prompts/cues 8.3 Habit formation 13.1 Identification of self as role model 13.3 Incompatible beliefs 15.1 Verbal persuasion about capability
	Motivation	Reflective	To have belief in their capability to adapt to the new Highway Code rules and have an intention to perform the required behaviour		
		Automatic	Not acting on previously developed habitual responses or emotional responses to the surrounding road environment		

Annex B: Consent form

Thank you for your interest in this study. We are conducting research to understand drivers' knowledge, attitudes, and intentions in relation to recent changes to the Highway Code in the UK.

This study will take approximately 8 minutes to complete. It involves:

- A short pre-survey
- Viewing a 2-minute video
- A brief post-survey

There are no right or wrong answers - we are interested in your honest views and experiences as a driver. You must be aged 25 or older and hold a full UK driving licence to take part.

Survey Aim: To understand knowledge and attitudes towards the Highway Code

This research aims to explore current beliefs, knowledge, and attitudes about the Highway Code in the UK. The findings will help improve road safety messaging for experienced drivers across the UK.

All information you provide is strictly confidential. No information that could identify you personally will be published or shared. We will not collect any personally identifiable data beyond your Prolific ID (used for anonymous matching and payment processing).

Your participation is voluntary, and you may choose not to continue now that you have read more about the study. Co-Pilot is the organisation responsible for managing the data collected in this survey and will comply with all relevant GDPR and data protection requirements.

By clicking 'I agree' below, you confirm that:

- You understand the purpose of the study
- You consent to take part
- You are a UK resident aged 25 or older and hold a full UK car driving licence

Do you consent to take part in the study?

☐ I agree

☐ I do not agree

Annex C: Survey questions

Nb. Those that are marked with one asterisk (*) were asked in the immediate post survey only and those marked with two asterisks (**) were also asked in the 4-6 week follow-up survey. Lower scores indicate safer behaviours. Reverse coded survey items are marked with a +. Survey item references are provided at the end of the table.

Item	Question	Measure
ACCESS	Do you currently have access to a car (e.g. your own, a family member's or a work vehicle?)	Yes, No
CAR_FREQ	How often do you drive a car, van or other motor vehicle?	Every day or almost every day, a few times a week, once or twice a week, once or twice a month, once every couple of months, once or twice in the last 12 months, Not at all in the last 12 months
LICENCE	How many years have you held a full UK car driving licence?	Less than 1 year, 1-2 years, 3-5 years, 6-10 years, 11-20 years, more than 20 years
TRANS_MODES	In a typical week, which of the following modes of transport do you use at lease once? (Please tick all that apply)	Walking (for at least 5 mins), Cycling, Driving a car or van, as a passenger in a car or van, bus or coach, train or tram, Underground, Taxi or private hire vehicle, Motorcycle, E-scooter, Horse riding, Other
HC_READ **	When did you last read or review the Highway Code?	In the last month / In the last 6 months / In the last year / More than a year ago / Never / Don't know
KNOW_PRIOR **	When turning into a side road and a pedestrian is waiting to cross, who has priority?	The pedestrian; The driver; The cyclist; I'm not sure
KNOW_OVERTAKE **	At speeds up to 30mph, how much space should drivers leave when overtaking a cyclist?	Less than 1 metre / At least 1 metre / At least 1.5 metres / At least 2 metres / More than 2 metres / I don't know
HC_AWARE ** +	How much do you know about the recent Highway Code rule changes (introduced in 2022)?	Very little (1) – A lot (5)
ATT **	Following the updated Highway Code rules is…	Very beneficial (1) – Very harmful (7)

Item	Question	Measure
INT **	How likely are you to follow the updated Highway Code rules when you next drive?	Very likely (1) – Very unlikely (7)
PBC **	How confident are you in your ability to follow the updated Highway Code rules while driving?	Very confident (1) – Not confident at all (7) +
SNORM **	People who are important to me would approve/disapprove of me following the updated Highway Code rules	Strongly approve (1) – Strongly disapprove (7)
COG_1*	To what extent do you agree or disagree that the video you watched was…Credible [2]	Strongly agree (1) – Strongly disagree (5)
COG_2*	To what extent do you agree or disagree that the video you watched was…Useful [2]	Strongly agree (1) – Strongly disagree (5)
COG_3*	To what extent do you agree or disagree that the video you watched was…Important [2]	Strongly agree (1) – Strongly disagree (5)
COG_4*	To what extent do you agree or disagree that the video you watched was…Informative [2]	Strongly agree (1) – Strongly disagree (5)
COG_5*	To what extent do you agree or disagree that the video you watched was…Enjoyable [2]	Strongly agree (1) – Strongly disagree (5)
COG_6* +	To what extent do you agree or disagree that the video you watched …Boring [2]	Strongly agree (1) – Strongly disagree (5)
FC_VALD1*	Please indicate the extent to which you agree or disagree with the following statements about the video you watched: It has benefited me personally [3]	Strongly agree (1) – Strongly disagree (5)
FC_VALD2*	Please indicate the extent to which you agree or disagree with the following statements about the video you watched: It has provided me with new insights [3]	Strongly agree (1) – Strongly disagree (5)
FC_VALD3*	Please indicate the extent to which you agree or disagree with the following statements about the video you watched: I would share the video with friends and/or family [3]	Strongly agree (1) – Strongly disagree (5)
COMMENT*	If you have any comments or suggestions about the video please share them here	Free text response

[1] Measured using adapted standard measures for Theory of Planned Behaviour components (Conner & Sparks, 2005; Rowe et al., 2016) [2] Cognitive response measured by measures from Cuenen et al. (2016) [3] Face validity measured by adapting measures from Road Safety Analysis (2015)