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Road Safety GB



Kent Fire &
Rescue Service




Department
for Transport



Evaluating the effectiveness of the DriveFit pre-driver education intervention

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European Traffic Education Seminar 2023
Tuesday 12th September 2023

www.cranfield.ac.uk



Outline

- Road Safety Education – Background research evidence
- PdTWER studies and results
- Key research findings
- Recommendations for future interventions and next steps

Road Safety Education

YOUNG DRIVER
FOCUS 2021



ELIZABETH BOX
Head of Research
RAC Foundation

TIME TO LEVEL UP



Advancing road safety education design and delivery

Road safety education (RSE) is an important component of the overall road safety system, providing it is delivered in an evidence based way that improves road safety behaviours.

Despite the challenges experienced with the delivery of effective RSE, many researchers recognise its potential to complement other interventions. Research on the effectiveness of RSE over the past twenty years has found that programmes have consistently failed to deliver on their safety objectives and have had little or no direct effect on the collision risk of new drivers. This is, in part, a result of how interventions have been designed, their

potential for directly influencing collision rates, and the difficulties associated with RSE competing with and overcoming, other more ingrained and prevalent factors that determine driving styles, such as peer influence or the immediate social and cultural environment. It is vitally important that future RSE programmes are based on sound research, theory and behaviour change techniques.

Pre-driver education... is it effective?

Evidence on the effectiveness of pre-driver education programmes remains both mixed and limited. Whilst some programmes have been found to influence knowledge and

beliefs¹, this has not typically translated into behaviour change², with programme impacts also influenced by participant gender and educational status. Short-term benefits, including improvements in attitudes to risk³, violations⁴, risk perception and self-efficacy⁵ have also been noted.

Whilst some positive effects have been demonstrated, numerous research studies have found no overall effect of the programmes delivered⁶⁻¹⁰. Several have actually found negative outcomes, including plausible mechanisms of harm and unintended consequences. Where does this accumulated knowledge base leave us? Clearly we are by no means where we want or need to be. However, there are areas of promise to be explored, particularly around how interventions are framed and delivered.

It's about what you say, and how you say it...

Fear inducing interventions, often delivered through testimonial style performances, are both widespread and controversial. Whilst the health communications literature presents a mixed picture on the impact of fear appeal approaches, the prevailing viewpoint amongst behavioural scientists and health promotion professionals is that these threat appeals should be used with caution.

Threat appeals can and do, attract attention¹¹, but this does not reliably translate into behaviour change¹². Whilst they can have an impact, if certain conditions are met¹³, they can actually provoke an increase in risky behaviours¹⁴⁻¹⁶. They are frequently found to be counter-productive for males¹⁶, leading to defensive reactions, the avoidance of threatening information and general message rejection, as evidenced in other areas of public health¹⁷⁻¹⁹ too. Males are also less likely to find the material applicable to themselves¹⁶, a particularly important point given the

prevalence of young male drivers within road safety casualty statistics.

Increasingly positive emotional appeals are being recommended for use. This involves the portrayal and modelling of safe driving behaviours and the positive consequences of adhering to that behaviour. This can include humour, with content that encourages empathy, role-modelling, hope and compassion. Such approaches have been found to be more effective than fear appeals in reducing risky driving behaviours, particularly amongst high risk young drivers²⁰. Increasing the relevance of and engagement with risk information²¹.

How the message is received and processed also matters. Messages that are neither excessively arousing (e.g. fear appeal) or disengaging (e.g. purely factual presentation) have been found to support optimal message processing²².

The PdTWER Project

The purpose of this 'Pre-driver Theatre and Workshop Education Research' is to find the best way to use pre-driver

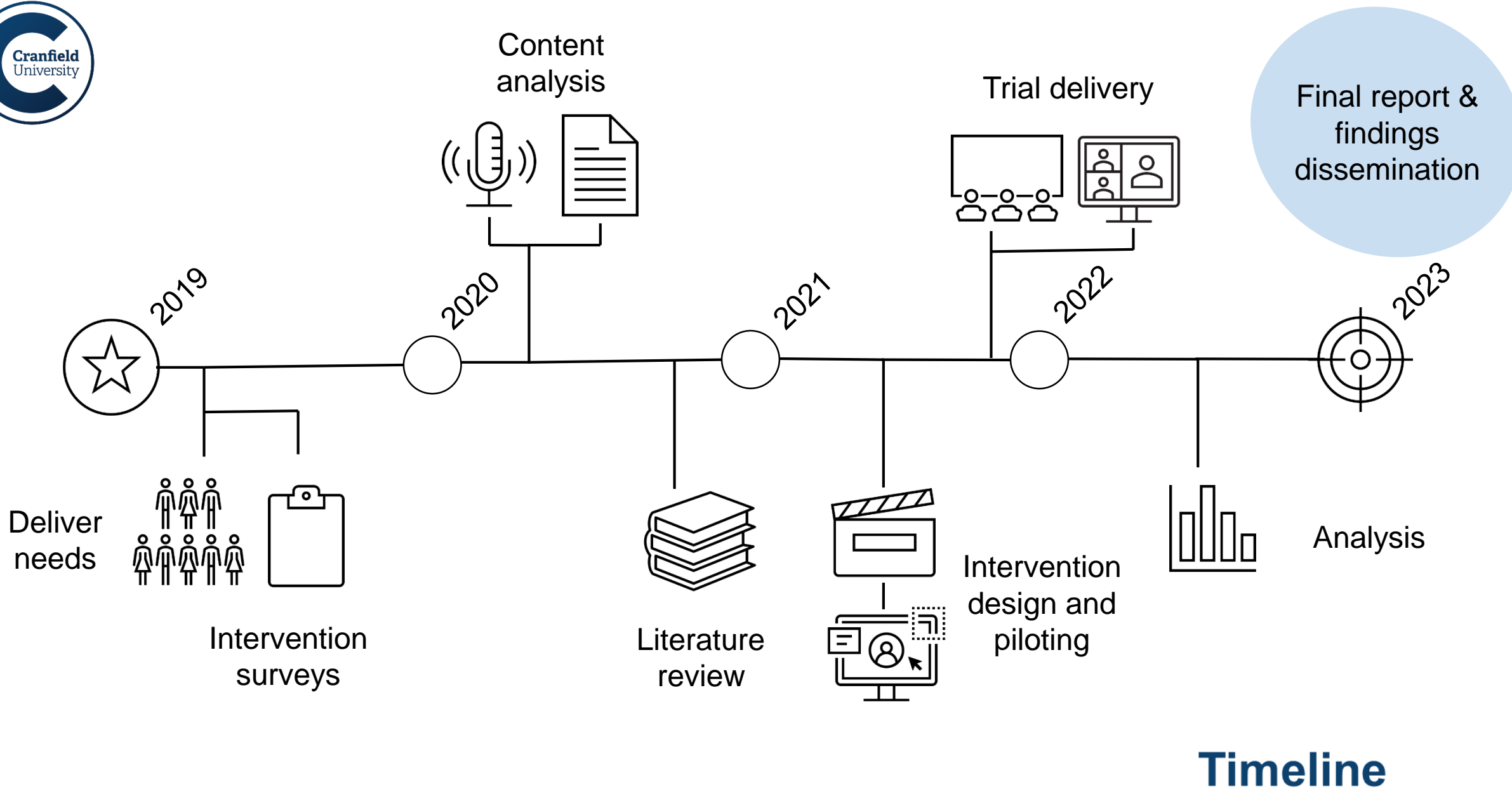
theatre and workshop education to improve young and novice driver safety. The project aims to evaluate whether the content and format of pre-driver theatre and workshop interventions can help pre-drivers to develop effective strategies for coping with road related risk. Positively and negatively framed theatre approaches, when combined with facilitated workshops, will be evaluated to better inform how we best deliver effective road safety education in the UK. [Click here www.youtube.com/watch?v=25ogcsVP1G8&t=1s](https://www.youtube.com/watch?v=25ogcsVP1G8&t=1s)

Where next for delivery?

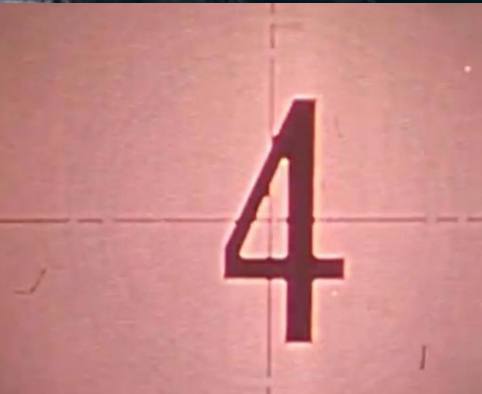
Taking an evidence based, collaborative approach to the development of effective road safety education interventions is crucial. A recently published World Health Organisation (WHO) guide²³ on 'what works', concluded that: "**Given the lack of evidence for positive safety outcomes through school-based education and training, it is recommended that better approaches to improving road safety outcomes for school-aged children should be used.**"

This recommendation, looking at the existing evidence base, is wholly understandable. Given the potential for road safety education to contribute to a safer road safety system for young and novice drivers, both in the UK and further afield, it falls to researchers, policy makers and practitioners to work collaboratively to provide robust evidence on intervention effects. Are you ready to take on the challenge? ●





Timeline

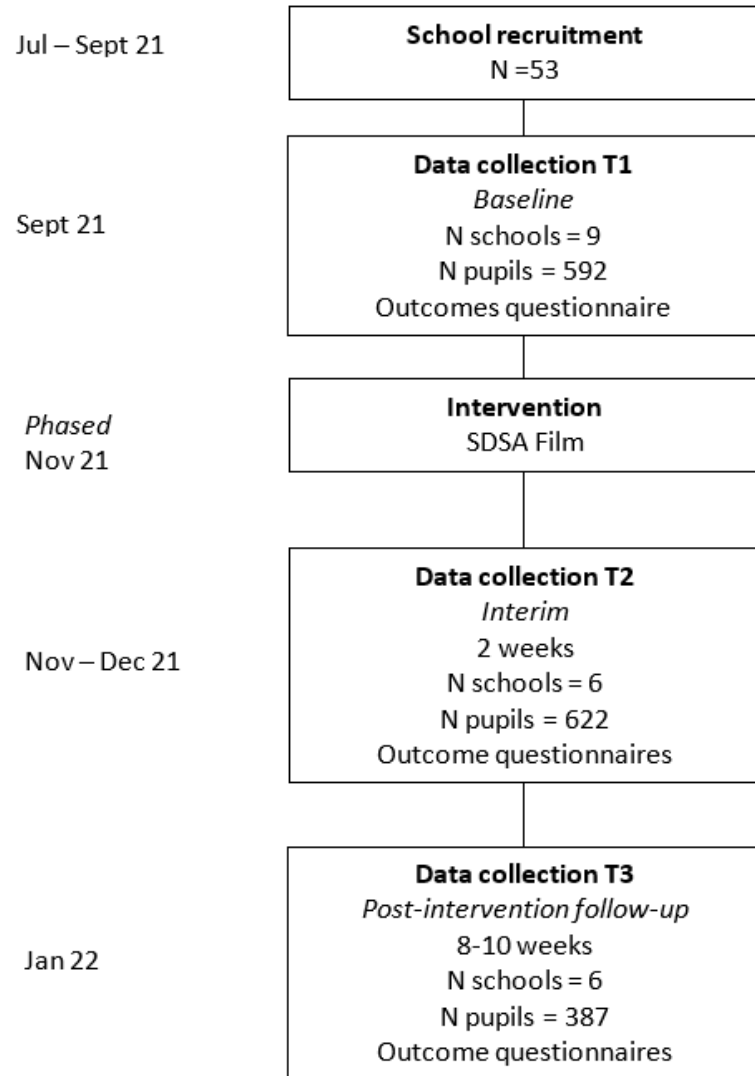


St George's University Hospitals **NHS**
NHS Foundation Trust





SDSA Surrey Evaluation



Safe Drive Stay Alive



**SURREY
FIRE & RESCUE SERVICE**

Delivery team:

- Mark Taylor, Surrey FRS
- Sophie Jordan, Surrey FRS



DriveFit intervention – Logic Model

Inputs	Immediate impacts	Short-term impacts	Behavioural impacts	Health Outcomes
Providing a film and workshop to 16-18 year old students will...	Result in the delivery of the DriveFit programme in intervention schools and colleges which will...	Result in changes to student attitudes and subjective norms towards what it takes to be a good driver and the development of students' self-efficacy and skills for being safe passengers and drivers, which...	will result in safer passenger and driver intentions and behaviours and ultimately,	Reduced deaths and serious injuries amongst this at-risk group.



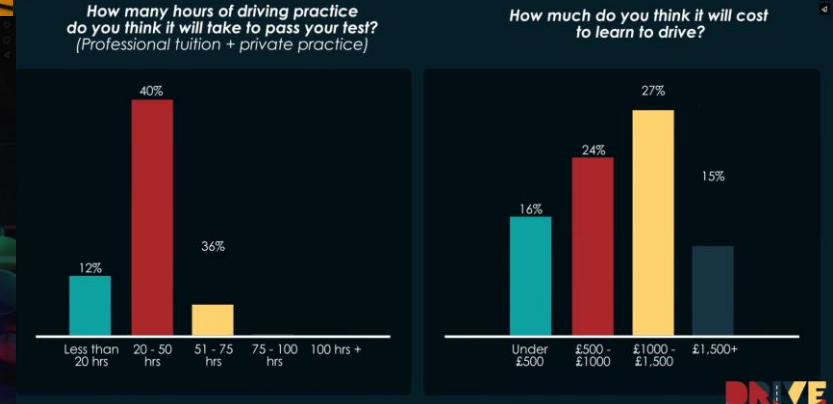
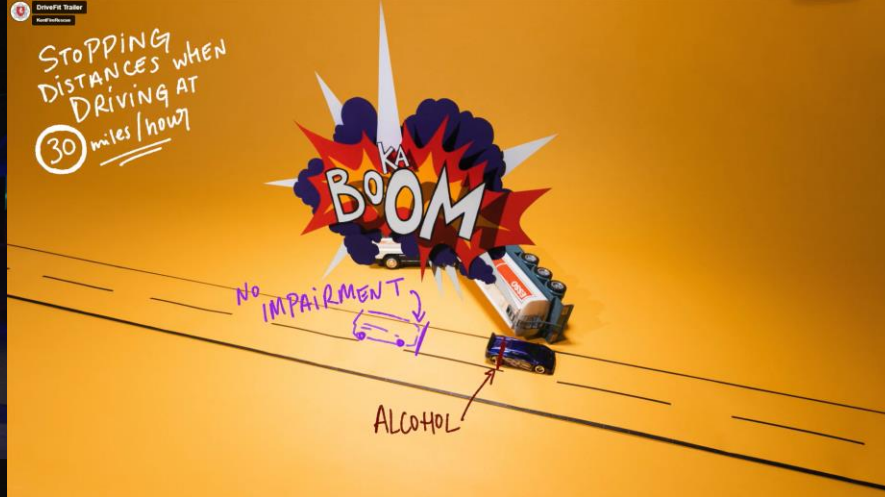
DriveFit intervention – Topics addressed

Themes	Topics
Maximising the learning to drive process	Getting sufficient driving experience
	Gaining necessary cognitive skills
Making decisions that support safety	Making safety supportive vehicle and insurance choices
Maintaining focus: Reducing in-car distractions	Mobile phone use
	Passengers
Fitness to drive	Managing fatigue
	Avoiding drink and drug impaired driving
Controlling the journey	Managing speed



DriveFit intervention – e.g., BCTs

BCT		Example of application
1.1	Goal Setting (behaviour)	Participants encouraged to set a goal to practice driving for 2-hours a week, over 12-months.
1.2	Problem solving	Prompt participants to identify barriers to securing sufficient driving practice whilst learning to drive (e.g., lack of time) and discuss ways in which they could overcome them (e.g., planning to drive car at the weekend when travelling to a destination anyway with a supervising driver).
1.4	Action planning	Encourage a plan to stop for a 20-minute rest if have been driving for more than 2-hours.
1.9	Commitment	Participants asked to pledge not to drive whilst tired, in the same way they would make a decision not to drink and drive.



DriveFit Workshop & materials

Our session today

1. Introduction and warm-up
2. Remembering and reviewing the DriveFit film
3. Personal action planning
4. Summary, close and survey



What one thing do you remember the most from the DriveFit film?

Key takeaways from the word cloud include: 1 in 11 new drivers crash, don't get car older than 5, 2 second rule, one in eleven, hazard perceptions, 1 in 11 people crash, hazard perception, death, stopping distance, car old than 5 yr is bad, the caffeine tip, nap after energy drink, older cars are unsafe, the drug test, road safety and precautions, the hazards perception, tired, vr, hazard perception, 1 in 11 people crash, no alcohol, safety, hazard perceptions, 1 in 11 people crash, death, stopping distance, car old than 5 yr is bad, the caffeine tip, nap after energy drink, older cars are unsafe, the drug test, road safety and precautions, the hazards perception.

Are you already driving or do you plan to learn to drive?

Response	Count
Yes, I am currently learning to drive	2
Yes, in the next 12 months	15
Yes, in the next couple of years	3
Made of some point	6
No never	1

Guide for developing Safe Driving Plans

November 2021

My plans:

- 1
- 2
- 3

www.drivefit.info

DRIVE FIT

HOME ABOUT FITNESS TO DRIVE LEARNING TO DRIVE DRIVING FOCUS MANAGING SPEED

WATCH THE FULL DRIVEFIT FILM ▶

We hope you enjoyed watching the DriveFit film and that you will develop some new skills and ideas at the DriveFit online workshops which will be taking place in your school/college in the coming weeks.

On this site you'll find some great ideas and tips about how to develop your own great driver mindset. You can rewatch sections of the film and find resources to support your driving plans and decisions. Don't forget: the best ideas, are shared ideas – chat with your friends and family about the DriveFit film or send them a link to this website – we bet they'll learn something new.

How was the DriveFit Programme?

We are keen to hear how you found the DriveFit programme. After watching the film and taking part in the workshop, you will be provided with a survey to let us know your thoughts about travelling as a driver or passenger and whether you would recommend the DriveFit programme to your friends. Getting your feedback is vitally important in helping us understand whether DriveFit should be rolled out across the UK in 2022. Completing this survey also helps your school/college, who will be gifted £200 for taking part in this programme of research. Your teachers will remind you over the next couple of weeks about the importance of taking this short ten-minute online survey. We look forward to hearing from you.





cRCT design



Jul - Sept 21

School recruitment
N = 56

Sept 21

Data collection T1
Baseline
N schools = 32
N pupils = 2030
Outcomes questionnaire

Oct 21

Randomisation
N schools = 24

Intervention – DriveFit Film
N schools = 12
N pupils = 896

Control
N schools = 12
N pupils = 1,029

Phased
Nov 21

Facilitated intervention
2 weeks (22 workshops)

Nov 21

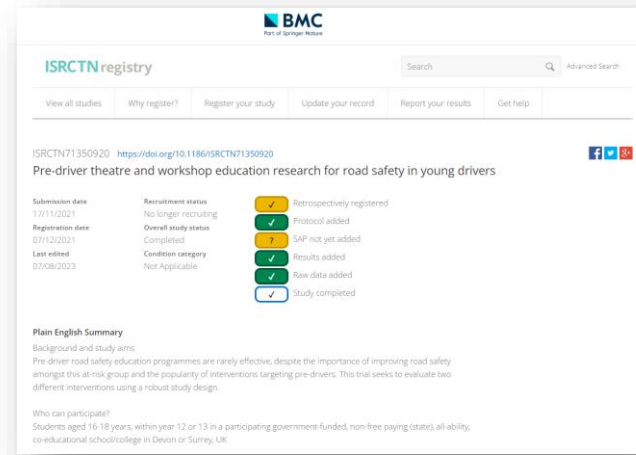
Data collection T2
Interim
2 weeks
N schools / pupils = 12 / 646
Outcome questionnaires
Process evaluation questionnaire

Data collection T2
Interim
2 weeks
N schools / pupils = 11 / 562
Outcome questionnaires
Process evaluation questionnaire

Jan 22

Data collection T3
Post-intervention follow-up
8-10 weeks
N Schools / pupils = 11 / 535
Outcome questionnaires

Data collection T3
Post-intervention follow-up
8-10 weeks
N schools / pupils = 11 / 751
Outcome questionnaires



www.isrctn.com/ISRCTN71350920



DEVON & SOMERSET
FIRE & RESCUE SERVICE

Delivery team:

- Annabelle Priest, DSFRS
- Angelique Kergosien, Plymouth City Council
- Chris Boston, DSFRS
- Gary Austin, Circle Indigo
- Camilla Gorden, Consultant Facilitator



Method – Measures & analysis using General Estimating Equation (GEE) Model

- Primary outcome – Intentions (*Connor and Sparks, 2005; Rowe et al., 2016*)
 - Mobile phones, drink driving, fatigue and speeding
- Secondary outcome – Attitudes (*Op. cit.*)
- Further measures:
 - Perceived Behavioural Control (speeding) (*Op.cit.*)
 - Subjective Norms (Speeding) (*Op. cit.*)
 - Perceptions of risk (*Glendon et al., 2014; Ivers et al., 2009*)
 - Attitudes to Driving Violations Scale (*West & Hall, 1997*)
 - Driving Coping Questionnaire (*Matthews et al., 1996*)
 - Cognitive and emotional response (*Cuenen et al., 2016*)
 - Face validity (*Road Safety Analysis, 2015*)

General Estimating Equation (GEE) model (Gamma with Log Link) with following parameters:

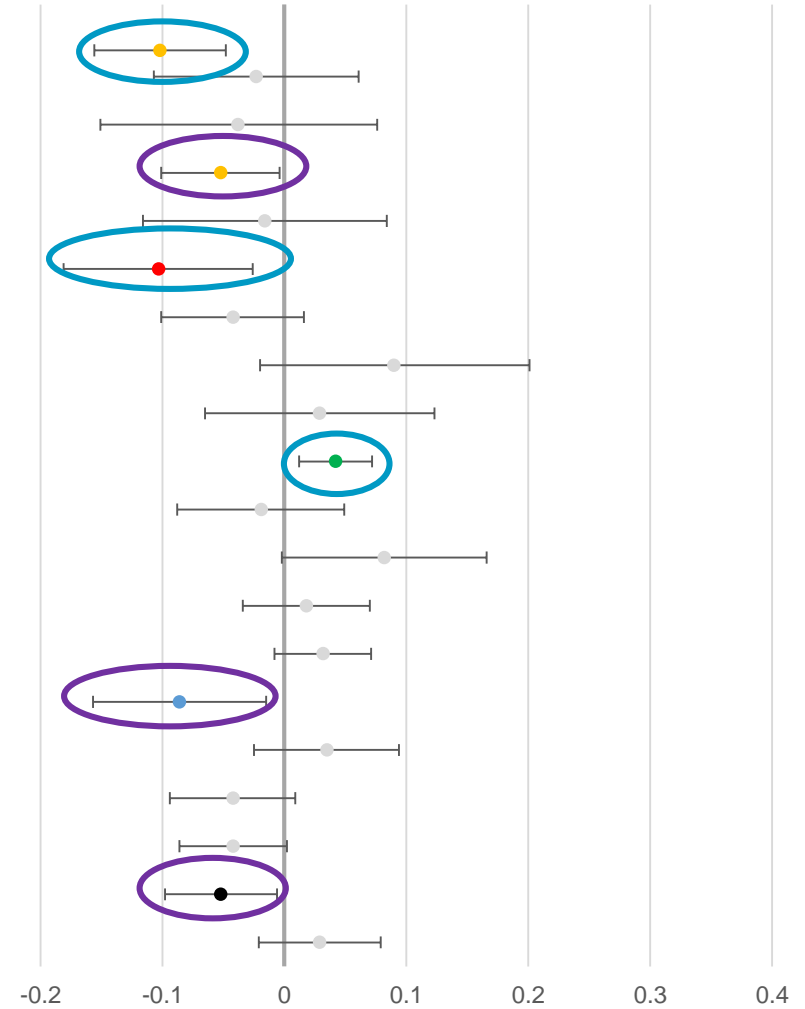
- **Condition** (Control, Intervention)
- **Baseline value of the outcome** (incl. as a covariate)
- **Gender** (Male, Female)
- **Age** (16, 17, 18+)
- **Driving Stage** (Passed test/currently learning, Learning in next 12 mnths – 5 yrs, Maybe/never learning)
- **Ethnicity** (Non-white, white)
- **Education type** (School, College)
- **School disadvantage level** (Above median, Below median)
- **No. household cars** (Low: 0-1, Medium: 2-3, High: 4-5+)
- **Time between survey completion**
 - T1_T2 (3-4 wks; 5-6 wks; 7-8 wks; 9-10 wks; 11-12 wks; Over 12 wks)
 - T1_T3 (11-12 wks; 13-14 wks; 15-16 wks; 17-18 wks; over 19 wks).



Intention effects

SPEED	SDSA	T3 (n = 337, p <.001)
	DriveFit	T2 (n = 330, ns)
FATIGUE	SDSA	T3 (n = 354, ns)
	DriveFit	T2 (n = 378, p = .036)
ALCO	SDSA	T3 (n = 354, ns)
	DriveFit	T2 (n = 351, p = .006)
MOB	SDSA	T3 (n = 354, ns)
	DriveFit	T2 (n = 351, ns)
ALL	SDSA	T3 (n = 383, p = .018)
	DriveFit	T2 (n = 398, ns)

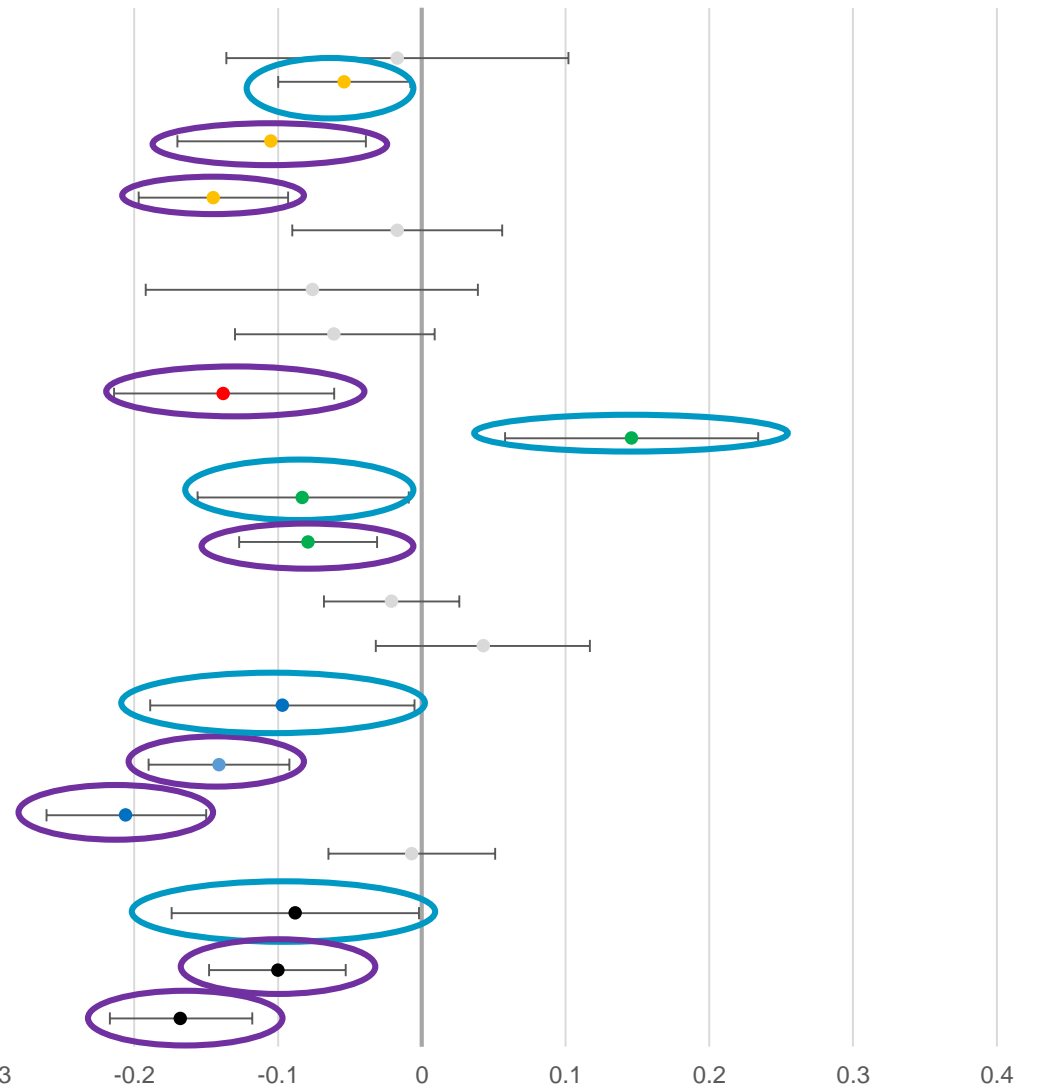
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Attitude effects

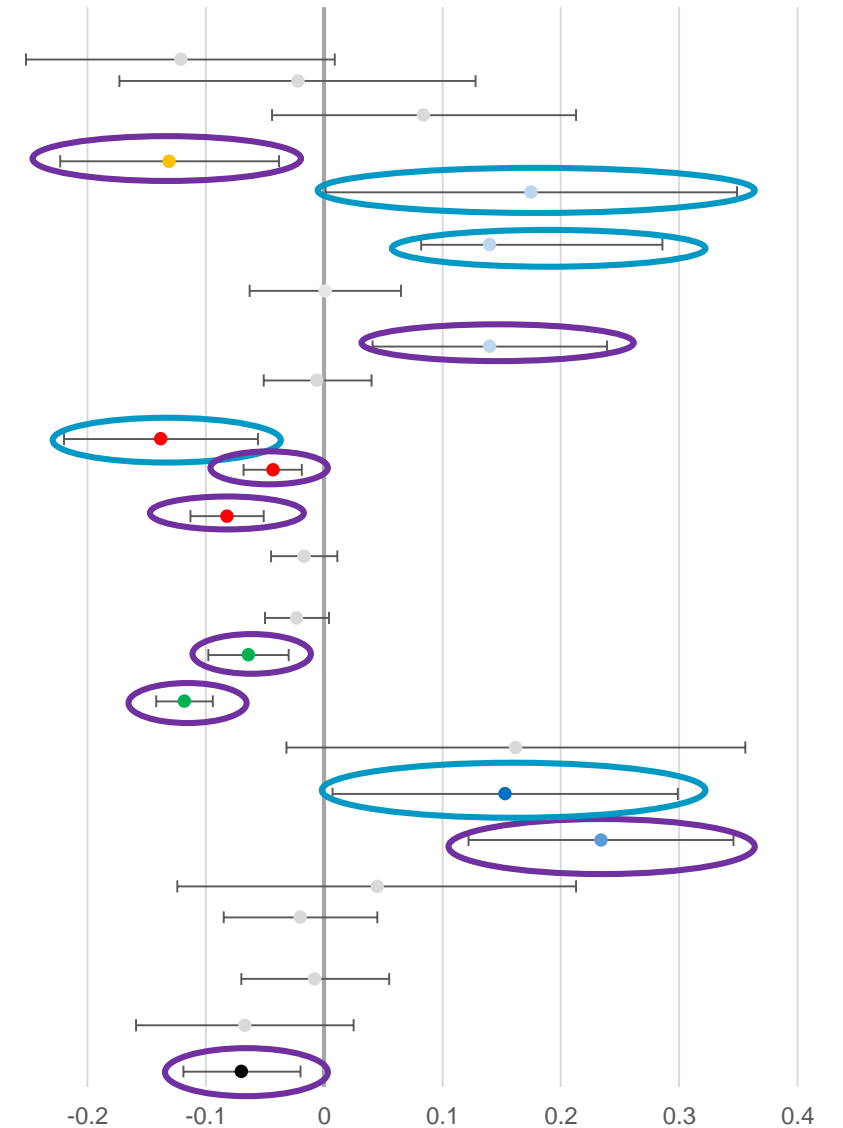
SPEED	SDSA	T3 (n = 337, ns)
	DriveFit	T2 (n = 330, P = .021)
FATIGUE	SDSA	T3 (n = 354, ns)
	DriveFit	T2 (n = 351, ns)
ALCO	SDSA	T3 (n = 354, P = .001)
	DriveFit	T2 (n = 351, p = .027)
MOB	SDSA	T3 (n = 393, p = .001)
	DriveFit	T2 (n = 398, ns)
ALL	SDSA	T3 (n = 354, ns)
	DriveFit	T2 (n = 351, p = .046)
ALL	SDSA	T3 (n = 354, ns)
	DriveFit	T2 (n = 351, p = .046)
ALL	SDSA	T3 (n = 393, p < .001)
	DriveFit	T2 (n = 413, p < .001)





Other measure effects

DCQ	SDSA	T3 (n = 319, ns)
	DriveFit	T2 (n = 315, ns)
EFF	SDSA	T3 (n = 309, p = .048)
	DriveFit	T2 (n = 305, p < .001)
ADVS	SDSA	T3 (n = 337, ns)
	DriveFit	T2 (n = 330, p < .001)
P_RISK	SDSA	T3 (n = 355, p < .001)
	DriveFit	T2 (n = 360, p = .000)
PBC	SDSA	T3 (n = 337, ns)
	DriveFit	T2 (n = 330, p = .039)
SNORM	SDSA	T3 (n = 365, p < .001)
	DriveFit	T2 (n = 378, ns)
SNORM	SDSA	T3 (n = 337, ns)
	DriveFit	T2 (n = 330, ns)
SNORM	SDSA	T3 (n = 365, ns)
	DriveFit	T2 (n = 378, p = .006)

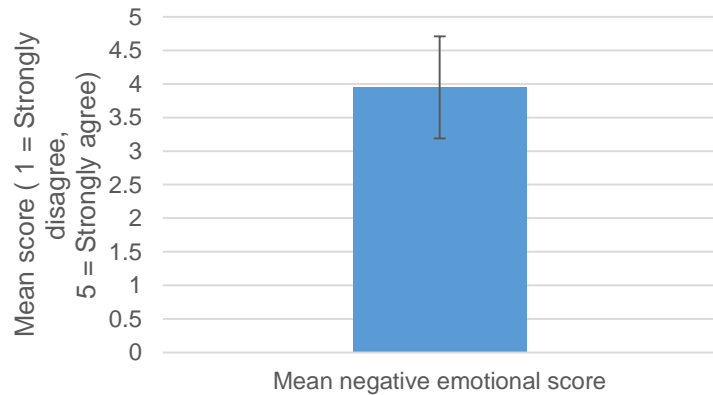
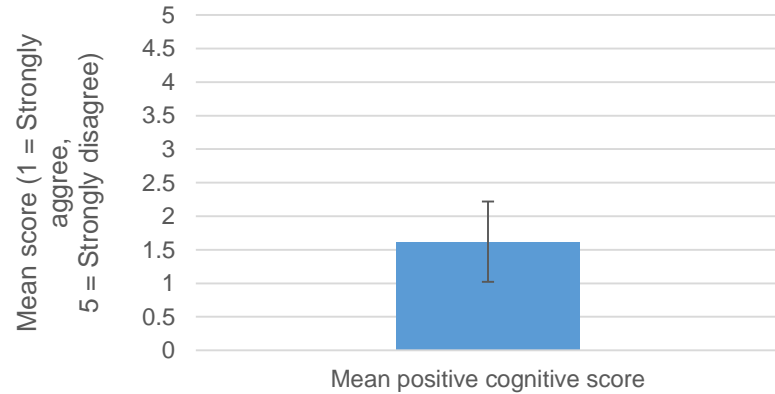


Intervention effect (Other measures)

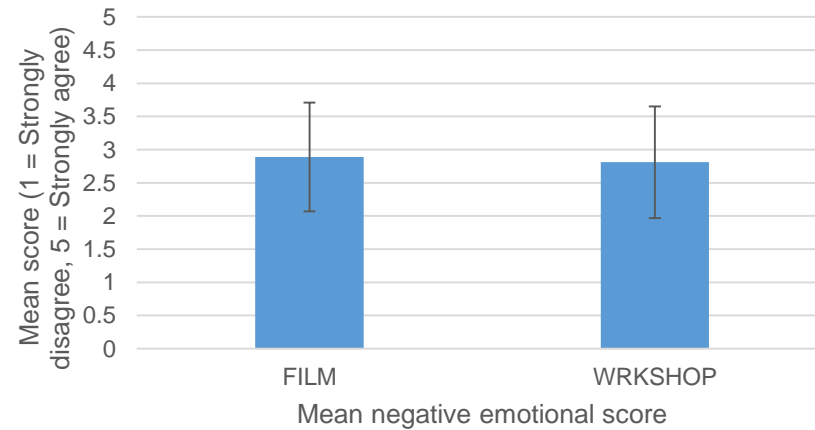
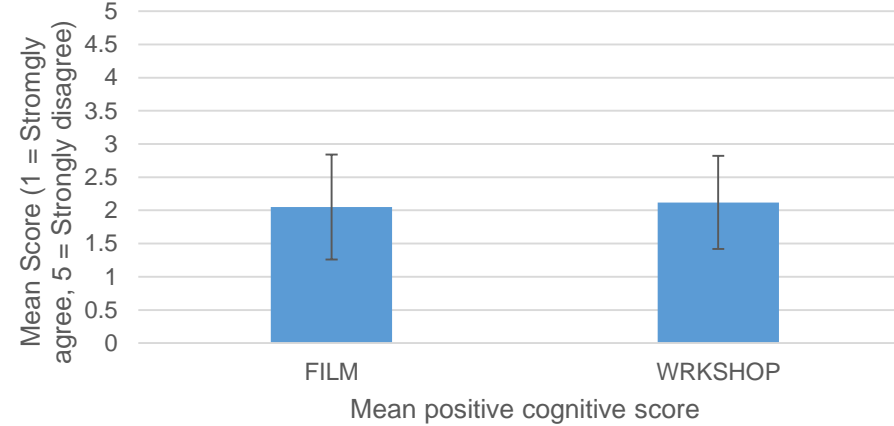


Positive cognitive and negative emotional scores

SDSA Surrey (n = 161)



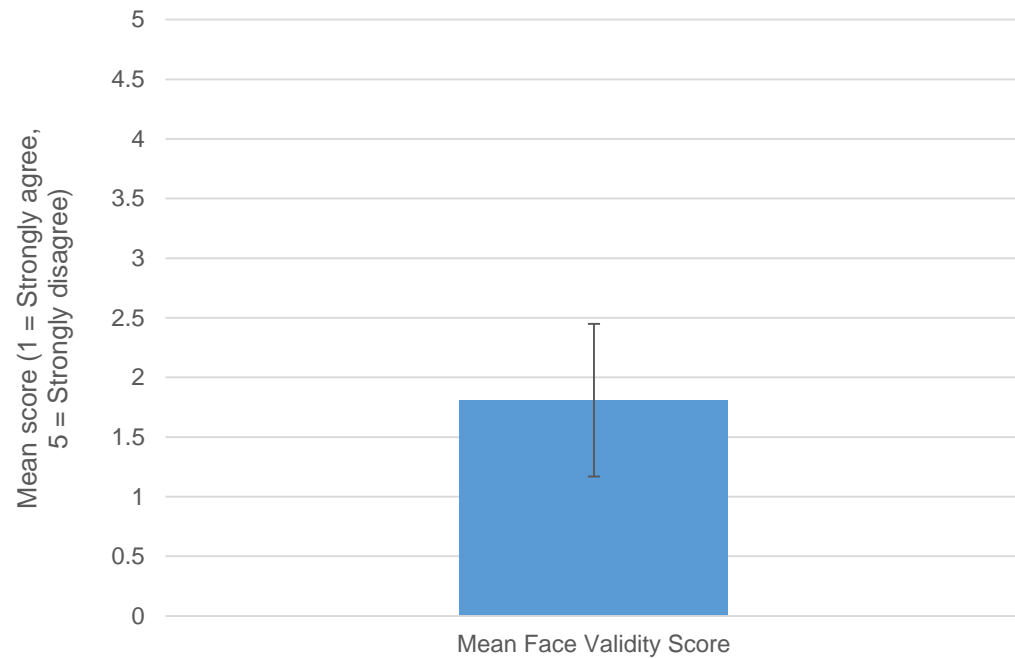
DriveFit (n = 186)



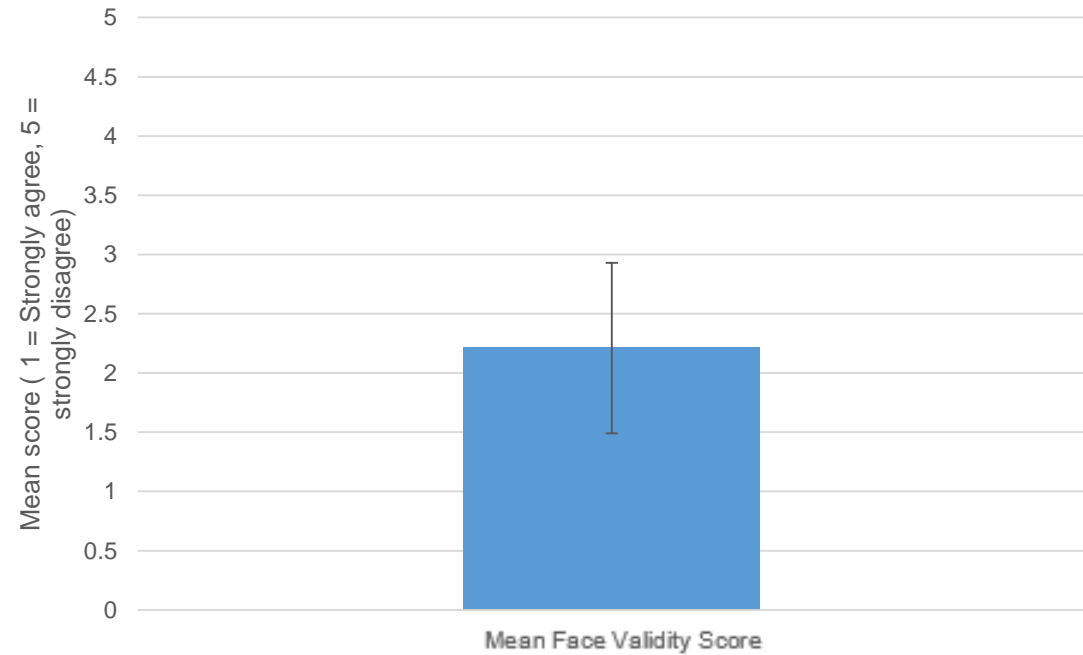


Face Validity ratings

SDSA Surrey (n = 161)



DriveFit (n = 186)





Key research findings



Safe Drive Stay Alive

- DriveFit had a longer lasting and a greater number of stronger effects than SDSA
- SDSA was rated as more worrying, frightening and shocking than DriveFit. Both interventions were rated as having positive cognitive value
- Only small improvements (1/10th – 1/5th measurement point improvement) noted



Recommendations for future interventions

- Consider alternatives to negatively charged emotional interventions - this study provides proof of concept that there are more effective alternatives for improving behavioural outcomes (i.e., positively framed with workshops)
- Only deliver interventions which can deliver at least a medium-term effect (i.e., at 8-10 wks post-intervention)
- Important to recognise the role and relative impact of educational interventions
- Focus on influencing attitudes and perceived risk, where there appears to be greatest potential to demonstrate an effects

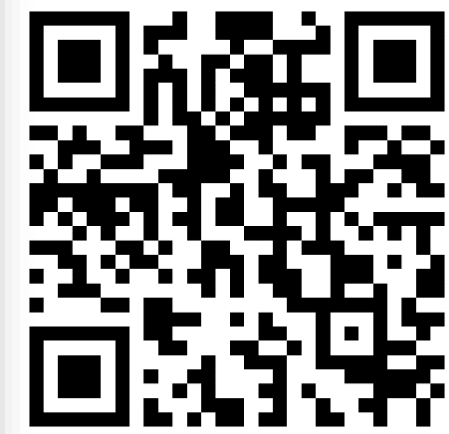


Next steps

- DriveFit resources (film and workshop) uploaded to the Road Safety GB website - to be uploaded to StayWise imminently
- Supporting DfT Road Safety policy development on road safety education
- Practitioner research findings summary write-up – November 2023

The screenshot shows the Road Safety GB website. At the top, it says "Road Safety GB" with the "THINK!" logo and "In association with". There are social media icons for Twitter, Facebook, LinkedIn, and YouTube. A navigation bar includes "Home", "Road Safety GB", "Calendar", "Help & Advice", "Resources & Services", "Careers", "Media Centre", "Your Area", "Contact us", and a search icon. The main content area features a red "DriveFit" header. Below it, a welcome message states: "Welcome to the DriveFit resources page. Developed and tested through a rigorous process, DriveFit has been specifically designed to address the needs of 16-18-year-old pre-drivers." A link is provided to view a published evaluation. The text continues: "By following the guidelines outlined in the intervention guide provided on this page, you will gain a deeper understanding of the intervention's theoretical underpinnings, its step-by-step implementation procedures, and strategies for adapting it to various contexts. Whether you are an educator, road safety professional or organisation seeking to make a positive difference, the resources on this page will equip you with the necessary tools and knowledge to roll out the DriveFit intervention effectively." It then describes the intervention as a 40-minute film followed by an online workshop, and mentions feedback from deliverers. A sidebar on the right contains "RSGB Network" and "Knowledge Centre" sections with images and links for more information.

The screenshot shows the abstract of a research article. The journal is "Transportation Research Part F: Psychology and Behaviour" (2023), volume 94, pages 379-397. The article title is "A cluster randomised controlled trial (cRCT) evaluation of a pre-driver education intervention using the Theory of Planned Behaviour" by Elizabeth Box and Lisa Dorn. The abstract text reads: "Road traffic injuries are the leading cause of death of 15-29-year-olds worldwide (World Health Organisation, 2018) making young driver safety a global public health concern. Pre-driver road safety education programmes are popular and commonly delivered with the aim of improving safety amongst this at-risk group but have rarely been found to be effective (Skinner, Lloyd, Holmes, Husband, Soons, Jones et al., 2013). A pre-driver education intervention (DriveFit) was designed and evaluated with a cluster randomised controlled trial (cRCT) using the Theory of Planned Behaviour (TPB) (Ajzen, 1991). The responses of 16-18-year-old students (n = 457) from 22 schools/colleges in Devon, UK were analysed and showed that the DriveFit intervention led to some small improvements in risk intentions, attitudes, and other measures, which differed by sub-group. Speed intentions improved immediately post-intervention (T2), whereas a composite measure of all intentions and mobile phone use intentions improved at 6-10 weeks post-intervention (T3). Apart from speed intentions, a trend towards intentions becoming safer at T2 was noted. Mobile phone use and speeding attitudes, a composite measure of attitudes, as well as attitudes to driving violations and perceptions of risk, improved at T2 and T3, with the size of the effect slightly reduced at T3. Participants expressed safe views at baseline (T1), which overall left minimal room for improvement. Whilst previous research has found that education interventions deliver small self-reported effects, that diminish over time (i.e., Poulter and McKeena, 2010), this study finds small, but lasting attitude effects (which diminish in magnitude over time) and a trend towards improving intentions, over and above the control group. The findings provide some guidance on future research to design and evaluate educational interventions for pre- and novice drivers."





thank you!



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