Evaluating the effectiveness of the DriveFit pre-driver education intervention

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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

EDUCATION

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 beliefs[1], this has not typically translated into behaviour change[2], with programme impacts also influenced by participant gender and educational status. Short-term benefits, including improvements in attitudes to risk[3], violations[4], risk perception and self-efficacy[5] have also been noted.

Whilst some positive effects have been demonstrated, numerous research studies have found no overall effect of the programmes delivered[6,7,8,9,10]. 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.

'Evidence based, collaborative approach to development of effective road safety education is crucial'

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 attention[11], but this does not reliably translate into behaviour change[12]. Whilst they can have an impact, if certain conditions are met[13], they can actually provoke an increase in risky behaviours[14,15]. They are frequently found to be counter-productive for males[16], leading to defensive reactions, the avoidance of threatening information and general message rejection, as evidenced in other areas of public health[17,18] too. Males are also less likely to find the material applicable to themselves[19], 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 drivers[20,21], increasing the relevance of and, engagement with, risk information[22].

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 processing[23].

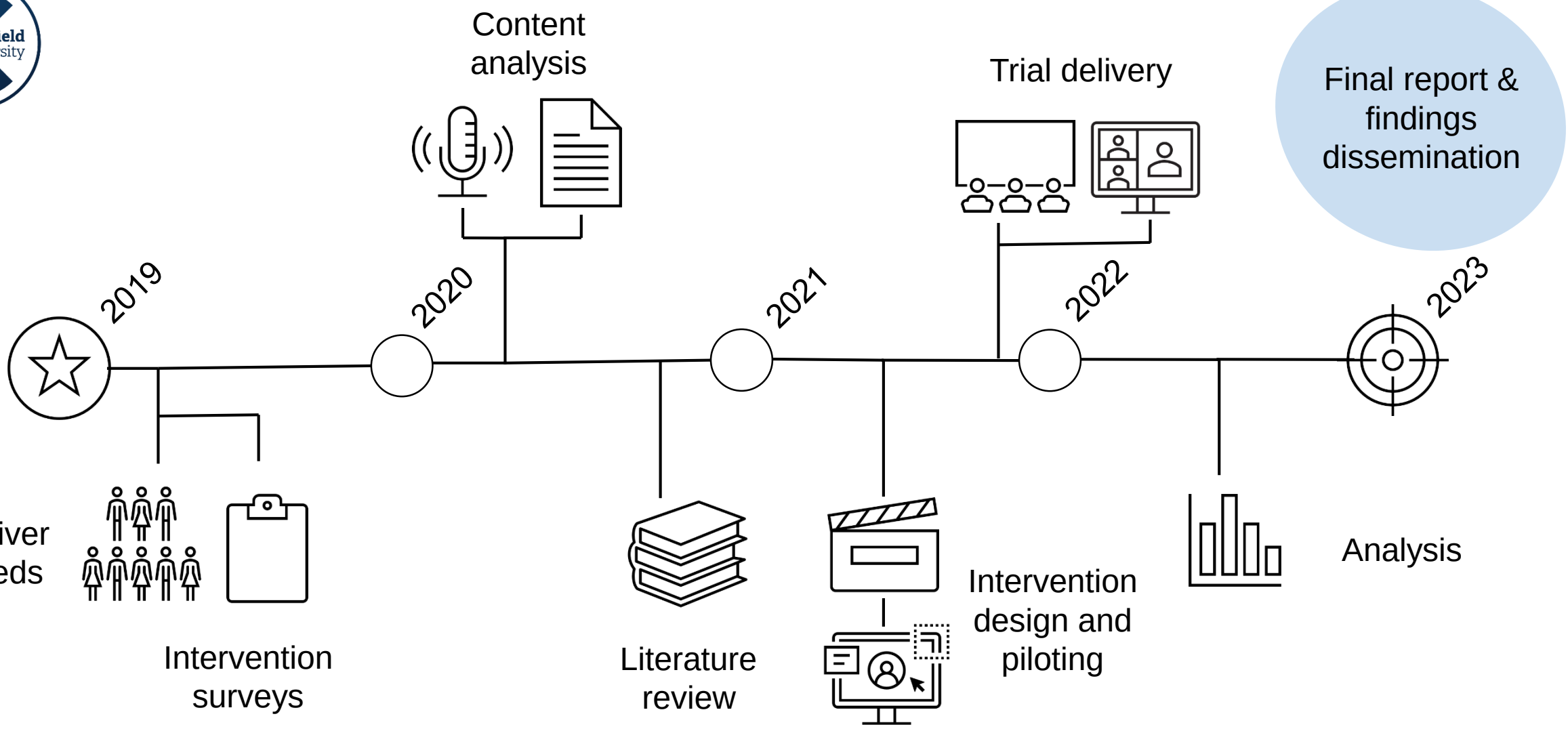
The PdTWER Project

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=z5ogcsVP1Gs&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) guide[24] 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."***

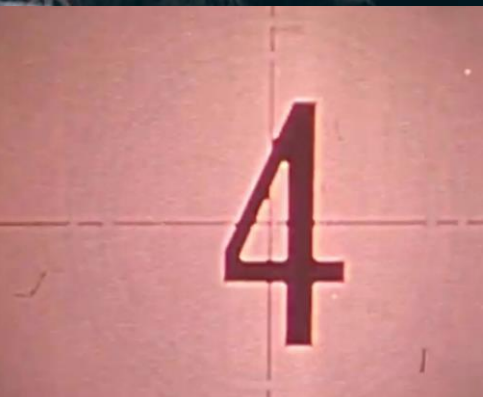
This recommendation, looking at the existing evidence base, is wholly understandable. Given the potential for road safety education to contribute to a safer road safety system for young and novice drivers, both in the UK and further afield, it falls to researchers, policy makers and practitioners to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


Content analysis
Trial delivery
Final report & findings dissemination
2019
2020
2021
2022
2023
Deliver needs
Intervention surveys
Literature review
Intervention design and piloting
Analysis

Timeline


PARAMEDIC

SDSA **2021**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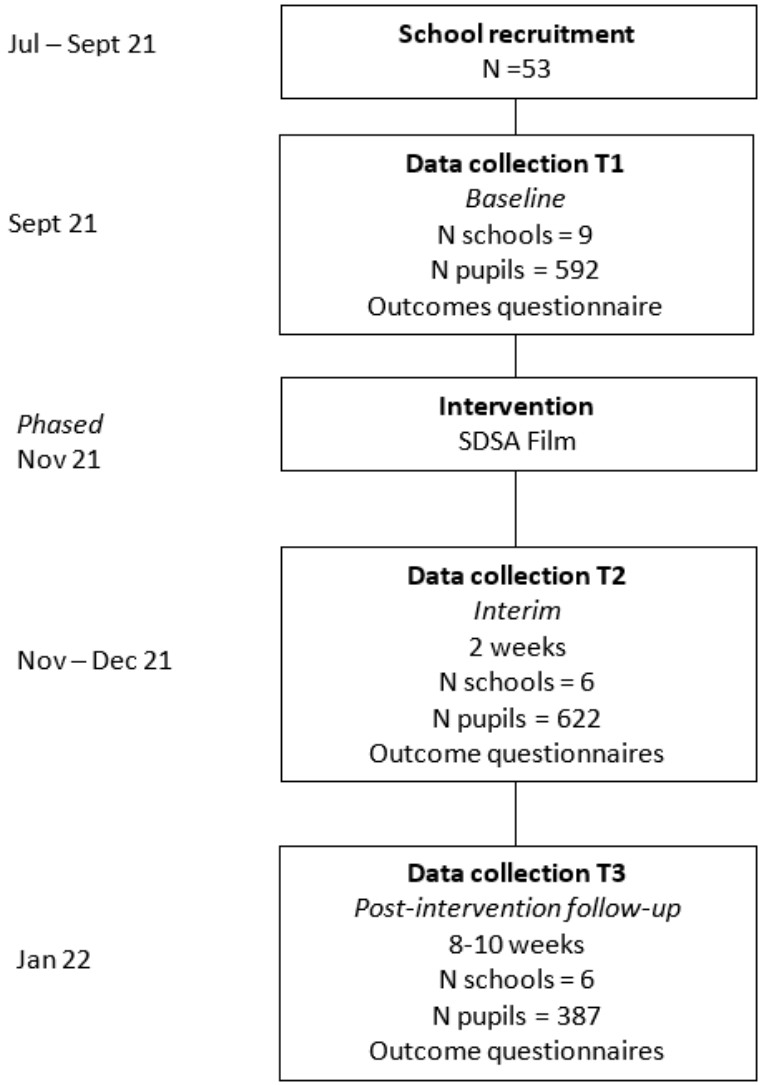
SOUTH EAST COAST AMBULANCE SERVICE
SURREY POLICE
SUSSEX POLICE
St George's University Hospitals NHS
NHS Foundation Trust

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.

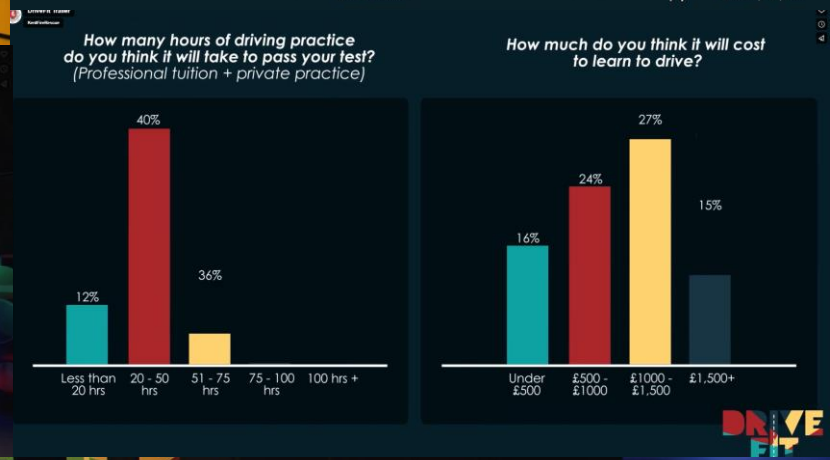

DRIVE FIT


DriveFit Trailer
STOPPING DISTANCES WHEN DRIVING AT 30 miles/hour
KA BOOM
NO IMPAIRMENT
ALCOHOL


Dr Ashleigh Filtness
COMMIT
to never driving while tired!
Asleep = NO reactions
Zzzz
Have a healthy sleep schedule
PLAN AHEAD
Get off the road
Caffeine
20min nap (this'll give you 1hour)
HARD STOP
How to spot it
yawn
Heavy eyes
Be fit to drive. It's your responsibility!
Get enough sleep for you.
Reduce screen time before
we've got some notes about the sleeping


htc
tobii
- [Amy] You want a picture for Instagram Soph?


DriveFit Trailer
DRIVE FIT

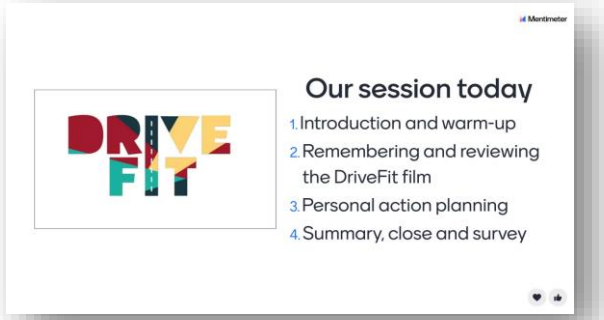

How many hours of driving practice do you think it will take to pass your test?
(Professional tuition + private practice)
12%
40%
36%
Less than 20 hrs
20 - 50 hrs
51 - 75 hrs
75 - 100 hrs
100 hrs +
How much do you think it will cost to learn to drive?
16%
24%
27%
15%
Under £500
£500 - £1000
£1000 - £1,500
£1,500+

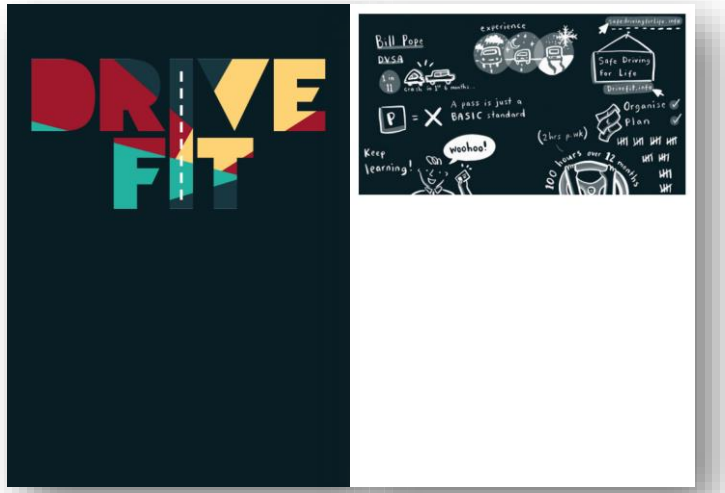

DriveFit Trailer
Newer Car
ANCAP
and provide consumers
with a really easy way

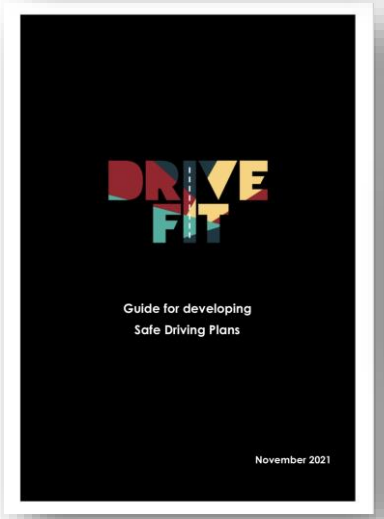

DriveFit Trailer

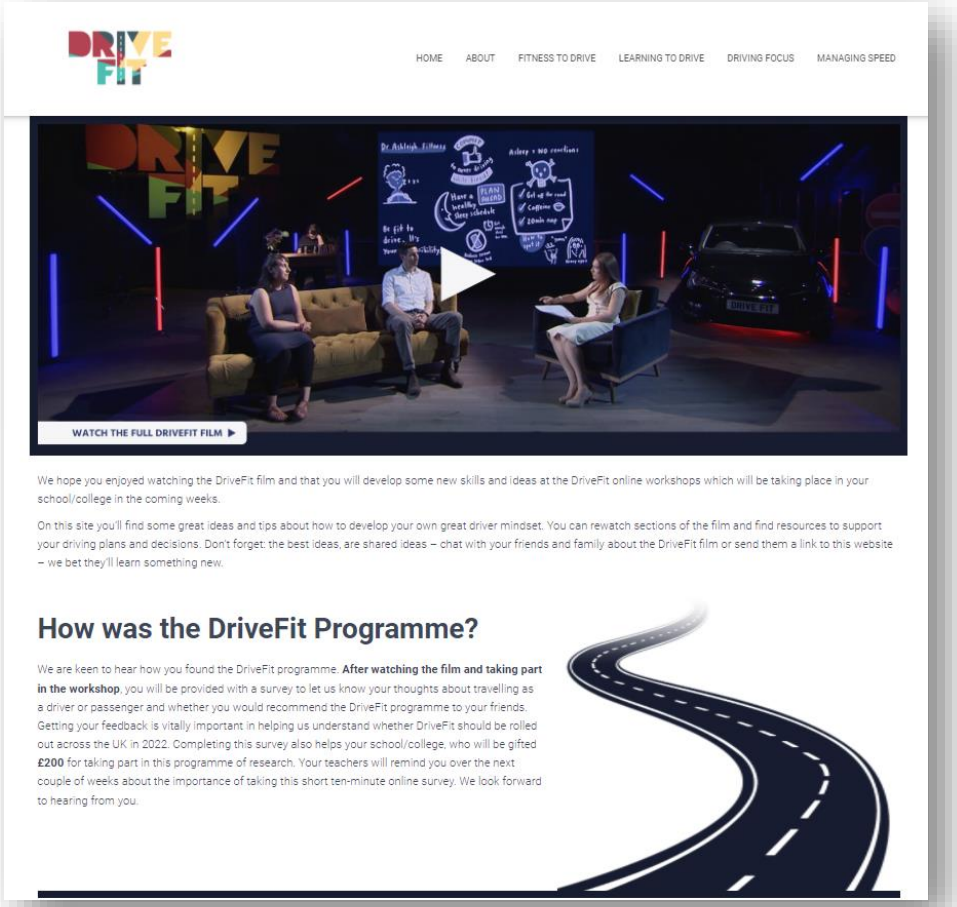

DriveFit Trailer
- [Ollie] The easiest way is a plan B.

DriveFit Workshop & materials

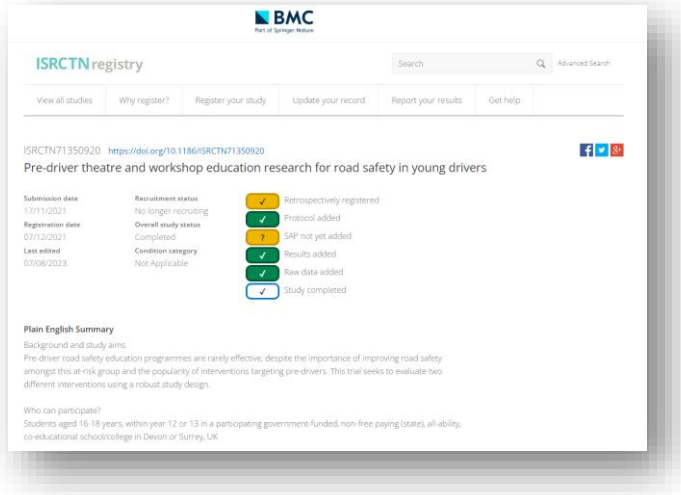








cRCT design



www.isrctn.com/ISRCTN71350920

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

Delivery team:

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

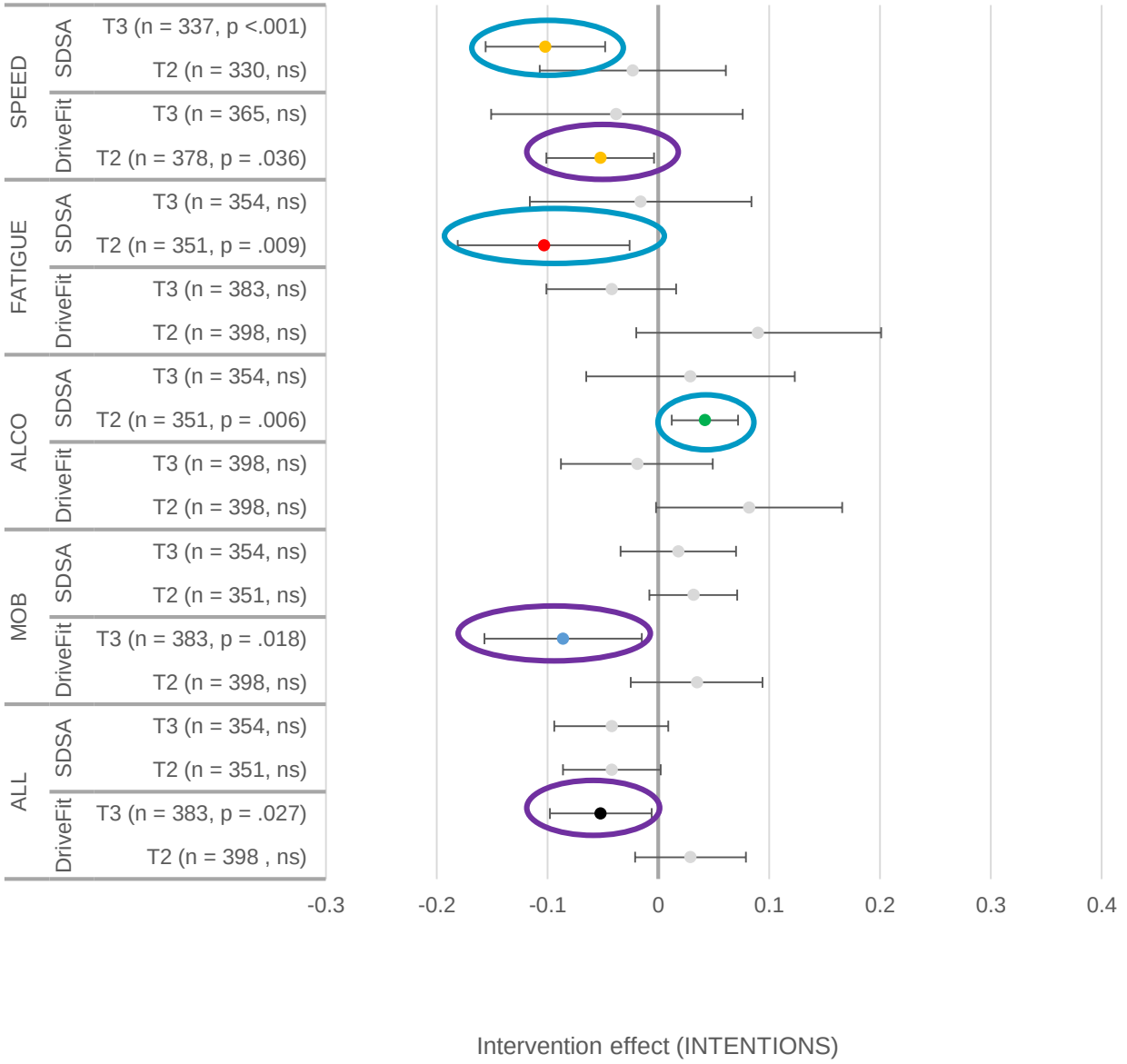
Method – Measures & analysis using General Estimating Equation (GEE) Model

- 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)*

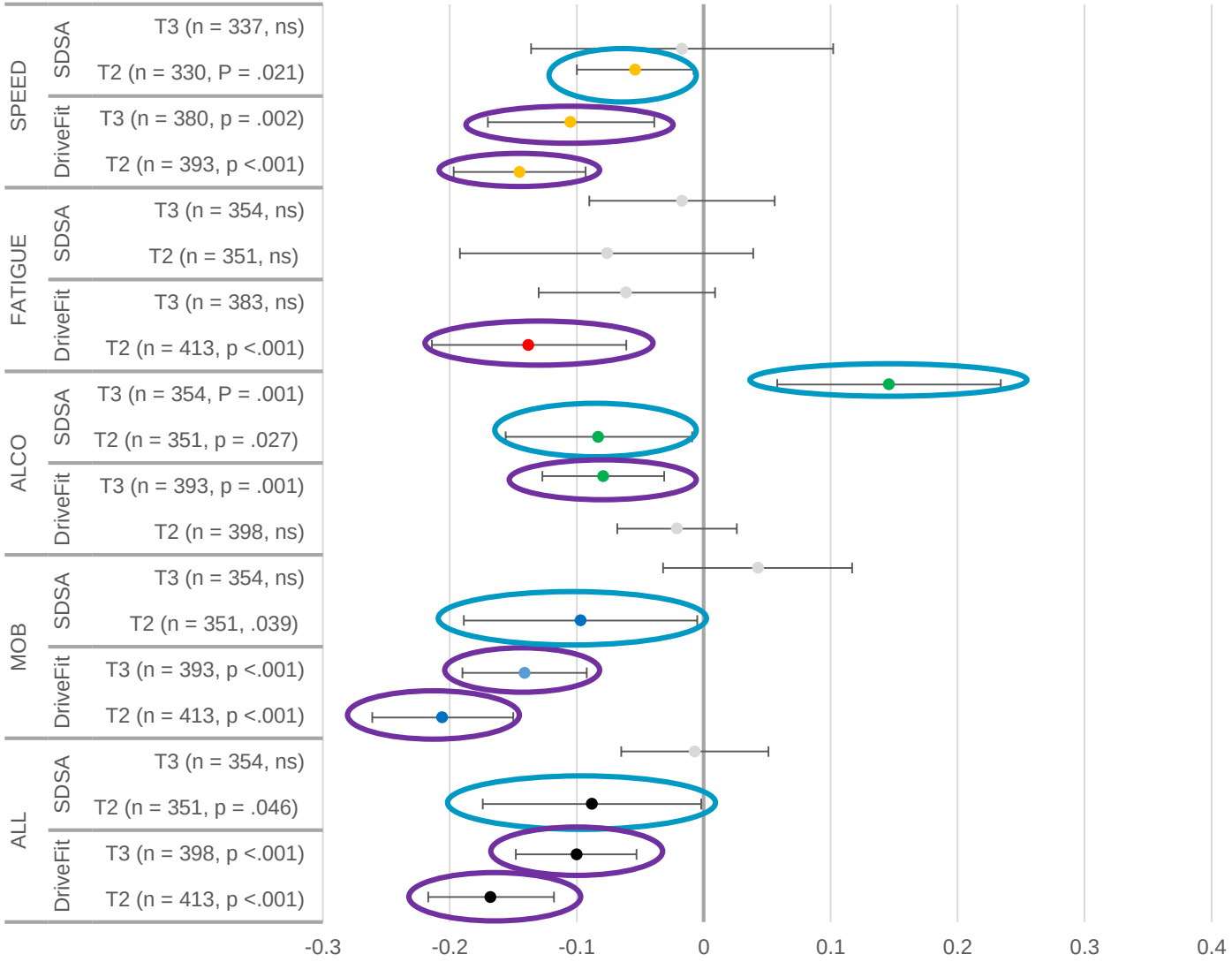
General Estimating Equation (GEE) model (Gamma with Log Link) with following parameters:

- **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).

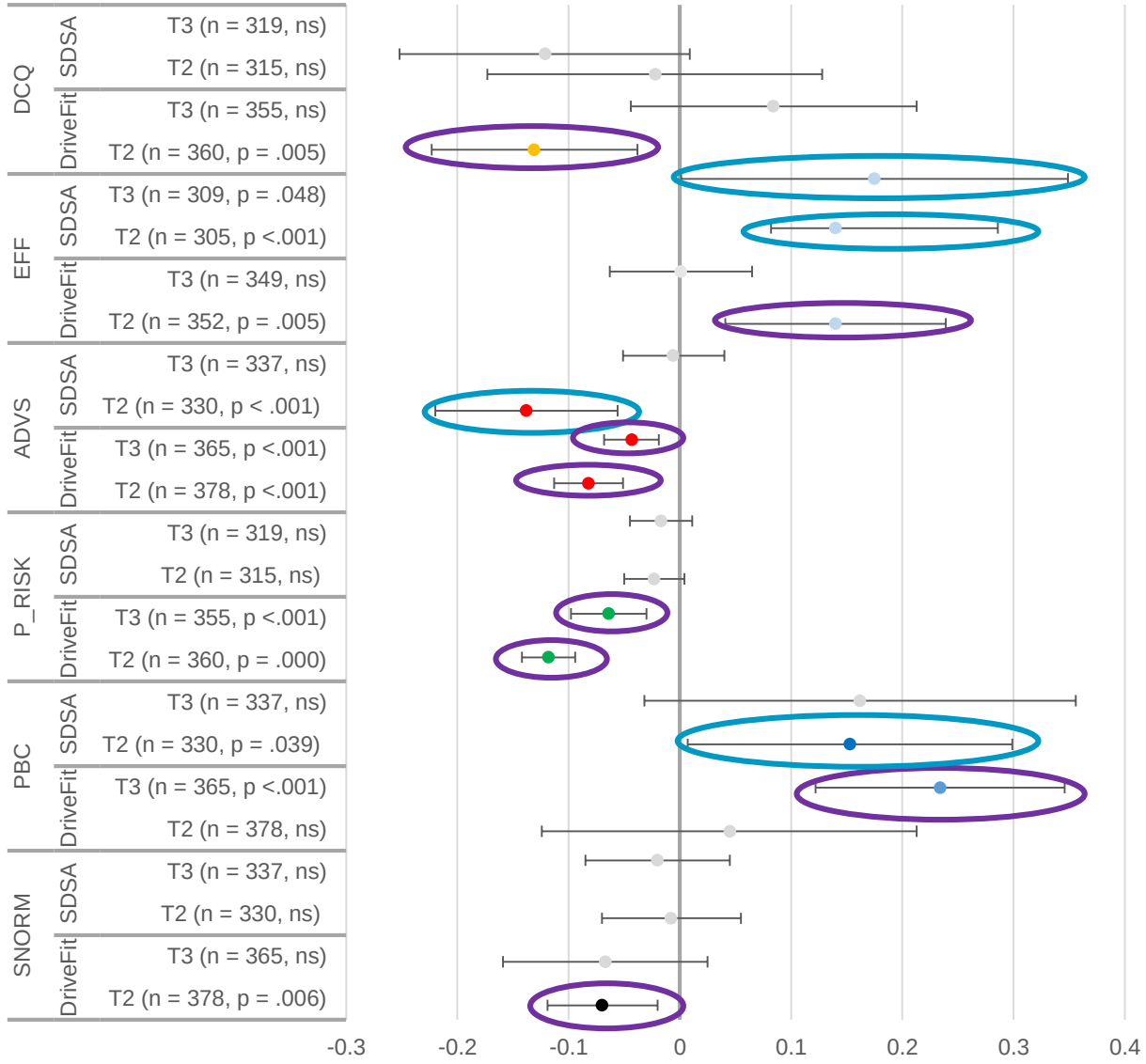
Intention effects



Attitude effects

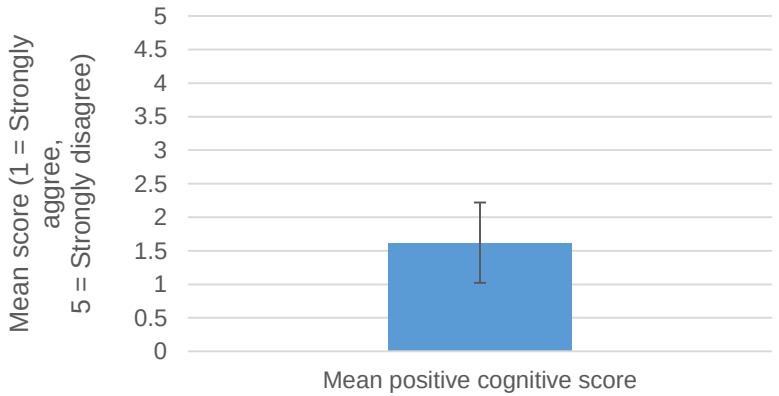


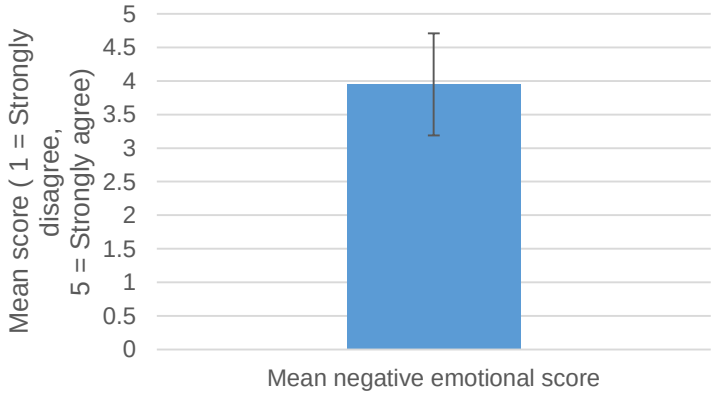
Other measure effects



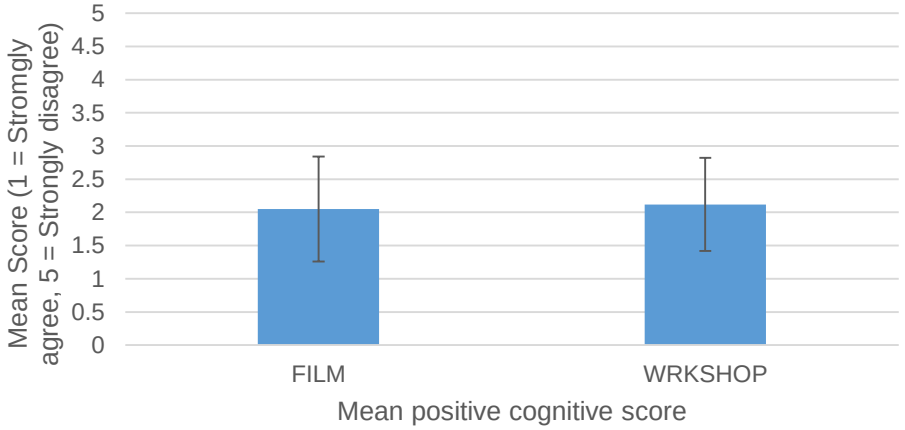
Positive cognitive and negative emotional scores

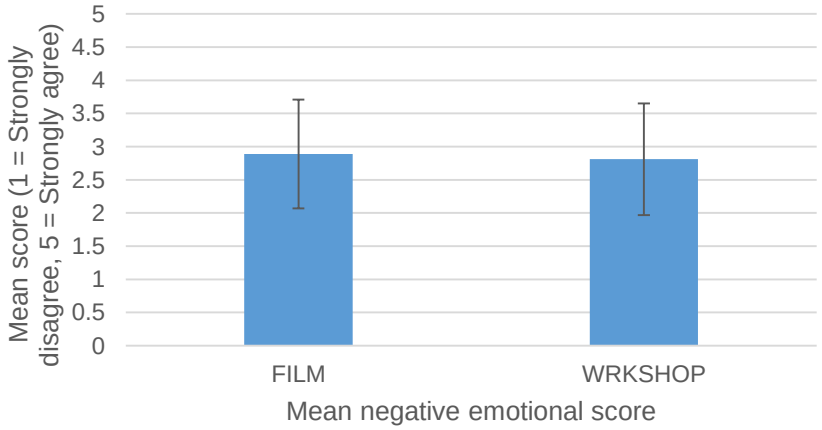
SDSA Surrey (n = 161)





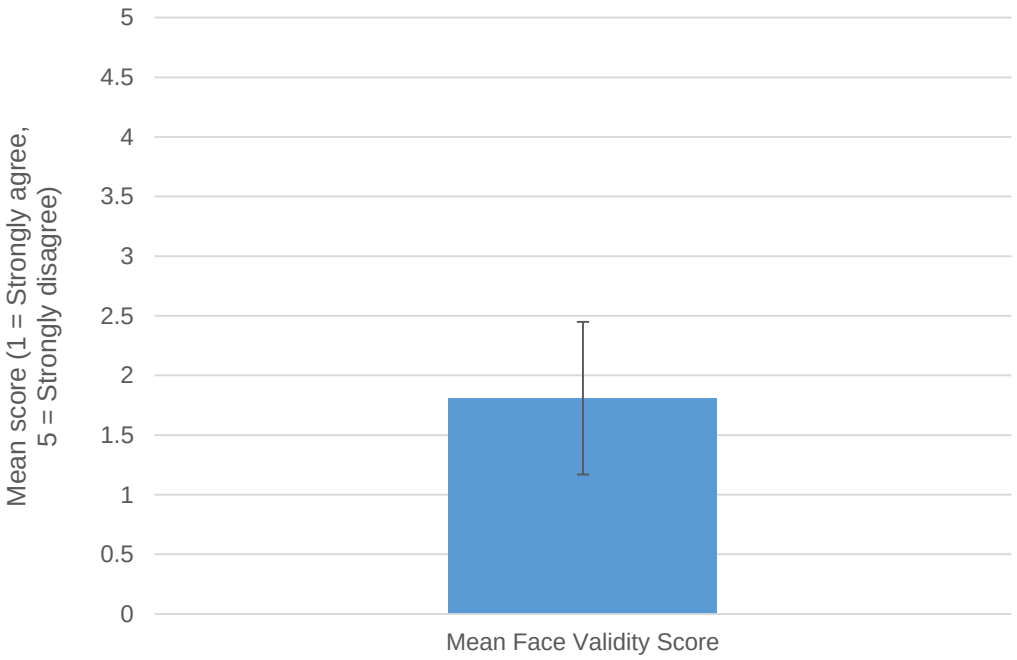
DriveFit (n = 186)



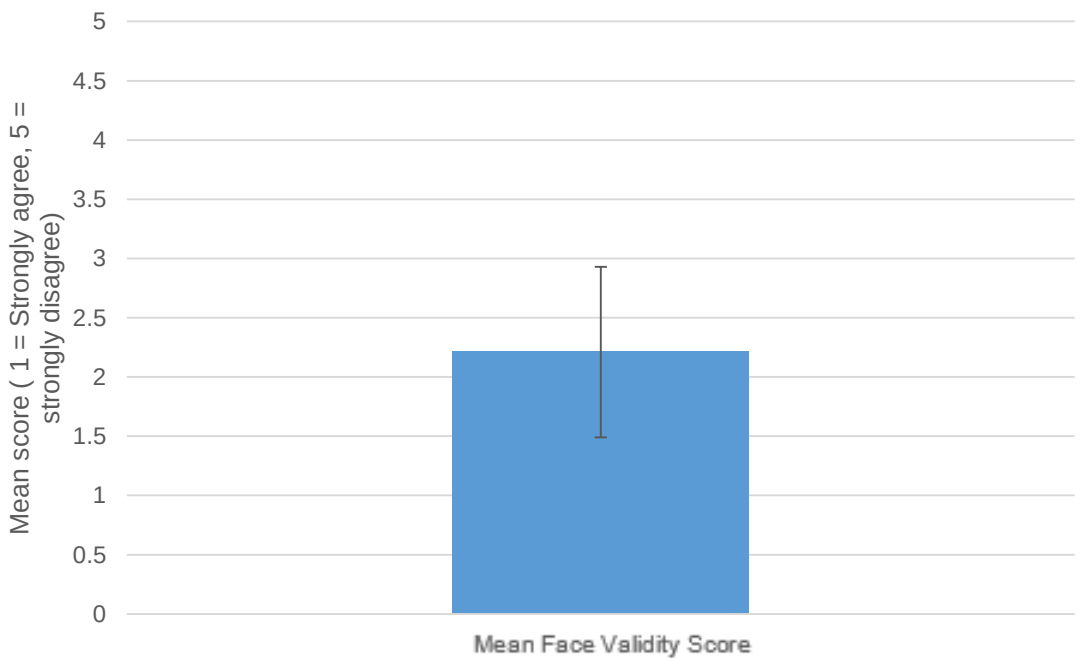


Face Validity ratings

SDSA Surrey (n = 161)



DriveFit (n = 186)



Key research findings

- 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)

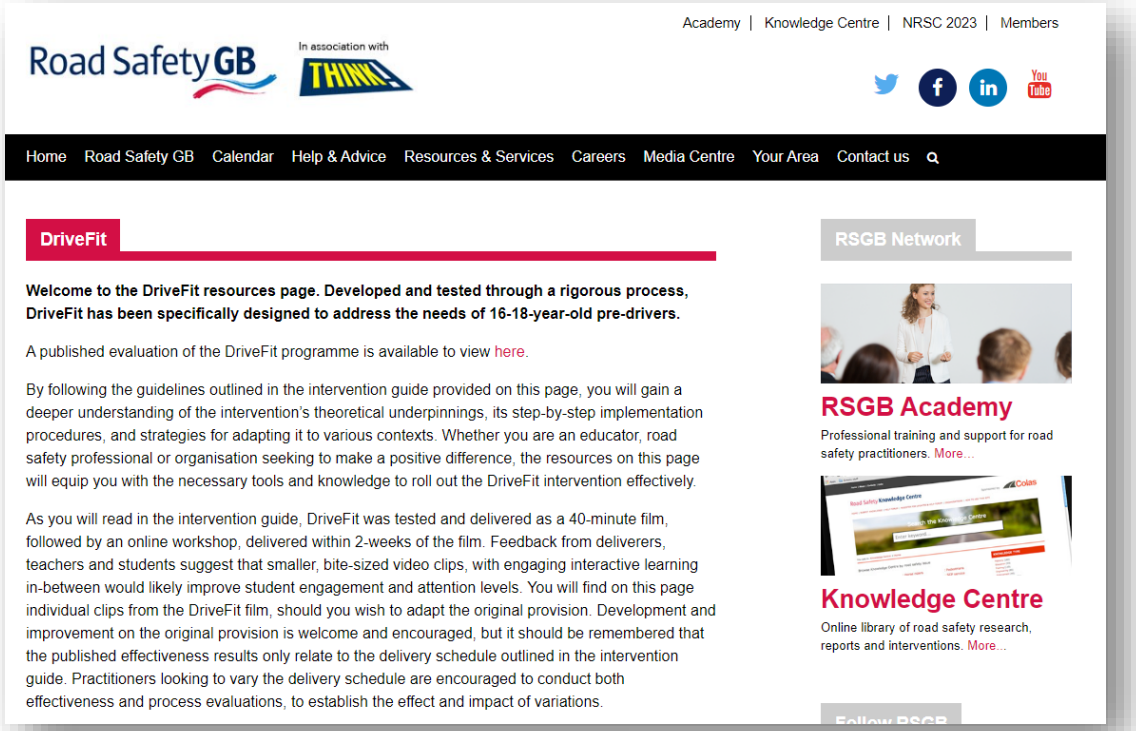
- Only deliver interventions which can deliver at least a medium-term effect (i.e., at 8-10 wks post-intervention)

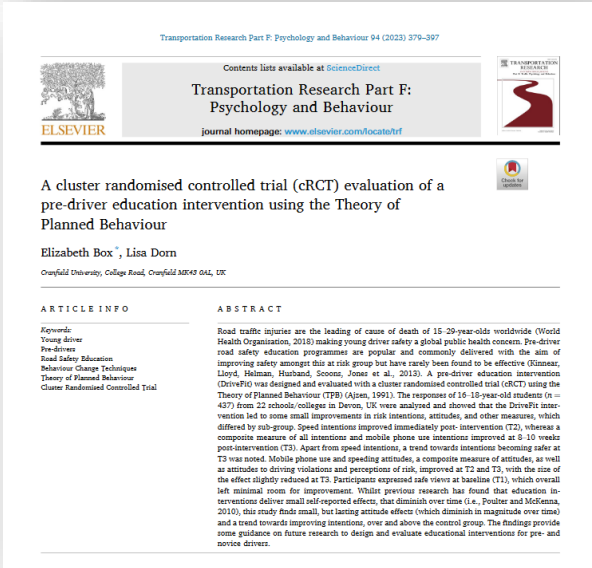
- Important to recognise the role and relative impact of educational interventions

- 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





thank you!

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