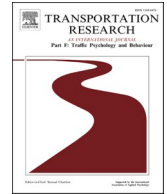




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An investigation of barriers and facilitators to young drivers' engagement with post-licensure training

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ABSTRACT

Young drivers are over-represented in collision statistics partly because pre-licensure training does not fully provide young drivers with all the necessary skills to be safe on the road. Despite this, post-licensure on-road training does not appear popular with young drivers, even when offered for free. To investigate their appetite for training we surveyed 745 young drivers, and asked whether they would be willing to engage with a hypothetical free training course (based on a real course). Less than a third of the sample reported they would be likely to engage with training 'at the moment', though acceptance rates were higher when asked if there would have been likely to sign up 'in the past' or 'in the future'. Proportional odds logistical regression models suggested that reasons to avoid training included the admission that they 'would rather do something else' with their time, and that they 'did not need training'. Factors that would increase their engagement with training included 'the reputation of the training company', 'an understanding of why the course is offered for free', and 'a certificate of participation'. When asked whether there was any specific training that they felt would benefit them, responses highlighted difficult driving conditions (e.g., snow, ice) and new technology (e.g., electric vehicles, Advanced Driver Assistance Systems). Recommendations are made to design post-licensure training interventions that will increase young driver engagement.

1. Introduction

Young novice drivers between the ages of 17 and 24 are consistently over-represented in the collision statistics (e.g., [Kinnear et al., 2013](#); [Underwood, 2007](#)), suggesting that they are not fully prepared for a lifetime of safe driving. While both maturity and inexperience play a role, the latter is considered more influential (e.g., [McCartt et al, 2009](#)). This problem has previously led to the introduction of more advanced training courses for young drivers to be taken after they have passed their test. In the UK, the most well-known of these courses is the Pass Plus training course, introduced in 1995. This Government-backed training course includes 6 on-road modules (driving in town, rural roads, at night, etc.), with some versions of the course offering peer discussion groups. At its peak, 16 % of newly qualified drivers would go on to take a Pass Plus course ([Elliot, 2006](#)). While there was initial interest in Pass Plus from insurers and road safety advocates (the Association of British Insurers reported a marginally lower crash rate than comparison drivers; [Association of British Insurers, 2006](#)), interest has waned over the last two decades, with very few opportunities for UK trained drivers to secure insurance discounts. This may be due in part to other findings that suggest there is no safety advantage gained by taking the Pass Plus course ([Elliot, 2006](#)). Stakeholders have voiced concern over the delivery, quality, validity, and rationale for Pass Plus

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training (Atkins, 2011), while others argue that such courses tend to attract drivers who are already safety conscious, thus missing out on the dangerous segment of the demographic (RoSPA, 2010). Nonetheless, current researchers are still calling for post-licence training courses to tackle the novice driver skill gap (Rowe et al., 2022).

Though long considered one of the three Es of road safety (Engineering, Enforcement, and Education) the evidence for successful driver training interventions in general is mixed at best (e.g., Beanland et al., 2013). Authors have identified many potential reasons for the lack of successful training interventions (methodological challenges, statistical power, difficulty accessing objective data, and insufficient funding for evaluations, e.g., Clarke and Edquist, 2013). There is, however, the possibility that many courses simply do not decrease crash risk either because of poor content, inappropriate underlying theories of behaviour change, or the weak link between risky or unskilled driving behaviour and absolute crash risk (af Wählberg, A. E., 2018). Furthermore, training benefits may be dependent on the target audience: hazard anticipation training has been found to only be effective on drivers who are already *careful*, in contrast to *careless* drivers who may not show improvements (Zhang et al., 2018, see also Harano, 1972).

The negative reputation held by driver training can arguably be traced to studies that were conducted many years ago (e.g., Coppin, 1962; Coppin et al., 1965; Fuchs, 1980), and even in 2005, researchers were questioning the relevance of such aging studies to modern training interventions (Ker et al., 2005). As our understanding of behavioural change has grown, and training interventions have matured, new approaches are being found to show beneficial effects. For instance, a recent meta-analysis of hazard perception training found improvements in skill with moderate to large effect sizes (Prabhakaran et al., 2024).

The goal of creating a successful driver training intervention remains a priority for many road safety organisations. However, while some more recent studies provide robust evaluations of training interventions, they tend to be delivered to audiences that are obliged to attend, such as through schools and colleges (e.g., Box and Dorn, 2023), or with drivers on diversionary courses (national courses that provide an alternative to other penalties; Ipsos MORI et al., 2018).

Beyond these captive audiences, providers of post-licence training courses face the hurdle of ensuring sufficient voluntary take-up from those drivers who need it, which requires an understanding of drivers' willingness to engage in post-licence training. This became apparent to the current authors when, in 2021, we were invited to evaluate a post-licence training course that was to be delivered in the north of England targeting young drivers. Despite the lifting of all COVID restrictions in this period, and the offer of lottery prizes to trainees through extensive advertising, this free on-road training only resulted in a handful of drivers undertaking the training, compared to the several hundred that were anticipated. While acknowledging the possibility that COVID could have had an ongoing impact on young people's anxiety and confidence in social situations (Owens et al., 2022), we wanted to understand whether there were any other barriers to why young people did not want to undertake such post-licence training, and – crucially – whether there were any opportunities to improve training engagement in future courses through extrinsic and intrinsic motivators. These two research questions underpin the current survey study of young drivers' likelihood of engaging with a hypothetical course.

One of the few studies to investigate drivers' willingness to engage with post-licence training was conducted by Kinnear, Helman, and Walter (2011). They surveyed over a thousand drivers between the ages of 17 and 30, and found that those drivers who reported being nervous, or who admitted to committing violations and making errors on the road were more likely to be interested in future training courses. These drivers were also interested in reducing their insurance premiums, reported peer acceptance of training, had less driving experience (in some cases), and had more positive attitudes towards training benefits. Neither the potential to increase driving skills, nor concern about being in a collision, related to their intentions to take a training course. One of the key recommendations arising from Kinnear et al. (2011) was to advertise, “the potential for such training to make people ‘better’ drivers,” (p27), while avoiding discussions of improved safety.

1.1. What constitutes ‘better’ drivers?

Our first consideration in understanding the factors that might impact voluntary training engagement was how one should pitch training to young novice drivers. Will young people respond to training that offers to make them *better* drivers, as suggested by Kinnear et al., (2011)? Unfortunately, the illusion of superiority influences many drivers' opinions of their own skill (e.g., Waylen, et al., 2004) so it is possible that some young novice drivers will reject the need for improvement.

A second problem with offering to make people *better* drivers might lie with what they consider a *good* driver to be. Doubek, Salzmann and de Winter (2021) point out that certain situations (e.g., the racetrack) inevitably link *good* and *fast* together as synonyms. In young, over-confident drivers this semantic equivalency may be extended to the public road. It seems less likely, however, that *fast* and *safe* might be mistaken for synonyms (Elvik, 2013a). In the current study, we thought it important to look at the potential relationship between these three self-perceptions (*good*, *safe*, and *fast*). While we might hope for a strong relationship between *good* and *safe* self-perceptions, following Doubek et al., (2021) we might expect a similar relationship between self-perceptions of *good* and *fast*.

1.2. Past, present, and future intentions

Kinnear et al., (2011) found that 81 % of their driver sample (aged 17–30) reported willingness to take an on-road, post-licence driver-training course at some point in the future, if it were provided at an affordable price. This suggests that offering a similar course for free should result in high demand, yet this was not the case with the initial course that we were asked to evaluate. Why was there a disparity between the findings of Kinnear et al., (2011) and the real number of drivers who signed up for a free course in the North of England? One possibility lies in the nature of the question asked by Kinnear et al., (2011); how likely they would be to take a course *in the future*. Thinking about the past or future requires disengagement from the present moment and the reconstruction or construction of events using information from episodic and semantic memory (Suddendorf, 1999). According to Construal-level theory, the further

into the past or future these mental events are, the greater the abstractness of their encoding (e.g., Trope and Liberman, 2010). We argue that the acknowledged benefits of training are better suited to abstract encoding than the barriers to training. Such barriers require an extra level of extrapolation when encoding future events, and are typically grounded in concrete concerns, such as other obligations on one's time. For these reasons, we argue barriers are less likely than benefits to be encoded in anticipation of abstract future training events, therefore future training is likely to be perceived more positively than the offer of immediate training.

To assess whether Construal-level theory might influence participants' responses, one should therefore ask both questions: 'Would you take this training now?' and 'Would you take this training in the future?', with the expectation that present engagement would be lower than future engagement. Indeed, we might go one stage further: As Construal-level theory suggests that the level of abstractness should increase with greater temporal separation regardless of the direction, then one should expect a similar level of abstractness to be evoked by asking 'Would you have taken this training in the past?'. If all three questions are asked, Construal-level theory would predict that both past and future events would be encoded more abstractly, which would lessen the impact of perceived barriers, prompting respondents to report greater willingness to engage in both the past and the future compared to the present. Such a finding would suggest that driving safety educators may over-estimate demand for their courses by asking about the future rather than the present.

1.3. Barriers and facilitators to engagement with training

There are a number of potential barriers that drivers might perceive which prevent or dissuade them from engaging with training. As noted above, most drivers fall foul of the illusory superiority bias, or the Better-Than-Average effect, thinking themselves to be better than the 'average driver' (e.g., Waylen et al., 2004). Though often disregarded as statistically implausible, the skewed distribution of crash involvement across drivers means that it is likely that the majority of drivers are indeed 'safer than average' (Elvik, 2013b). However, those who are most convinced by their superiority are often the least safe, with strong self-regard related to increased aggression on the road, negative attitudes towards others, and risk-taking (e.g., Crundall et al., 2008; Day et al., 2018; Măirean and Havârneanu, 2018). Such drivers may be unlikely to voluntarily engage in driver training.

Other factors, such as anxiety and stigma (e.g., Stephens et al., 2024), and perceived benefits relative to costs (e.g., Oritsematosan Faith and Agwu, 2014) may all play a role. Even the fact that the original course was advertised as free could impact on engagement either positively ('zero-cost' de-risks decision making, e.g., Anderson, 2009) or negatively ('zero-cost' may reduce the perceived value of the training product; e.g., Cialdini, 2007). Conversely, drivers may be more likely to engage with training if certain conditions are provided, such as extrinsic motivation in the form of rewards, prizes, or support from family or friends. For the current study we selected a range of potential barriers and facilitators that might impact on training engagement (in discussion with stakeholders and experts), with a view to identifying which items might help explain drivers willingness (or lack thereof) to engage with training.

1.4. The current study

We designed a survey to gauge respondents' willingness to engage with a hypothetical driving course, with advertising materials taken from the real version of the course that ran in the UK in 2021/2022 but failed to recruit sufficient trainees. The primary aim was to assess respondents' willingness to engage in the course, and then determine which barriers and facilitators predicted their reported engagement, with a view to making suggestions to improve the uptake of such courses in the future. This is an exploratory study, and while we anticipated that ratings of barriers of facilitators would significantly predict reported engagement, we did not specify any particular relationships in our regression models.

Following on from the literature, we also addressed two particular issues. First we were interested in the correlations between respondents' self-ratings of their driving in terms of how *good*, *safe*, and *fast* they see themselves. While a correlation between *safe* and *good* was expected, we also anticipated a relationship between *fast* and *good*. The second issue of interest was the timeframe that we gave respondents when considering whether they would engage with the course (in the past, in the present, in the future). Based on construal-level theory we predicted that present engagement would be lower than both future and past ratings of engagement.

2. Method

2.1. Participants

A total of 745 participants undertook an online survey. The criteria for selection were that participants must have already passed their UK driving test, be within the ages of 17–25, and live and drive in the UK (excluding London, as its particular on-road demands are likely to lead to a rarefied sample). Twenty-eight were recruited through the NTU Psychology Research Participation Scheme and a further 717 were recruited from a paid participant panel (<https://www.prolific.com>). As the majority of our students fitted the selection criteria for this study, we combined the samples for subsequent analysis. Twenty-two respondents were however excluded from analysis (19 from Prolific and 3 from the Psychology Research Participation Scheme) due to breaching selection criteria or failing two attention check questions that were embedded in the survey. This left a final sample of 723 participants.

The mean age of the sample was 21.8 years. Regarding reported gender, 341 were male, 372 were female, 9 identified themselves as non-binary/other and 1 preferred not to say. Their mean driving experience since passing the driving test was 3.8 years, with most of our sample passing the driving test at the age of 18. All demographic details can be viewed in Table 1.

Table 1
Demographics of the sample.

	Descriptive measures
Age	\bar{x} = 21.8 years, range = 18–25
N (collected/cleaned)	745/723
Gender (m/f)	341/372 [47 %/51 %]
Driving experience (years since passing test)	\bar{x} = 3.8 years [m = 3.7, f = 3.8], range = 1 month to 8.25 years
Annual Mileage	\bar{x} = 4998, range = 0 to 50,000
Respondents who report any collision/collisions involving injury or death	220 / 11 [30.4 % / 1.5 %]
Respondents who report attending a diversionary course	53 [7.3 %]
Respondents who report having penalty points on their licence	18 [2.5 %]

2.2. Materials & design

An online survey was prepared using Qualtrics survey software ([Qualtrics.com](https://www.qualtrics.com)). Questions were broken into 4 blocks. The first block of questions asked respondents to provide basic demographics including age, gender, and driving history, such as how long ago they passed their test in years, how many miles they drive in an average year, how many collisions they have had since passing their test (regardless of whether insurance companies were notified), and how many points they have accrued on their licence.

Following this, respondents were shown an advert for a free training course. Two sides of an A5 flyer were presented side by side, modified from one used to advertise a real course that was run in the north of England in 2021. The advert emphasised several points including the following:

- Young drivers have a crash risk five-times higher than older drivers (aged 30–59)
- A local road safety partnership has teamed up with an esteemed training company to provide on-road driver training
- The training is free (a refrain repeated several times in the advert)
- The benefits of training (“A chance to think and behave differently behind the wheel”, “improve your safety on the roads”)
- An opportunity to win a go-karting session for four people or shopping vouchers worth £200
- A call to action: “Enrol now!”
- Criteria for participation (age, full driving licence, fit to drive)

Modifications to the original flyer included the removal of any information that localised the course. As we were sampling participants from across the UK, we did not want to bias responses based on the perceived distance required to attend the course. The flyer did not advertise the inclusion of any e-modules, though respondents were informed in a later question that e-modules were included with the on-road driver training. This mirrored the real course, where participants only received details of the different course components once they had registered their interest for the free driver training.

Participants were asked to click on aspects of the advert that caught their eye to encourage attention to the content. Following the display of the advert, participants were given a series of question blocks detailed in subsequent sections. This study design adheres to the British Psychology Society’s code of ethics. It was submitted to the NTU School of Business, Law, and Social Sciences Research Ethics Committee and received a favourable opinion.

2.2.1. Survey design protocol

The primary domains of the survey were self-perceptions of driving (hereafter, *self-perceptions*), likelihood of taking the course (*likelihood*), barriers to taking the course (*barriers*), and things that might persuade them to take the course (*facilitators*). Finally, we asked them what type of training they believe they needed most (*training needs*). These domains were decided in discussion with stakeholders who had initiated the original course. Individual items were generated by a group of traffic psychologists with input from driving instructors and our stakeholders. Items were reviewed for clarity, the presence of double-barrelled items, and inclusive applicability to all respondents. All question blocks had response scales with individually labelled units rather than a number scale, and all items had five points on each scale, except where we deliberately wanted to remove a neutral mid-point (when asking how likely they would be to take the course) or when using items from pre-existing surveys (the majority of the items from the *training needs* block came from Wells et al., 2008, which used a three-point scale). Feedback from our stakeholders suggested all items were relevant and that they understood the questions (i.e., they would have answered the questions in the way we intended). The survey was first trialled on a small sample of naïve and anonymous online participants (N = 10), who were asked to provide their thoughts on the questionnaire in a free-text response box. Block completion timings were neither unduly long (which might suggest systematic problems with some items) nor suspiciously short (suggesting lack of engagement). We also included two attention check items in the survey that required participants to tick a specific point on the scale. Given the short time scale of the project we could not obtain a measure of test–retest reliability, and thus we acknowledge that responses reflect a snapshot in time.

2.2.2. Measuring self-perceptions of driving

As drivers’ willingness to engage in post-licence training is likely predicated on one’s perceived abilities, we asked our drivers how they rate themselves against three statements: “I am a fast driver”, “I am a good driver”, and “I am a safe driver”. Their responses were given on a five-point scale, from Strongly Disagree to Strongly Agree, with a neutral midpoint (neither agree nor disagree).



Fig. 1. The number of respondents who reported various levels of agreement with statements regarding them being a ‘fast’, ‘good’ and ‘safe’ driver.

2.2.3. Measuring likelihood to take the course

Participants were asked three questions regarding their likelihood to engage with our hypothetical course: How likely they would be to take this training course (a) in the recent past (but before the pandemic); (b) at the moment; and (c) in the future. Respondents answered on a four-point scale from ‘extremely unlikely’ to ‘extremely likely’, avoiding the inclusion of a mid-point to remove the possibility of neutral answers.

2.2.4. Measuring preference for course elements

The original course contained five separate elements. Beyond the primary on-road element (a 90-minute drive with an instructor), drivers were offered three short e-modules and an online driver assessment. The three e-modules were on ‘driving at night and in limited visibility’, rural driving, and driving enjoyment. This question block informed respondents of these five elements (which were not detailed on the original flyer) and they were asked how useful they would find the five components. They responded via a five-point scale from ‘not at all useful’ to ‘extremely useful’.

2.2.5. Measuring self-perceived barriers and facilitators to training

Respondents were asked “What are the reasons that might stop you registering for this free training?”. They were given 12 statements reflecting potential reasons such as ‘I am too busy’, ‘I don’t feel I need additional training’, and ‘I’m uncomfortable going in a car with an instructor because of COVID’. The full list of items is given in Fig. 5 later in the results section. Participants responded on a five-point scale from ‘strongly disagree’ to ‘strongly agree’ for each statement.

Following this, we gave our participants eight items that might explain reasons to that would encourage them to engage with free driver-training, including ‘encouragement from my family’, ‘a certificate of participation’, and ‘the reputation of the training company’. Once again, participants responded on a five-point scale from ‘strongly disagree’ to ‘strongly agree’. The full list of items is given in Fig. 6.

Finally, in this section we asked five statements directly related to the prizes offered as inducements for respondents to agree or disagree with on the same five-point scale (the prize is desirable, I am unlikely to win the prize, etc.). The full list of items is given in Fig. 4.

2.2.6. Assessment of self-perceived training needs

Finally, we asked what, if any, type of training they might be interested in. We provided a list of 26 skills including ‘driving on snow or ice’, ‘parking’, and ‘spotting hazards’, with participants responding on a three-point scale regarding their self-perceived ability in these skills (‘no improvement needed’, ‘some improvement needed’, ‘a lot of improvement needed’). Twenty of these skills were taken from the Cohort II survey reported by Wells et al., (2008), with another six items added to reflect more modern demands on drivers (such as ‘driving electric vehicles’, ‘using Advanced Driver Assistance Systems’, and ‘consideration for other road users’). The full list of potential training needs is shown in Table 4.

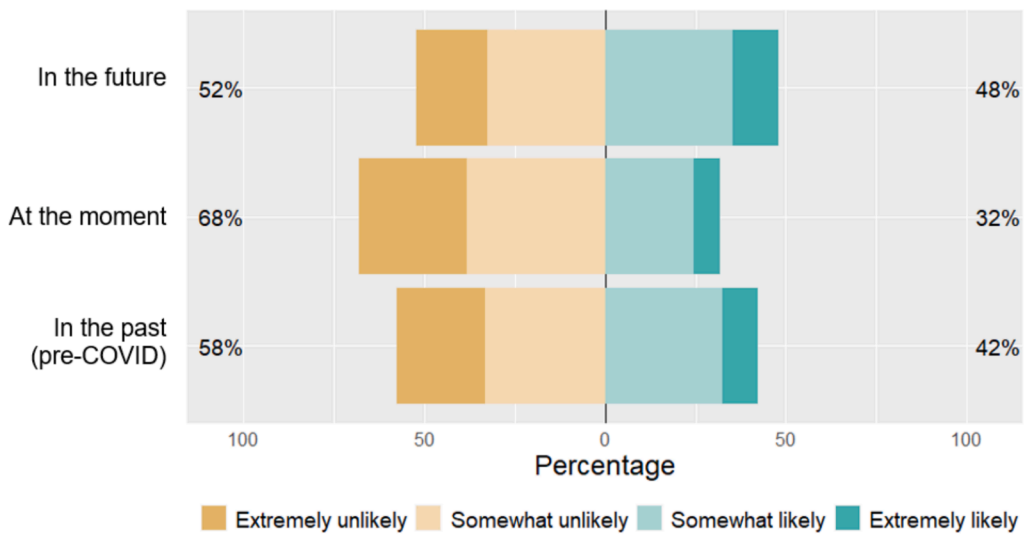


Fig. 2. Likelihood of registering on the course either ‘before the pandemic’, ‘at the moment’, or ‘in the future’.

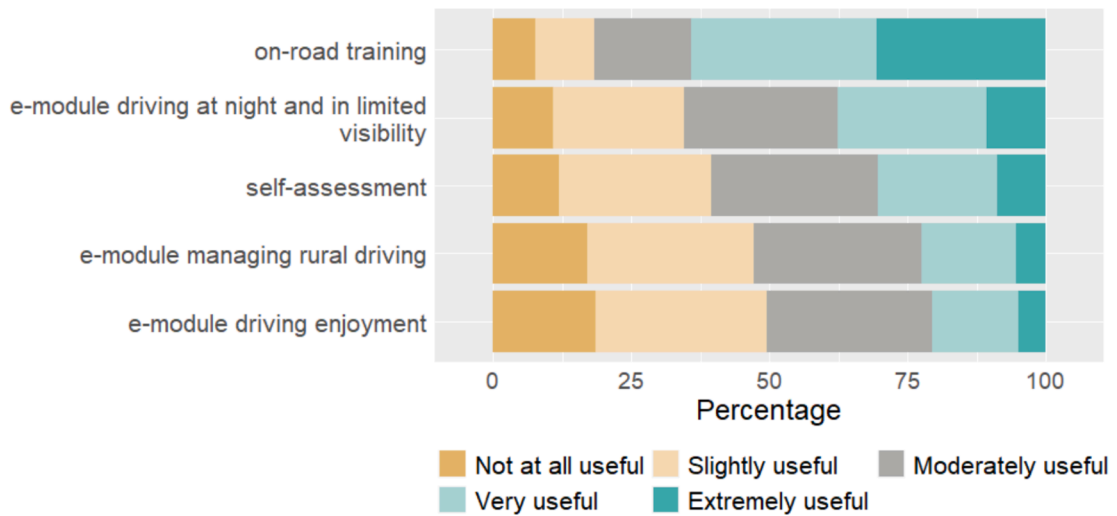


Fig. 3. Rated usefulness of the five elements of the Road Ready training course.

2.3. Procedure

Participants who were recruited through the NTU Psychology Research Participation Scheme received course credits in return for participation. Prolific participants were recruited anonymously via an advert for the study that was sent to those participants who met our screening criteria. They received a small payment for taking part, equivalent to earning £7.50 per hour. The study involved several blocks of questions, including some that are not reported in the current paper for the sake of brevity. The full survey took approximately 10 min to complete. For context, respondents filled in this survey in February 2022, at a point when all COVID restrictions had been lifted in the UK.

3. Results

3.1. Self-Perception of driving

As drivers’ willingness to engage in post-licence training is likely predicated on one’s perceived abilities, we recorded the self-perceptions of our respondents as *fast*, *good*, and *safe* drivers. Their responses show clear negative skews for the ‘good driver’ and ‘safe driver’ items (Fig. 1). The categorical responses were recoded (Strongly disagree = 1, Somewhat disagree = 2, etc.) and the resultant data were correlated across the three questions. Spearman correlation tests showed a significant positive correlation between

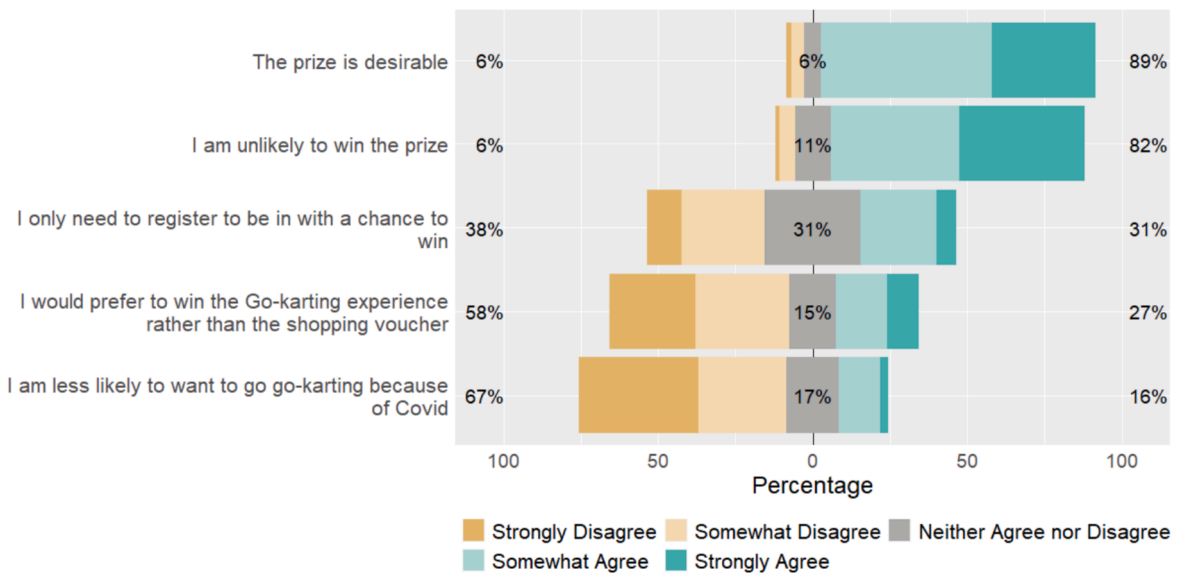


Fig. 4. Respondents' views on the offered prizes.

respondents' perception of being a *fast* and a *good* driver, $\rho = 0.29, p < 0.001$, and between being a *good* driver and a *safe* driver, $\rho = 0.53, p < 0.001$, but there was no relationship between identifying as a *fast* driver and identifying as a *safe* driver, $\rho = -0.03, p < 0.40$. However, a partial correlation between *fast* and *safe* responses, controlling for *good* responses, revealed a significant negative relationship ($\rho_{SF,G} = -0.23, p < 0.001$).

3.2. Respondents' interest in taking the training course

3.2.1. Likelihood of taking the course

Participants' likelihood of engaging with our hypothetical course was lowest when there were asked to consider registering for the course *now*, as opposed to in the recent *past*, or in the *future* (Fig. 2). This was verified with a Friedman test comparing the recoded responses (Extremely unlikely = 1, Somewhat unlikely = 2, etc.) which confirmed that there was a significant difference between the responses according to the timeframe of the question ($\chi^2_{(2)} = 124.79, p < 0.001$). Post-hoc Wilcoxon tests revealed all three overall ratings to be significantly different to each other, even after Bonferroni correction ($z_{bn} = -10.2, z_{nf} = -7.7, z_{bf} = -4.6$, all $ps < 0.001$).

3.2.2. Interest in the different components of the course

Of the five elements of the course, respondents considered the on-road training with a driving instructor as the most useful part of the course. Of the three online e-modules, 'driving at night and in limited visibility' was rated as most useful of the three (Fig. 3). To verify this, categorical responses to the e-modules were recoded ('Not at all useful' = 1, 'Slightly useful' = 2, etc.) and subjected to a Friedman test. A significant difference was noted in reported usefulness for the three e-modules ($\chi^2_{(2)} = 193.46, p < 0.001$). Post-hoc Wilcoxon tests, with Bonferroni correction, confirmed the e-module on 'Driving at night and in limited visibility' was rated significantly more useful than the 'rural driving' e-module ($z = -11.3, p < 0.001$), and the 'driving enjoyment' e-module ($z = -11.6, p < 0.001$).

A Friedman test was then conducted to compare the reported usefulness of the online assessment, with the on-road training component, and the most useful e-module ('driving at night...'). A significant difference was again found across the three training components ($\chi^2_{(2)} = 263.23, p < 0.001$). Post-hoc Wilcoxon tests, with Bonferroni correction, confirmed that the on-road training was rated more useful than its nearest rival, the e-module on 'driving at night...' ($z = -12.3, p < 0.001$), which was in turn rated more highly than the online assessment ($z = -3.1, p < 0.005$).

3.2.3. Respondents' interest in the prizes

As can be seen in Fig. 4, 89% of respondents agreed that the prizes were desirable, but there was an almost equally strong belief that they would not win. Responses to the third question ('I only need to register to be in with a chance to win') were also interesting, with nearly two thirds of respondents thinking that mere registration for the course might be sufficient to win the prize. Finally, while the shopping voucher was more desirable than the go-karting session, the last question suggested that COVID concerns were not the primary reason for the lower interest in this latter prize.

3.2.4. Respondents' perceived barriers to engagement

Of the 12 potential barriers presented for consideration, most participants agreed that half of them might prevent engagement with

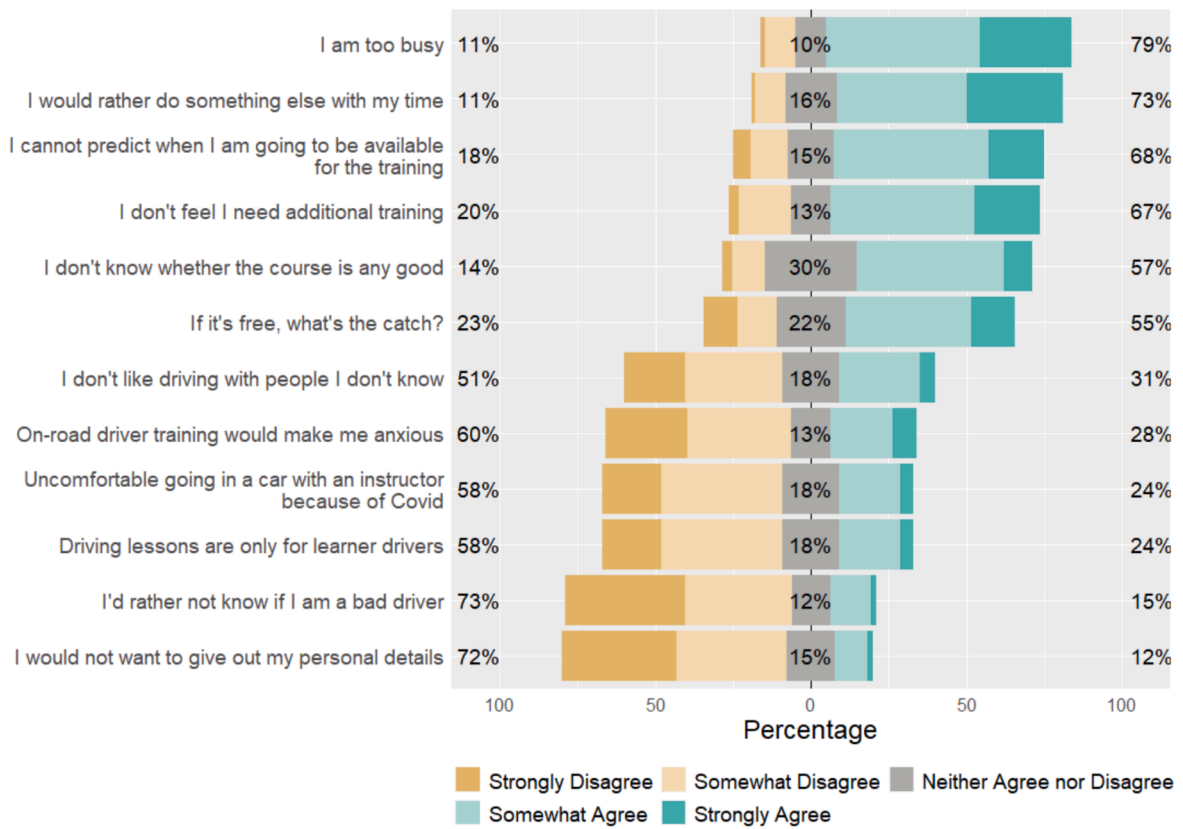


Fig. 5. Respondents' reasons not to register for the free training.

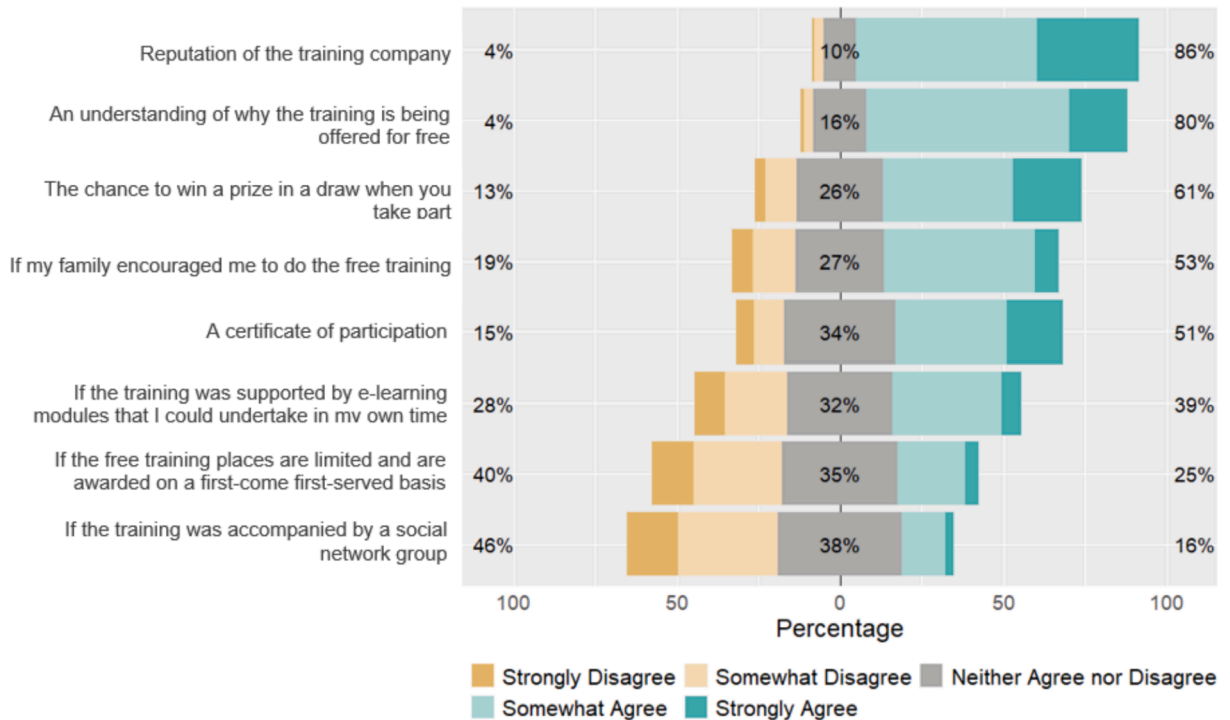


Fig. 6. Respondents' agreement with potential incentives that might encourage course uptake.

Table 2

Significant predictions of respondents' likelihood of enrolling 'at the moment' taken from the list of 'reasons not to register'.

	Coefficient	Odds Ratio	t value	p value
Age	0.05	1.05	0.78	0.43
Gender	-0.17	0.84	-1.19	0.23
Experience (years)	-0.07	0.93	-1.18	0.24
Annual mileage (1000 s)	0.04	1.04	3.18	< 0.01
Number of NDORS courses attended	-0.15	0.86	-0.53	0.60
Points on licence	-0.05	0.95	-0.36	0.72
Number of collisions	-0.01	0.99	-0.15	0.88
I don't feel I need additional training	-0.45	0.64	-5.54	< 0.001
I am too busy	-0.07	0.93	-0.78	0.43
I would rather do something else with my time	-0.79	0.46	-8.59	< 0.001
On-road driver training would make me anxious	0.03	1.03	0.48	0.63
I would not want to give out my personal details	-0.12	0.89	-1.45	0.15
I don't know whether the course is any good	-0.14	0.87	-1.63	0.10
I don't like driving with people I don't know	-0.10	0.90	-1.35	0.18
I'd rather not know I'm a bad driver	0.13	1.14	1.64	0.10
If it's free what's the catch?	0.33	1.39	4.80	< 0.001
I cannot predict when I am going to be available for the training	0.04	1.04	0.50	0.62
Driving lessons are only for learner drivers	-0.22	0.80	-3.02	< 0.01
Uncomfortable going in a car with an instructor because of Covid	-0.13	0.88	-2.08	< 0.05

Table 3

Significant predictions of respondents' likelihood of enrolling 'at the moment' taken from the demographics and 'incentives to enrol'.

	Coefficient	Odds Ratio	t value	p value
Age	0.17	1.19	2.99	< 0.01
Gender	-0.14	0.87	-1.01	0.31
Experience (years)	-0.22	0.80	-3.88	< 0.01
Annual mileage (1000 s)	0.01	1.01	0.76	0.45
Number of NDORS courses attended	-0.44	0.65	-1.58	0.11
Points on licence	-0.03	0.97	-0.24	0.81
Number of collisions	0.09	1.09	0.96	0.34
An understanding of why the training is being offered for free	0.31	1.37	2.76	< 0.01
Reputation of the training company	0.42	1.53	3.86	< 0.01
The chance to win a prize in a draw when you take part	0.02	1.03	0.34	0.73
A certificate of participation	0.11	1.12	1.46	0.14
If the training was supported by e-learning modules that I could undertake in my own time.	0.11	1.12	1.50	0.13
If my family encouraged me to do the free training	-0.04	0.96	-0.59	0.55
If the training was accompanied by a social network group	0.05	1.05	0.58	0.56
The free training places are limited to 400 young drivers and are awarded on a first-come first-served basis	0.12	1.13	1.65	0.10

the course, while they disagreed that the remaining six were notable barriers (Fig. 5). The top three reasons that respondents agreed with were focused on the issue of available time; respondents felt they were too busy and could not predict their availability. Even if they did have the available time, they reported that they would rather do something else than engage in driver training.

Two other, more surprising, reasons appeared in the top six: 'I don't know if the course is any good' and 'if it's free, what's the catch', suggesting that despite the offer of free training, our respondents are still adopting the view of a potential customer.

3.2.5. Respondents' perceived facilitators to engagement

Of the eight possible incentives, respondents agreed that five of them would have a positive influence on their decision to attend such a course. The top incentive to enrol was the 'reputation of the training company providing the course', closely followed by 'an understanding of why the course is offered for free'. These items relate closely to two of the reasons that drivers might not enrol (Fig. 4): 'I don't know if the course is any good' and 'If it's free, what's the catch?' The offer of a prize is still of interest to respondents (item 3, Fig. 6), but if they do not think they will win (item 2, Fig. 4), then the power of this incentive will be diluted. Finally, it is worth noting that parental influence might play a role in encouraging drivers to undertake the training.

3.3. Predicting likelihood to take the course

The data presented in sections 3.2.4 (Barriers) and 3.2.5 (Facilitators) provide us with an insight into the drivers' understanding of what factors *they think* influence their decision to take the training at the current moment. These data are valuable because they allow us to pull the levers of behavioural change that drivers are explicitly aware of. However, it is also possible for us to model the data to predict their stated likelihood to register for the training course, as reported in Section 3.2.1, to identify which factors statistically contribute to their decisions-making.

Two models were created. The first was a proportional odds logistic regression using demographics (age, gender, years since

Table 4

The percentage of respondents who rated 26 driving tasks as either requiring ‘none’, ‘some’, or ‘a lot’ of improvement. Comparable data from the Cohort II dataset (Wells et al., 2008) are provided for the 20 items that were common across both studies. ‘Total improvement’ percentages refer to the sum of all respondents who reported ‘some’ or ‘a lot’ of improvement is needed, which allows direct comparison with the percentages recorded in the Cohort II dataset.

	Self-perceived improvement required			Total Improvement needed	Cohort II data ¹
	None	Some	A lot		
Driving on snow or ice	15.6	55.5	28.7	84.3	73.4
Driving electrical vehicles	28.3	44.3	27.2	71.5	n/a
Driving in thick fog	30.8	55.0	14.1	69.1	58.3
Using Advances Driver Assistance Systems	32.6	43.9	23.3	67.3	n/a
Parking	35.2	47.1	17.5	64.6	50.3
Vehicle safety checks	35.4	45.7	18.8	64.5	n/a
Driving in heavy rain	44.9	44.9	10.1	55.0	34.6
Reversing	50.4	38.8	10.6	49.4	43.5
Environmentally-aware driving	55.1	35.8	9.0	44.8	n/a
Driving in the dark	56.6	34.0	9.3	43.2	23.9
Overtaking	58.4	33.3	8.1	41.4	37.0
Judging what other drivers are going to do	59.8	34.3	5.8	40.1	43.4
Driving on country roads	60.2	32.7	6.9	39.6	27.2
Joining with moving traffic on a motorway or fast dual carriageway	63.1	27.9	8.8	36.7	33.7
Changing lanes on a motorway or fast dual carriageway	69.8	22.9	7.2	30.1	28.8
Using roundabouts	72.1	21.3	6.5	27.8	20.0
Driving in heavy traffic	67.0	28.2	4.7	32.9	28.1
Reducing risk-taking impulses	69.3	27.2	3.3	30.5	n/a
Use of car controls	69.8	27.3	2.8	30.1	16.3
Judging speed of other traffic	71.5	25.3	3.0	28.3	29.6
Spotting hazards	71.8	26.0	2.1	28.0	33.9
Driving on high speed roads	73.8	21.7	4.4	26.1	26.1
Pulling out of junctions	75.1	21.8	2.9	24.7	17.6
Consideration for other road users	78.3	20.2	1.4	21.5	n/a
Knowing what speed is safe	82.9	15.7	1.2	17.0	19.7
Turning right	89.9	9.0	1.0	9.9	13.3

¹ Source: Wells et al., 2008.

passing the driving test, etc.; Table 2) and the 12 barriers (‘reasons not to register’; no need for training, too busy, etc.; Table 3). The criterion variable was how likely respondents reported that they were to take up the offer of our free training ‘at the moment’.

Of the demographic variables, only annual mileage played a significant role in predicting likelihood to take up the course, with respondents that drove more being more likely to enrol. Several barriers were found to be significant predictors (Table 2). Respondents who would ‘rather do something else with their time’ and ‘do not feel that they need additional training’ were less likely to enrol ‘at the moment’. While ‘driving lessons are for learner drivers’ and ‘I’m uncomfortable going in a car because of COVID’ were not agreed with by most drivers in section 3.2.4 (Fig. 5), they are significant predictors of enrolment in the current model. In a surprising twist, agreement with ‘If it’s free, what’s the catch?’ was found to be a *positive* predictor of likelihood to enrol in the training course. This unexpected result will be returned to in the discussion.

The second model was another proportional odds logistic regression with demographics and our eight incentives (Section 3.2.5) used as predictors (Table 3). The reputation of the training company was a significant predictor in willingness to register for the course. To a lesser extent, a need to understand why the course is offered for free was also important and related to greater likelihood to engage with the training course. Two demographic factors also emerged as significant: drivers with greater experience were *less* willing to take the course, but older drivers were *more* willing to take the course.

3.4. What do young drivers want to be trained in?

Despite on-road training being rated as the most appealing, two thirds of our respondents did not want to register for the course (Fig. 2). This is almost identical to the number of our respondents who thought that they did not need additional training (Fig. 5). It is possible however that our sample might be more open to training if it focused on specific issues that they feel they need training in. Accordingly, we asked which of their driving skills, if any, they felt could benefit from improvement.

As can be seen in Table 4, young drivers most want to improve their skills for driving on snow or ice, and to a lesser extent in thick fog, and in heavy rain (taking the first, third and eighth spots in the list). The second and fourth most reported training needs were regarding driving electric vehicles and using Advanced Driver Assistance Systems (ADAS). Training in vehicle safety checks also scored highly. Of the more ‘traditional’ driving skills, improvement in special manoeuvres like parking and reversing was most desired.

4. Discussion

This study was designed to assess young drivers’ willingness to engage in a hypothetical post-licensure training course based on one that was provided by a local Road Safety Partnership in the UK, and explore their perceived barriers and facilitators to engagement.

Following poor uptake of drivers on the real version of this course, it was hoped that the current study might offer suggestions on how to improve uptake of similar courses in the future.

4.1. Why did drivers not want to do the course?

Most people display the illusion of superiority when asked how good a driver they are, and this has a negative impact on their willingness to engage in post-licence training (Molina et al., 2013). In our sample, 85 % agreed that they were a good driver, with obvious ramifications for course registration. This problem is compounded by the fact that both ‘fast’ and ‘safe’ drivers class themselves as ‘good’ (though for clearly different reasons), which means that training may not be considered necessary by most drivers in this age group. It may be particularly difficult to persuade self-reported ‘fast’ drivers to engage with training, as a negative relationship between ‘fast’ and ‘safe’ ratings (controlling for ‘good’) suggests that these drivers know their penchant for fast driving is not safe but choose to behave in that way regardless.

When asked directly if they would register for our training course, only 32 % of our sample were ‘somewhat’ or ‘extremely’ likely to do so ‘at the moment’ (N = 231). This is a disappointing number given that the course is free, and is in stark contrast to the 81 % reported by Kinnear et al. (2011). As our sample were only registering for a hypothetical course, we might expect the registration rate on a real course to be even lower.

Willingness to engage in training was higher when drivers were asked to consider registering for the course ‘in the future’, rising to 48 %. This provides a more valid comparison to that of Kinnear et al., (2011) who also asked their respondents about *future* engagement, yet this figure still falls far from their engagement numbers. The difference between *future* and *present* engagement supports the Construal-level theory which argues that encoding for events that are temporally separated from the present encourages more abstract encoding. We predicted that this might make future benefits more salient than future costs, which could result in optimism about future time pressures and obligations (e.g., ‘future bias’, Latham et al., 2021). The increased *future* engagement supports this hypothesis. As Construal-level theory should apply in both temporal directions, we also predicted that engagement should be higher when considering a past period relative to the present. This was also found, again supporting Construal-level theory as an interpretation of the results. It is possible that the negative impacts of stress on memory formation may contribute to this effect by impacting our recollection for how busy we were in the recent past, providing a level of retrospective availability that, in truth, was not available (e.g., Quaedflieg and Schwabe, 2018). Alternatively, it is possible that our young drivers genuinely had more available time in the past but were facing increased levels of demand at the time of the study, such as college exams or the stress of a new job.

One possible explanation for the overall low engagement ratings is that the course may have only appealed to those drivers who reported having been involved in a collision. The 32 % who said they were likely to sign-up ‘at the moment’ may have overlapped considerably with the 30.4 % of our sample who had been involved in a crash. If all our crash-involved drivers chose to attend our course (but very few of the crash-free drivers wanted to register), at least the course would be targeting the minority of drivers who need it most. Unfortunately, the failure of crash involvement to predict course engagement in our regression models argues against this.

The significant reasons to reject the course were identified via a proportional odds logistic regression. These key barriers to uptake included the desire to do something else with their time (socialising with friends is likely to be of high value to these drivers), and that they do not perceive the need for training, with driving lessons being only for learners. These drivers have passed an important stage in life (gaining their licence) and possibly feel that to accept training would undermine that achievement.

One of the surprising reasons that rated highly in Fig. 5 was concern over whether the offer of a *free* course involved a ‘catch’. While some research has demonstrated that zero-pricing can improve demand (e.g., Shampanier et al., 2007), there is also acknowledgement that a zero price can have a ‘boomerang effect’ whereby demand is reduced when incidental costs are relatively high (Fan et al., 2022). However, with the proliferation of online click-bait stories, phishing scams, and the collection and sale of personal details, it was possible that the zero-price might foster suspicion. Surprisingly, the regression model found that concern over a ‘possible catch’ was *positively related* to willingness to register on the course (i.e., those drivers who were more concerned with a ‘catch’ were also those more willing to register). This latter finding may reflect the fact that the ‘catch’ question was asked *after* they had already given their willingness-to-register rating. It is possible that these drivers did not consider that there might be ‘a catch’, until they were made aware of it via the question. Having already indicated willingness to register, this question may have evoked greater concern in these drivers as they realise that they may have been naïve in accepting a free course so readily.

The final significant barrier to uptake was ‘I don’t know whether the course is any good’. This view suggests that our respondents were viewing the course as a customer, even though it was being offered for free. Unfortunately, even a ‘free’ course entails costs, in terms of both transport in attending the course, and the social cost of missing out on other activities. As such, the respondents need to know whether the quality of the course will be worth the costs they must cover to attend. Course providers should never forget the hidden costs to clients of ‘free’ courses, and we recommend that advertising should include explicit descriptions of the specific benefits that drivers will receive from the training.

4.2. What will make drivers more likely to take the course?

The most highly rated item that would encourage drivers to take the course was the reputation of the training company. Eighty-six per cent of drivers reported agreement with this, and it came out as a strong positive predictor in the regression analysis. Unfortunately, young drivers in the UK will have little awareness of post-licence training providers in the UK, unless these providers also have a presence in the learner driver training market. For these ‘unknown’ companies, it may be beneficial to advertise the pedigree of work

that the company has been involved in previously (e.g., “This course is brought to you by the leading UK company for professional driver training.”).

Another reason that significantly predicts willingness to register was ‘an understanding of why the course is offered for free’. To offset suspicion of a potential catch (as noted in the previous subsection) it would be relatively easy to include a positive narrative to dispel concerns. For instance, if a course is being funded by a charity with the aim of reducing road fatalities, providing this information may dispel any suspicions about the course.

Prizes were also rated highly as encouragements to enter (Fig. 4), though a sizable minority thought that registration was sufficient to be in with a chance of winning the prize (i.e., that they would not then have to attend the actual training). This undermines the effectiveness of the prize and needs to be made clear to potential trainees in all advertisements of lottery-based incentives. Respondents tended to favour the shopping voucher prize rather than the go-karting session, which may have reflected the reasons that drivers would be interested in driver training. For instance, anxious drivers may be attracted to the training course, but their anxiety may preclude interest in the go-karting prize.

Despite the interest in the prizes, they did not feature as a significant predictor in the regression model. This is possibly explained by respondents’ belief that they were unlikely to win a prize. Anticipation of winning is based on an understanding of the size of the pool of potential winners. The aim of the corresponding real world training course was to recruit 400 young drivers, providing trainees with a 1 in 400 chance of winning a £200 voucher or go-karting session. By comparison, the chances of winning £140 in the UK Lotto (matching 4 numbers) is 1 in 2,180. Thus, the chances of winning this prize on the real course was more than 5x greater than winning a prize of lower value in the UK lottery draw.

Admittedly, it is unlikely that many people will make precise calculations when determining their likelihood of winning. Instead, they will use implicit heuristics, or rules-of-thumb, to gauge their chances. If drivers were aware of a limit on trainee numbers (i.e., delineating the pool of trainees from which the winner will be drawn), this may have changed their ‘gut-feeling’ about their likelihood of winning, and thus encouraged registration. Thus, we recommend providing potential trainees with rudimentary statistics to help them understand their chances of winning. By making drivers aware of recruitment limits, this may also help explain why the course is free (i.e., it is only free to a limited number of people or for a limited time).

One final consideration in improving take-up of future courses is to offer what the drivers want (or at least to combine what *they* want to learn with what *we* think they should be taught). Our drivers’ self-identified training needs primarily focused on things they had little experience of. These included driving in specific conditions (snow and ice, fog, rain, darkness), use of more recent technology (electric vehicles, advanced driver assistance systems), and driving on roads that they might seldom use (e.g., motorways). Unfortunately, weather-related training needs do not transfer easily to on-road training courses (and such training can produce mixed outcomes, e.g., Katila et al., 2004). It is impossible to guarantee what weather will occur during on-road training, while driving in the dark either restricts training to autumn and winter months or requires training to occur in the evenings. It is far easier to provide online training using videos and animations to deliver training in infrequent weather conditions or darkness. This was reflected in the respondents’ preferences for different aspects of our course: Although on-road training was the favoured component, the second favourite was the e-module on limited visibility driving (in bad weather and at night).

Technological training is also difficult to do on-road if the training course requires the trainee to use their own car. The likelihood is that these drivers want training on new technology because they do not currently have access to them. In such cases, online video or even simulation training might be better. Alternatively, on-road training could be provided in instructors’ vehicles (just as all learner driver instruction is done in the UK). This would allow trainees to access the most current technology in a real-world setting, while having the safety net of dual controls in case they make an error. This could create an aspirational mind set in young drivers who would then be more likely to seek out ADAS or electric cars when next changing their vehicle. While there is a lack of consistency across car manufacturers in how they implement new technology, an opportunity to try these systems on real roads while under supervision could provide an excellent grounding in ADAS and electric cars.

Some of the more traditional driving skills were also identified as requiring improvement by our drivers (parking, reversing), though the key skills linked to serious collisions (e.g., navigating junctions, spotting hazards, safe speeds) did not rank highly as training needs. However, the current study offers an important mechanism by which we can impart training on these crucial (but unwanted) skills: sugar coating the safety pill with technology training. By offering training in, for instance, ADAS we can better attract drivers to a course. However, as part of that ADAS introductory course, we can also impart key safety advice. For instance, when training drivers to use Adaptive Cruise Control (a system which will speed up or slow down your vehicle according to proximity to vehicles ahead, in reference to a desired speed that you have set), this provides an excellent opportunity to discuss safe headways and to compare what the system thinks is a safe headway to what the driver thinks.

4.3. Strengths and limitations

There are very few studies that address driver’s willingness to voluntarily engage in post-licence training, yet such considerations are crucial considering the financial investment that many local authorities and road safety organisations put into developing courses that may miss their target market. Improving our understanding of voluntary engagement is especially important in countries such as the UK where the Government has yet to adopt a Graduated Driver Licencing system. This study is one of those few that address this issue. Furthermore, we have identified key training needs (ADAS, electric vehicles) that can be used as an intrinsic motivator to encourage training engagement, while allowing road safety experts to impart more safety-oriented training at the same time.

One of the key limitations of the study, is that data were collected not long after the UK had emerged from the COVID pandemic. While COVID concerns did not feature highly in our list of barriers, nearly one quarter of our respondents reported some level of

Table 5
Significant predictions of respondents' likelihood of enrolling 'at the moment' taken from the demographics and 'incentives to enrol'.

Problem	Solution
Drivers do not believe they need training	<ul style="list-style-type: none"> • Highlight training opportunities that they are likely to want (e.g., night driving, ADAS use). • Do not say they are unsafe. They will not believe you (due to the illusion of superiority), and it may devalue the training in their view. • Challenge them to understand 'What makes a good driver?' or perhaps ask, 'Are you a good driver?' Drivers with high self-confidence may consider enrolling to demonstrate their prowess.
Drivers are unsure of the course quality or training provider	<ul style="list-style-type: none"> • Where possible, use a training brand that the target audience is aware of. • Provide evidence that the training brand reflects high quality • Young people are particularly sensitive to online ratings. If such ratings scores exist, quote them to support the brand (Helversen, et al., 2018)
The relationship between prizes and engagement is not straightforward	<ul style="list-style-type: none"> • Ensure that drivers are aware that participation in the full course is required to make them eligible to win a prize. • Make prizes inclusive. A Go-karting prize will appeal to fewer people than a shopping voucher. For instance, any drivers who want to seek training for anxiety reasons are unlikely to be motivated by a go-karting prize. • Smaller prizes given to more people may be a better incentive than a large prize which most people believe they will not win. • A certificate of participation is a very cheap way to add value and incentivise the training.
Drivers may be concerned at why the course is offered for free	<ul style="list-style-type: none"> • Explain why the course is free, who is funding it, and why. • Assure drivers that their data will not be used for other purposes. • Smaller prizes given to more people may be a better incentive than a large prize which most people believe they will not win.
Pandemics can interfere with recruitment of trainees	<ul style="list-style-type: none"> • Address the pandemic in the advertising, and assure driver that health and safety protocols will be followed • Advertise the training as an opportunity to regain driving confidence following periods of enforced driving abstinence due to lockdowns.

associated anxiety. As the pandemic recedes into recent history, it would be useful repeat the study to see whether engagement rates improve. A further limitation is that we did not consider insurance premium discounts as a potential facilitator. The real course that we modelled this study on would never bestow an insurance discount on trainees as it was a local course without national accreditation, and even the national Pass Plus course does not guarantee an insurance discount. Nonetheless, in hindsight it would have been useful to see where an insurance premium discount would have ranked in the list of facilitators.

4.4. Conclusions and recommendations

The overwhelming conclusion is that many young drivers do not want post-licensure training. They do not think they need it, and they would rather do something else with their time. COVID played a small role in their willingness to register for 'free' training, but there is a selection of interrelated factors that act as barriers to engagement. Fortunately, the results reported here provide clear directions for improving the young driver engagement with similar training courses. By following the recommendations contained in [Table 5](#), we are confident that future courses will significantly improve their reach and subsequent impact.

CRedit authorship contribution statement

David Crundall: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Conceptualization. **Editha van Loon:** Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Data curation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

We have included a link to a project-specific site in the NTU data repository (but have still to upload the data)

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