

Safer Driver App Trial

**Decreasing mobile phone
distraction behind the wheel**



For the better

Inattention, be it deliberate or not, is a significant cause of road trauma - in fact, it was reported as being the primary contributing factor in 17 per cent¹ of fatalities on WA roads in 2021. We want to help reduce mobile phone distraction behind the wheel to save lives and serious injuries on our roads. So, we embarked on a trial to explore if our mobile phones could be transformed into a tool to tackle the distraction they can create. And we found that they can.

Overview

To raise awareness about the devastating consequences of driver inattention, in 2013, RAC launched the world's first [Attention Powered Car](#) to learn about how a distracted brain impacts our driving ability. And, in 2018, we delivered the [Look Up campaign](#), which encouraged drivers to put away their phones and focus on what's most important - driving safely.

In early 2021, we decided to explore a new opportunity to help drivers better understand and reduce the risk of mobile phone distraction. In partnership with Sentiance, an intelligence-driven data science and behaviour change company, we developed and tested a mobile phone app called Safer Driver. The Safer Driver app uses evidence-based research and proven behavioural change techniques to coach people to reduce their mobile phone use while driving.

RAC members and non-members were invited to participate in the trial and the results show that Safer Driver is an effective behavioural change tool, with users who received coaching demonstrating a statistically significant decrease in mobile phone use when compared to participants given a control version of the app. Through the trial, we have gained valuable data insights and feedback which has helped us understand how the community engages with an educational tool of this nature. This knowledge will be used to further inform RAC's work to reduce the number of people killed and seriously injured on our roads.

Why did we do the trial?

Research has shown you are about four times more likely to end up in hospital following a crash where you were using your phone. Distracted driving is more than just the illegal act of holding or touching your phone. Even legal acts such as using hands-free (e.g. Bluetooth) devices have been shown to increase the risk of having a serious crash².

Despite the risks, an RAC survey has shown four in five Western Australians admit to using their mobile phone while in control of a vehicle at least sometimes³.

What was the Safer Driver app?

The app included several scientifically proven behavioural change techniques such as:

- » self-monitoring;
- » knowledge;
- » information about consequences;
- » comparison of behaviour;
- » action planning; and
- » habit formation.

Using Sentiance's platform, the app detected and collected data on three types of phone use and recorded their duration:

- » no call handling (manually using the phone and/or touching the screen);
- » hand-held calling (call with manual handling); and
- » hands-free calling (no physical handling of the device or touching the screen after answering).

Based on these insights, the app provided feedback on a user's phone distractions in the car (e.g. by mapping the journey and showing moments of mobile phone use and a progress dashboard), and shared facts and tips about the risks of distracted driving (Figure 1). Based on the frequency and duration of phone use, the app set and asked users to accept personalised driving challenges of increasing difficulty (e.g. number of trips or kilometres travelled without using their phone), to continuously motivate participants to reduce their phone use. Only once a user had finished a trip that resulted in them successfully completing a challenge were they able to accept the next one. No challenges were set to be given, or information shared, with users via the app during a trip.

¹ Inattention is difficult to identify after a crash has occurred, and therefore is often underreported as a contributing factor. Tragically, inattention is likely to have impacted the lives of many more.

² McEvoy, S., Stevenson, M., McCartt, A., Woodward, M., Haworth, C., Palmara, P., Cercarelli, R. (2005). *Role of mobile phones in motor vehicle crashes resulting in hospital attendance: a case-crossover study*. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1188107/>

³ RAC. (2019). *Mobile phone distraction survey*. Retrieved from: <https://rac.com.au/about-rac/advocating-change/reports>

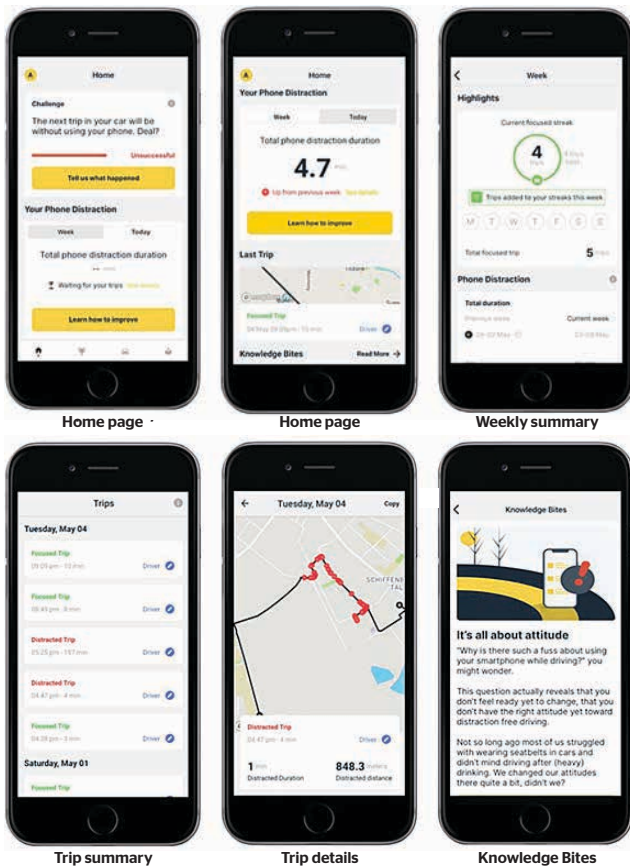


Figure 1 Screenshots of the Safer Driver app.

What did the trial involve?

The trial ran for approximately three months from May to August 2021, with both RAC members and non-members participating. Member participants were recruited predominantly through a targeted email to a sample of members who receive our regular member update emails and/or are registered for 'RAC Opinion', which is a community of members who have signed up to participate in RAC research. Facebook posts were used to share the opportunity with the broader WA community.

Participants were assigned to either an intervention group or a control group. Participants in the intervention group using the Safer Driver app received several challenges and in-app informational messages⁴ to raise awareness of the risks associated with phone use while driving, as well as feedback on their phone usage and progress (individual trips, daily and weekly updates). To encourage positive behaviour change, they also received useful and practical coaching tips about how to reduce their phone use behind the wheel.

A control version of the app was also developed for use by the control group to enable us to test the effectiveness of the Safer Driver app. This app version only mapped their journeys (origin-destination) and did not provide any feedback on their phone use, educational information, or coaching (Figure 2). After 30 days, the control group participants then had access to the Safer Driver app, so they too could benefit from the educational and coaching components.

Overall:

- » 1,006 people⁵ took part in a pre-trial survey to tell us about their attitudes, intentions and current behaviour when it comes to mobile phone use behind the wheel.
- » 814 people downloaded and used the app during the trial period⁶. Through randomisation, 70 per cent were assigned to the Safer Driver (intervention) app and 30 per cent to the control app.
- > The age and gender of participants in the intervention and control groups did not differ significantly. Almost 60 per cent of participants in both groups were 50 years old or over⁷; while the gender distribution in the control group was equal, just over half of users in the intervention group identified as female⁸.
- » 491 participants⁹ took part in a post-trial survey to share their experiences, views on the app's impact, and suggestions for improvement.

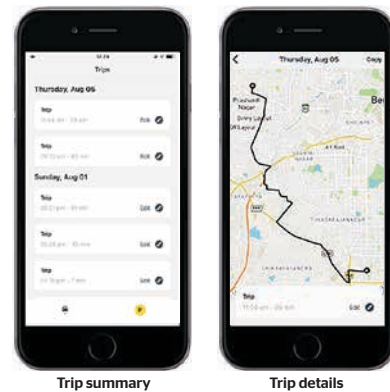


Figure 2 Screenshots of the control app.

How did we evaluate the Safer Driver app?

In addition to educating and helping people reduce their mobile phone use, we wanted to understand the app's impact on attitudes, intentions and behaviours. We did this through quantitative analysis (data and numbers) and qualitative analysis (subjective characteristics and opinions – or things that cannot be expressed as a number).

To measure the change in distraction, we used what was called the 'relative distraction score'. This score was the total distraction duration (considering all occurrences of no call handling, hand-held calling and hands-free calling) over the course of a trip, divided by the overall trip duration. So, the proportion of a trip participants were distracted by their phone.

⁴ The app was programmed to send messages only when the participant was not in a moving vehicle.

⁵ 806 from the Perth and Peel region, 198 from regional WA and 2 from outside of WA, who registered their interest to participate in the Safer Driver app trial. 63.6 per cent were 50 years old or over (51.8 per cent were 55 years old or over); 50.1 per cent identified as male, 49.3 per cent as female, and remainder of respondents indicated they would prefer not to say or would prefer to self-describe. The survey responses have not been weighted. The results include all pre-trial survey responses, including responses from those who may not have participated in the trial.

⁶ Upon registering their interest, users provided consent for their details and survey results to be provided to Sentiance for the purpose of the trial. Upon downloading and registering an account within the app, users provided consent for the data generated in the trial to be transferred to RAC.

⁷ A sizeable portion were 55 years old or over (44.1 per cent in the control group and 43.5 per cent in the intervention group). Participants in this age group were over-represented compared to the WA population. As at 30 June 2021, those aged 55 and over made up approximately 27.4 per cent of the WA population.

⁸ 46.8 per cent identified as male and 52.6 per cent as female. The remainder of app participants indicated they would prefer not to say or would prefer to self-describe.

⁹ 359 from the Perth and Peel region, 73 from regional WA and 2 from outside of WA who installed and registered a user account in either the Safer Driver intervention or control group app. 55.4 per cent were 50 years old or over (43 per cent were 55 years old or over); respondents were not asked to indicate their identified gender. The survey responses have not been weighted. The results only include responses from those who participated in the Safer Driver app trial.

To evaluate the effectiveness of the app, we compared the reductions in mobile phone distraction for the Safer Driver group to the control group at weeks one and four for each participant that was included in the analysis.

Certain criteria had to be met for a participant to be included within the analysis. These were based on minimum: levels of distraction at commencement of the trial; number of car trips (during the time points analysed – weeks one and four); and engagement with the app. We needed to be selective about who was included in the analysis, particularly about a participant's level of mobile phone use at the beginning of the trial. If a participant did not use their phone much while driving before the trial, or if they did not engage with the app, we would not be able to see if any reduction in phone use could be attributed to them having used the Safer Driver app. We also needed to have data from a minimum number of trips, so we had an accurate picture of a participant's mobile phone use while driving.

After these criteria were applied, 182 participants who used the Safer Driver app and 86 who used the control app were included in the full behaviour change analysis, but we still got invaluable insights from all participants.

To understand engagement with the app, we looked at how long it was used for, how frequently individual tabs were opened, and participation in the challenges. We did this for all users allocated to the Safer Driver app, not just the 182 participants who were included in the full analysis.

To understand the *perceived* effectiveness of the app and participants' attitudes, intentions, motivations, and self-reported behaviours, we conducted pre and post-trial surveys and collected feedback through the app and via a dedicated email account.

What were the key findings?

We found:

- » Around three quarters of users who received coaching reduced their phone use over time.
- » One in two users who received coaching reduced their distraction by 57 per cent or more.
- » Users opened the app content the same or following day after a third of their trips.
- » 75 per cent of participants accepted at least one focused driving challenge.
- » Two thirds of participants agreed that the app motivated them to reduce their phone use while driving.

Did the Safer Driver app reduce mobile phone use while driving?

Yes! Seventy-three per cent of users who received coaching and were included in the final analysis showed some degree of improvement over time.

A statistically significant decrease in the relative distraction score was achieved for the Safer Driver group compared to the control group.

While users in the Safer Driver group and the control group had similar levels of phone use at the beginning of the trial, users in the Safer Driver group used their phones much less than the control group by the end of the trial. In fact, half of the users who received coaching through the Safer Driver app reduced their distraction by 57 per cent or more¹⁰.

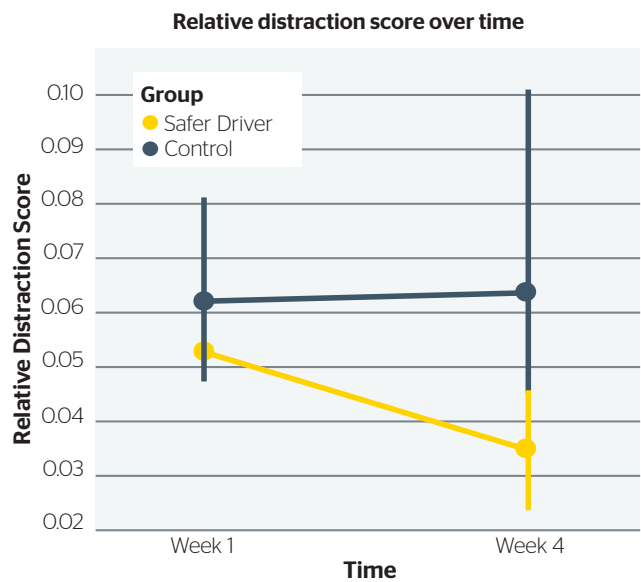


Figure 3 The median (middle) relative distraction score for each group at weeks one and week four.

Did people interact with the Safer Driver app?

Yes! Safer Driver users engaged with the app 34 per cent of the time, either the same or next day after they had a car trip – in other words, they checked their app the same or following day after a third of their trips. We also found that 75 per cent of participants accepted at least one focused driving challenge (over the 30-day analysis, more than 1,700 challenges were accepted).

¹⁰ Based on the median percentage of change in distraction score. Those aged 50-59 years old showed the highest level of median change (65 per cent), whereas those aged 60 years old or over showed the lowest level of median change (44 per cent).

Sixty per cent of those in the Safer Driver group continued to engage with the app after the first 30 days (Figure 4). The overall level of engagement in the Safer Driver group rose during the first two weeks of the trial, reaching above 80 per cent (users that used the app at least once that week) before it began to steadily decline. This was expected, as the app was developed based on a 30-day trial and did not provide new coaching content after a while (it was only designed as a minimum viable product for the purposes of the trial).

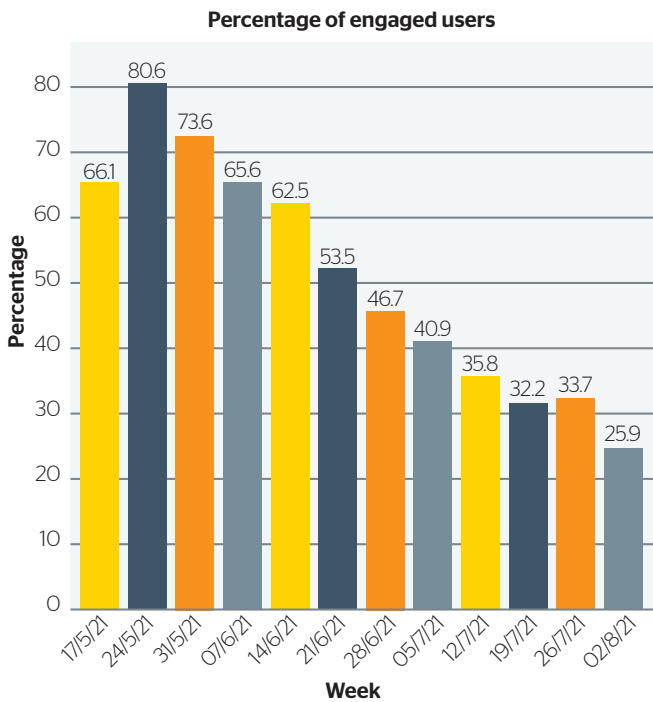


Figure 4 Percentage of weekly Safer Driver app engagement.

We also gathered feedback from participants throughout the course of the trial via the 'Give Feedback' function within the app. The most common type of feedback received was related to the app falsely detecting a distracted event, incorrectly detecting trip trajectory, or not detecting a trip at all. Based on this feedback, minor upgrades were made to the app during the trial to improve user experience and the app's accuracy (e.g. bug-fixes and adding the ability to correct false detections or indicate that the user was not the driver).

We also asked respondents to indicate how accurate they thought the app was in the post-trial survey. Overall, respondents said the app was generally accurate¹¹ at detecting: car trips (e.g. start/end, route taken) (82 per cent said it was accurate); location of distractions (62 per cent); duration of distractions (60 per cent); and focused or distracted trips (56 per cent).

Did the app change users attitudes and self-reported behaviour?

Yes! Around 90 per cent said that they were able to achieve what they had joined the trial to do (e.g. become a safer driver, reduce their phone use behind the wheel, learn about RAC initiatives, and/or test new technology). Sixty-one per cent agreed¹² they would recommend an app like Safer Driver to others, and 47 per cent agreed they would use an app like it long-term.

Results from the post-trial survey showed that participants agreed participating: motivated them to reduce their mobile phone use while driving (or continue to not use it) (67 per cent); helped them form/maintain focused driving habits (61 per cent); and gave them a better understanding of the risks associated with mobile phone use while driving (59 per cent).

When comparing the attitudes of the respondents in the pre-trial and post-trial surveys, when asked how risky¹³ it was to engage with your phone while driving (including when stopped at lights), after participating, respondents thought it was riskier to check or read a message (92 per cent post-trial vs 84 per cent pre-trial) and make a hand-held call (91 per cent vs 86 per cent). While the pre and post-trial results were similar, there was a slight increase in the proportion of people who said it was risky to send a message (93 per cent vs 91 per cent) and make a hands-free call (28 per cent vs 27 per cent).

Participants said they were more likely to never use their phone while driving (including while stopped at traffic lights) to make a hand-held call (92 per cent post-trial vs 86 per cent pre-trial); send a message (87 per cent vs 79 per cent); and check or read a message (76 per cent vs 62 per cent). There was also a small increase in the proportion of people who said they never make a hands-free call while driving, including when stopped at lights (27 per cent vs 25 per cent).

While 48 per cent said they rarely or never used their phone anyway, after participating, 43 per cent said they stopped/reduced their phone use (27 per cent said they have stuck with it so far and 16 per cent said they sometimes fall back into past habits).

¹¹ Respondents who said the app was moderately, very or extremely accurate.

¹² Respondents who agreed or strongly agreed with the statement.

¹³ Respondents who said the behaviour was very or extremely risky.

Moving forward

To reduce the unacceptable impact of road trauma in WA, RAC advocates and supports the Safe System approach, which seeks safe road users, safe speeds, safe vehicles, safe roads, and post-crash care.

Road user education and the development of driving skills are critical to making the road network safer, and all of us have a responsibility to ensure we use our roads safely and legally.

The mission of our Safer Driver app trial was to explore its potential to reduce mobile phone use behind the wheel. The evaluation showed that the Safer Driver app is an effective behaviour change tool, with users who received coaching showing a statistically significant decrease in mobile phone use compared to the control group.

This trial has enriched our understanding of the potential for digital coaching apps to help people develop safer driving practices. With this knowledge, we will continue to advocate for and explore innovative ways to encourage, educate and support the community in making positive changes to their behaviour, and ultimately save lives and prevent serious injuries on our roads.

About RAC

RAC is a purpose-led member organisation and we act as a voice for our 1.2 million members. We have been putting our members and community interests first, and acting, influencing and advocating for positive change towards a better WA for 117 years.

Our purpose

The driving force for a better WA.

Our vision

2030: A safer, sustainable and connected future for Western Australians.

Our mission

Delivering great member services and experiences, while inspiring positive community change that makes life better in WA.



For further information please contact
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