Does Video Game Driving Translate to Real-World Skills?

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 Evidence is mounting that playing video games may be one way for people to sharpen a number of cognitive skills.

One recent study found that older adults could significantly improve their ability to multi-task after playing a specially designed driving video game called NeuroRacer. Another study from researchers at the University of Rochester found that playing action-packed video games improved people's ability to make quick decisions and ignore distractions.

But can hours spent hunched over a controller translate to real skills on the road?

In a recent study, psychological scientists Maria Rita Ciceri and Daniele Ruscio of the Catholic University of the Sacred Heart in Milan compared the driving skills of avid gamers and experienced motorists to see whether commercially available racing games might help train players to look ahead for hazards.

The researchers were particularly interested in whether video games trained non-drivers to use the same kinds of visual search techniques that help experienced drivers avoid danger on the road. Previous research has shown that novice drivers tend keep their eyes narrowly focused on the road directly in front of them, while more experienced drivers scan all around the road and far up ahead for potential hazards.

Looking ahead for danger and scanning the sides of the road is a skill that drivers tend to develop after hundreds of hours of real world driving practice. Ciceri and Ruscio hypothesized that after hours of "driving practice" trying to get that new high score, gamers might be developing these same visual search techniques.

The researchers recruited 40 dedicated male video game enthusiasts; each participant averaged about

10-15 hours per week of realistic racing video game playing. Half of the gamers had at least 5 years of on-the-road driving experience, while the other half had no real-world driving experience at all.

In the lab, participants were seated with a steering wheel and pedals and asked to follow along with a series of driving videos as if they were really driving the car. One video featured road interactions recorded from real driving in an urban area near the city of Milan, Italy. The other video included the same road interactions recorded from the video game *Crash Time II*.

Unbeknownst to the participants, an eye-tracking monitor recorded where they were looking during the video experiment. The researchers were particularly interested in seeing how much attention non-drivers and experienced drivers paid to key safety spots, like rearview mirrors, intersections, and stop signs.

Even after hours of "practice" driving in video games, non-drivers showed the same limited visual search that is typical of other inexperienced drivers. Experienced drivers checked key safety areas far more often and for significantly longer than non-driving gamers did.

"Unlike experienced drivers, gamers' virtual driving attention is focused on only a few elements of the driving scene for only a short amount of time, and every scene is approached in the same way, without any evident differentiation in levels of attention," Ciceri and Ruscio write in the journal *Transportation Research Part F*.

The map of eye-tracking data from non-driving gamers showed that they focused almost entirely on what was directly in front of them, whereas data from experienced drivers' eyes swept back and forth, monitoring the whole streetscape.

Even when viewing the video game driving scenario, experienced drivers maintained their distinctive visual search style of continuously searching out potential threats as though they were driving in real traffic.

"Gamers without driving experience replicated the same patterns in a real road scenario, ignoring road signs and potential areas of interactions with other drivers, while experienced driver gamers explored video game roads like real roads," Ciceri and Ruscio conclude.

However, just because there were differences in where subjects looked in the experiment does not necessarily mean that there will be behavioral differences out on the road.

Additionally, the fact that the experienced drivers in the study tended to be older than the non-drivers could have impacted the results, as drivers in their twenties tend to show much safer behavior compared to teen drivers. Ciceri and Ruscio suggest that future research could compare driving skills between avid gamers and non-gamers to see if regular gameplay imparts any advantages in learning to drive.

Reference

Ciceri, M. R., & Ruscio, D. (2014). Does driving experience in video games count? Hazard anticipation

and visual exploration of male gamers as function of driving experience. *Transportation Research Part F: Traffic Psychology and Behaviour*, 22, 76-85. doi:10.1016/j.trf.2013.11.001