

Study shows how virtual reality could train children to achieve adult pedestrian functioning

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Data from the Centers for Disease Control and Prevention reports that between 2012 and 2021, 922 American children ages 7 to 12 were killed

in a pedestrian crash. With road traffic injuries being the leading cause of death among children globally, it is vital to teach young people proper street-crossing skills to ensure they are prepared to safely, and confidently, navigate traffic on foot.

David Schwebel, Ph.D., associate vice president for Research Facilities and Infrastructure at the University of Alabama at Birmingham, developed an immersive [virtual reality](#) kiosk simulator and a smartphone mobile application to offer repeated street crossing practice and overcome ethical barriers of training children in live traffic.

Schwebel used this technology in his study to address two questions: How much training do children require to achieve adult street crossing competency? and what might help children acquire that competency earlier? The research is [published](#) in the *Journal of Safety Research*.

"Results from our study show that, on average, it took 10 sessions, or five hours of training, for the children to achieve mastery at adult levels of pedestrian behavior," said Schwebel, who is also the director of the UAB Youth Safety Lab in the College of Arts and Sciences. "There was no clear indication that traits some children may possess, like strong cognitive or perceptual skills, are essential to learning skills. Every single child learned."

The randomized trial studied 500 children ages 7 and 8. Participants attended 30-minute training sessions where they were randomly assigned to the kiosk simulator or the smartphone application, both of which presented a two-lane, bidirectional street. Participants were asked to decide when it was safe to cross the street, and both the kiosk and mobile application would give oral feedback on the safety of their decision.

With all measured variables taken together, the study showed the only

factor in achieving pedestrian skills faster was the child's age. Older children mastered pedestrian ability slightly faster than younger ones, but almost all children in the study achieved adult pedestrian abilities.

Health organizations have previously stated that children should remain supervised in pedestrian scenarios until age 10, but Schwebel says that that age could be lower with proper training.

"Our findings suggest children can learn to cross streets safely—at least the basic two-lane crossing we tested—at a younger age," Schwebel said. "Children's minds are developing, and their brains have the capacity to learn the rather complex cognitive-perceptual task of judging traffic by age 7.

"This is important because it means we might train children at an earlier age and protect them from risks when they walk to school or walk to play with friends in their neighborhood."

Parents can help their 7- and 8-year-olds learn proper pedestrian safety by talking about safety concerns while crossing the street with children or when in [parking lots](#) together, practicing looking both ways and showing children how to look for traffic and judge the speed of oncoming cars.

Younger children can learn to press the crosswalk button when at an intersection. Virtual reality can be another great tool for children to learn pedestrian safety as they can cross streets repeatedly without any risk of being hurt.

"Technology is changing our world," Schwebel said. "We can use virtual reality to give children the practice they need to judge vehicles' speeds and distances and learn to choose when it is safe to enter a gap in [traffic](#) and cross the [street](#). It may feel like a futuristic or expensive tool; but we

can deliver it on a smartphone that is placed into a \$10 plastic holder, and that's enough to help children learn to cross streets safely."

Parents should continue to monitor their children and assess their skill level before allowing them in roadways unsupervised.

More information: David C. Schwebel et al, Child pedestrian safety training in virtual reality: How quickly do children achieve adult functioning and what individual differences impact learning efficiency?, *Journal of Safety Research* (2024). [DOI: 10.1016/j.jsr.2024.01.012](https://doi.org/10.1016/j.jsr.2024.01.012)

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