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***Modeling the validity and transfer of eye-scanning patterns for hazard perception from virtual reality training environments to reality***

Visual search skills for hazard perception are critical in many domains. They are used by pilots to maintain situation awareness, by doctors reviewing screen images to diagnose health disorders, and by security screeners inspecting for hazardous materials. They are also critical to a teen driver's ability to detect roadway hazards. For teen drivers, poor visual search skills can increase the risk for traffic crashes, which are the leading cause of death for teenagers nationwide. Training visual search skills depends, in part, on the representative nature of the hazardous scenarios. Many training programs use scenarios derived from sometimes decades-old analyses of police accident reports, police driving instructors' interviews and driving instructor questionnaires. The purpose of this research was to use crash databases -- the General Estimates System and the Fatality Accident Reporting System -- to determine whether the hazardous scenarios in recent research studies remain the most problematic, in terms of teen driver crashes. Crash data show the scenarios used for teen drivers generally reflect the estimated crashes in the United States but not fatal crashes. Modified scenarios that include speed limits of 35 mph and 55 mph, single-vehicle and two-vehicle crashes, and creating a fatal-crash scenario would address currently unrepresented teen crashes.