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Effectiveness of Driver Simulator as a Driving Education Tool

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The impact and validity of driving simulators as an educational tool in driving schools in the licensing process remains questioned in literature. Many driving schools utilize driving simulators as a tool to assist students to learn required skills faster. Few studies showed conflicting results whether utilizing driving simulator is effective in improving the quality of driving education process. The applications of driving simulators are not limited to the driver training and education. It can assist in identifying risky drivers for further training to improve risk perception. Driver training has two key aspects: vehicle control and safety knowledge. However, it is common for training courses to focus on vehicle control and priority rules while giving lower attention to safety and risk identification skills. In this regard, driving simulators can play an important role by providing an artificial environment in which students can experience potential risks while driving. In Qatar, the training process to get licensed typically covers basics of vehicle control and driving laws (road signs etc.). Advanced training courses such as defensive driving are also available for those who completed the normal training process and successfully received their license. Such advanced courses are usually limited to companies who require such training to their employees. This paper aims to investigate the effectiveness of driving simulators in driving education. A driving school in the State of Qatar utilizes advanced simulators in its training programme. This study looks at students who go through both simulator and non-simulator training tracks in the driving school. Novice students begin with a 10-hour theory course which mainly focuses on road signs and markings. Following their theory course, the students are required to complete a sign test. This is followed by 5 simulator training sessions of 20-minutes each for those registered in simulator track. The first session is for simulator adaptation and familiarization with the vehicle's controls. The student is required to drive slowly around a simple

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oval road; a few cars are added at the end of the session. The second session uses a more complex road network with intersections and roundabouts. The last three sessions use a virtual replica of a section of Doha. The third session is conducted with no cars on the road. Traffic is added in the fourth session. In the fifth simulation session, surrounding vehicles are designed to run with unexpected or even aggressive behaviors such as sudden lane changes, speeding and not giving right of way. At the end of the fifth session, the student is issued a performance report. After the simulator sessions, students start with the 40 hours of on the road training. The student is then required to do a parking test followed by a road test. The students are permitted to take their road tests after 20 hours of on the road training. Each student is allowed to fail up to 2 road tests before they are required to sign up for further courses. A random sample of student data was collected from both simulator training and non-simulator training tracks. All the students were first time learners with no previous license and who passed their road tests. Data collected include gender, age, nationality and number of road tests undertaken before they passed. The study aims to determine whether any of the collected variables have significant effect on the number of road tests attempted and passing driving test on first attempt. The factors tested are gender, ethnicity, age and whether on simulator or non-simulator lesson track. Furthermore, the study attempted to formulate a model that can predict the likelihood of passing the driving test on first attempt. This pilot study is expected to clarify the effectiveness of driving simulators as an educational tool and whether their utilization is justifiable. Acknowledgment: This publication was made possible by the NPRP award [NPRP 9-360-2-150] from the Qatar National Research Fund (a member of The Qatar Foundation). The statements made herein are solely the responsibility of the author[s].