

Hazard Perception in teenagers: an effectiveness study of a virtual riding trainer

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Abstract

The research is to assess how far a Honda Riding Trainer (HRT) simulator could improve hazard perception skills and awareness in teenagers. Previous studies have verified that participants performing a complete riding training show a clearly visible learning process and improvement in their performance in avoiding accidents significantly more than participants of the control group [12]. The aim of this research is to test whether different kinds of training yield the same improvement in avoiding accidents. Four hundred and thirteen participants were involved in the research. Participants were randomly assigned in either Experimental Group (EG, 207) or Control Group (CG, 203). The CG was composed the four CGs (CG1: 47 subjects; CG2: 50 subjects; CG3: 57 subjects; CG4: 49 subjects). A quasi-Solomon experimental design was implemented: participants of the EG performed a complete training composed by two tracks for the pre-test, eight tracks of training and two tracks for the post test. Different kinds of training were submitted to the four CGs. Results at post-test show a significantly lower performance in avoiding hazards of all the CGs compared to the EG.

Keywords – hazard perception, riding simulator, training riding simulator

1. Introduction

Young novice drivers are at greater risk of being involved in accidents than their older counterparts [1]. Research suggests that novice drivers' performance is lower to that of experienced drivers in different ways [2]. One of the most critical abilities related to accident avoidance by a novice driver is hazard perception defined by Crick and McKenna [3] as the ability to identify potentially dangerous traffic situations. Research suggests that novices perceive less holistically than experienced drivers [4] and detect hazards less quickly and efficiently [5]. hazard perception involves the subjective experience of risk related to potential traffic hazardous situations. This fundamental skill is known as risk perception. Research shows that risk perception is affected by two main factors: i) information regarding potential hazards in the traffic environment; and ii) information on the ability of the driver to prevent those potential hazards from being transformed into real accidents [6]. Some studies suggest that young drivers perceive lower levels of risk in specific traffic situations and see themselves as more able to deal with this situation than other drivers [7].