The Theoretical Framework for Designing Desktop Virtual Reality-Based Learning Environments

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This article describes the instructional design theoretical foundation of a desktop virtual reality-based learning environment aimed at complementing the current novice driver education system in Malaysia. It provides an elaboration of how various components of the learning environment are designed to support this theoretical underpinning that fits to the new paradigm of instruction. This is followed by the suggestion of a theoretical framework that can be used to guide the design of other virtual reality-based learning environments. This framework can also act as an initial structure that is to be further refined and/or revised, as a robust model model to guide the design and development of a learning environment using this technology is still unavailable at the present time.

The benefits of using three-dimensional virtual environment technology, commonly known as virtual reality, in education have increasingly gained recognition from many researchers and educational practitioners. Virtual reality is described as a cutting-edge technology that allows learners to step through the computer screen into a three-dimensional interactive environment. Although virtual reality has been recognised as an impressive learning tool, the need for expensive head-mounted displays, gloves, and high-end computer systems has somehow restricted its uses. However, today virtual reality systems can run by affordable personal computers. Human interaction with the generated virtual worlds can be performed using conventional input devices, such as the mouse and keyboard without introducing any