The Design of 3D Virtual Cooperative Learning System

E-mail: 9601090@ mail.dyu.edu.tw

ABSTRACT

The cooperative learning approach has in the past decades gained significant recognition; it is a group instruction design which combines education theory, social psychology, study with discussion, support, and cooperation of dividing the work between the members of group. Most web-based cooperation learning systems at present mostly offer a network environment of convenience, enable students to study theory course on-line, but seldom offer a cooperative learning environment to operate electronic instrument through 3D virtual reality in Internet. The main purpose of this research is to develop the cooperative learning system of 3D virtual reality in internet, combine 3D virtual reality technology, remote control parameter delivering technology, and the designs of PC Broker, construct an environment that can provide cooperative learning in Internet. The traditional cooperative learning has six characteristics (including characteristics such as heterogeneous grouping, positive interdependence, positive face-to-face interaction, individual learning performance assessments, social skills and the group process), and the designed system is to explore the characteristic of positive interdependence among six characteristics, and realize characteristics of traditional cooperative learning in the cooperative learning system in Internet. The proposed system not only offers the theory course material, but also provides learners to operate 3D virtual reality instrument (related 3D instruments include Multimeter, Power Supply, Oscilloscope, etc.) together through the network. The propose system also provides instant characters to discuss and control the 3D developmental game, trains the positive interdependence characteristic between students and group members, improve the learning interest effectively and the results of learning.

Keywords : Collaborative Learning ; Virtual Reality

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