Chapter 4
Using Plug-Avatars "hhh" Technology Education as Service-Oriented Virtual Learning Environment in Sliding Mode

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ABSTRACT

This chapter aims to show the possibilities of the use of plug-avatars "hhh" technology education as a Service-Oriented Virtual Learning Environment (SOVLE) in Sliding Mode (SM). This allows teachers to create an integrated learning environment using tools that have been selected to best meet their academic requirements and individual abilities of each student's full training in the system of Distance Education (DE). The work reported in this chapter engages with all aspects of Virtual Learning Environment (VLE) design and architecture. Thus, created software of plug-avatars "hhh" technology education for SOVLE are applicable for use in DE processes and in virtual research collaboration works at the Astrakhan State University, Tomsk State University of Control System and Radio Electronics (Russian Federation), at HHH University (Australian Federation and the Republic of Armenia), at Rohilkhand University (India), and at National Central University (Taiwan).

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INTRODUCTION

The education has students use knowledge within the process of problem solving to understand and explain the physical world around them. To fully appreciate the real world and other fields such as computer graphics, engineering, and architecture, exploration of 3-D including moving, positioning, orienting, constructing, building, and communicating 3-D objects) is an important topic that should be exercised by students in a learning curriculum (Wu-Yuin Hwang and Shih-Shin Hu, 2013) .

Some researchers conceived the nature of mathematics as the outcome of social process and math knowledge, which is thus understood to be fallible and eternally open to revision both in terms of its proofs and its concepts (Ernest, 1999). In addition to individual exploration of multiple representations for constructing knowledge, which is urged by the development of constructivism, math reform gradually advocates that the interaction of sharing, assessing, and collaborating for discovering the solution with peers and their representations must be implemented in a student's problem solving process (NCTM, 2000; Wilkins, 2008; Wood, Williams, & McNeal, 2006).

That is, students interact with the instructor, peers, and learning materials to share their thoughts and to verify solutions from multiple viewpoints. Obviously, communicating math concepts through mutual observation and discussion with peers often helps students identify unforeseen perceptions. Due to the lack of examination of the impacts on students' three-dimensional (3-D) same concepts learning and problem solving caused by synchronous interaction with multiple representations among peers in the SOVLE, this chapter proposed "hhh" education technology, based on the Sliding Mode Control, to facilitate students solving education problems and afterwards to study the effect of peer learning behaviors to learning achievement (Mkrttchian, 2011, 2012, 2013).

Avatar technology is touted as the promise of providing a rich suite of innovative and highly interactive tools for educators tasked with designing and delivering university level distance education programs. Avatar technology allows for the digital representations of people, both real and artificial, on a computer. For example, a computer user may use an avatar to represent them in an online education. Their avatar responds to the user's commands and interacts with other avatars in the education environment. Another example is the avatar that is familiar to anyone who has ever used a very popular desktop productivity application. The avatar acts as an assistive agent for the software and is designed to help a user by answering questions and fetching useful information about the software's features. Some ideas in these research fields were find in "hhh" Virtual Learning Environment technology. Development of "hhh" education platform is underway and informal initial reports indicate the replacement of service oriented Web services by ones. The scope of is also enlarged to include data integration. For example, an external tool that provides an assessment function might be required to provide assessment results in a form that can be incorporated directly into a grade book tool database table in the central "hhh" Virtual Learning Environment. There are two approaches to solving this problem which reflect the difference between centrist and service-oriented standpoints. The first is to agree on standard data formats for all tools of the same ilk so that an external tool can provide an Application Programming Interface (API) or Web service interface to allow data to be imported directly from the tool into central databases (or the "hhh" Virtual Learning Environment could provide an interface into which the external tool can push data).The second approach is for external tool developers to provide a Web Services Description Language document to describe a data export service. A client to the data export interface can then be created on the fly and incorporated into the "hhh" Virtual Learning Environment. The