Chapter 14
Towards a Beneficial Formalization of Cyber Entities’ Interactions during the E-Learning Process in the Virtual World of “Second Life”

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ABSTRACT
This chapter investigates the new interactive dimension, which arises between cyber entities (avatars) that move around, meet others, and emulate their work in [D-] CIVEs ([Distributed-] Collaborative Immersive Virtual Environments). The active involvement and immersion in these “environments” elaborates the maximum possible total-relationship of the developmental users’ forces (teachers and students) and creates “situations of real-life” in a 3D virtual system. The inspiration to deal with this issue originated through the prior knowledge that was gained from the previous educational studies in the virtual world of Second Life (SL), which was used as an environmental tool for action-based learning and research programs on Higher Education. The investigation and presentation of quality infrastructure that this interactive “world” hosts in was the objective of this research, through the presentation and promotion of academic communities’ previous applications to enrich their curricula. The original contribution of this effort is to become a highly inexhaustible source of inspiration for the bibliographic data and interdisciplinary for the field of e-learning future.

DOI: 10.4018/978-1-4666-2098-8.ch014
INTRODUCTION

The use of computers becomes day by day more necessary, both at work and in everyday life. One of the major challenges today is to create interfaces with the computer, showing human form and interacts with the user (the anthropomorphic conversational user interface). According to the study of Reeves & Nass (1996), people have a normal social “behavior,” when they interact with computers. But, the human and machine communication differs from communication between people. People talk, and use gestures in everyday interactions. Therefore, the interaction is entirely different to the standard-based keyboard, mouse and screen and for this reason; the new field of research, which focuses on conversational interfaces, including virtual assistants, called “avatars” are regularly based on artificial dimensional or three-dimensional characters. All these properties make the decisive use of avatars in various areas of life and consequently those of education. The basic approach that followed in this paper is based on the common axiom that highlights the improvements of the technologies’ processes of pedagogical communication, if we want to achieve a better learning process. We must register to a “technocratic” approach and to more correctly read of this new “knowledge field” that is being generated through the construction of teaching and learning into virtual systems.

Meanwhile, computers have penetrated for good things in our lives, which will be easy, be found a look around from laptops, smart mobile phones and electronic devices. This raises the important question of “what form should have interfaces with the user (User Interface - UI) for this new generation of computers?” An important area of action in interactive graphics system, are conversational user interfaces where the primary objective is to display the computer a person with whom the user can interact (Siemens, 2005). This includes physical models dialogue-centered communication to interact with the computer, in which the user-driven model of the direct manipulation in the use of practical assistance. The kind of life-masks by using the avatar (avatar UI / digital alter-ego), includes the design and control of conversations, not only to convey information, but also to create a relationship with the user. Moreover, the system adapts to each user in the current situation and beyond the oral conversation develops, and can display the user’s emotional state, with facial expressions; gestures and tone of voice similar (Cassell, 2000).

Pretty remarkable for this study is to investigate the importance of using three-dimensional virtual people (avatars) in the educational process and studying in great detail the mode of virtual tools and their contribution to interface with the user-student. Because of the imposing visual presence of plausible behavioral and educational strategies, the avatars are a great promise for the motivation and effectiveness of education and above this from a distance. One of the most interesting features that is being offered by these developments is the ability to create rich, three-dimensional environments with student-centered consisting of lifelike animated anthropomorphic images (Lester et al, 2004).

The existing research on e-learning shows that the participation “stages” for learners in a collaborative learning activity can provide numerous of the positive elements and circumstances, such as:

- Motivation, active engagement in the learning process (Nelson et al., 2007; Bereiter & Scardamalia, 1996).
- Expand and deepen learning experience, testing new ideas and more effective achievement of learning objectives (Palloff & Pratt, 2004; Picciano, 2002).
- Activation of perceptual capacity (Čyras & Lapin, 2009; Dillenbourg, 1999), interaction a social environment (Dede, 1996) and last but not least.