Chapter 9

Impact Assessment of Affective Virtual Characters in a Virtual Environment

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ABSTRACT

The research addresses how affective computing can be applied in virtual training emphasizing the use of technology that can increase the perception of immersion in these environments. The research consisted in creating a virtual daycare and using it for analysis, focusing on the training activities that have the characteristic of being considered affective. Using this simulation environment is intended to clarify how users use affectivity in dealing with the children of these virtual environments. This demand was found in a research group that has as objective, the training and research groups of educators who work in public daycare. The work of these professionals involve a lot of affection, and when the professional activity involves newborn children or even at a young age the issue of affective coexistence should be valued.

INTRODUCTION

Helping in the process of creating more engaging and motivating experiences, beyond the use of three-dimensional environments, one can count on pedagogical agents, which are programs within the environment that serve to perform certain tasks related to teaching and learning (Jaques, 2008). Depending on how these agents are constructed, they can, through simulation, express feelings and enhance relations with people, considering the fact of the expression of feelings through communication, either verbal or bodily, they help and improve the process of human communication.

The Embodied Pedagogical Agents (EPAs) are becoming increasingly common in computer applications, and educational applications, playing the role of partners of students, assisting in various ways the
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learning process (Jaques, 2008). In this context, the study of affective relations between users and the EPAs can help define characteristics for writing software to promote a more engaging user experience.

A simulator of a virtual daycare was created for the development of this study on the construction of affective relations between users and EPA. A problem found in a research group at Brazilian university UNIVALI, which the focus is to conduct a study on how affectivity in games and simulators can be linked to the relations between users and computer-controlled characters. This virtual daycare is based in a real daycare project, which purpose is creating a better school with inter and transdisciplinary conditions for the students.

The virtual daycare allows experiencing certain situations with virtual characters and allows some testing that wouldn’t be advisable in the real world. The simulation of the daycare intends to allow public school teachers to make a virtual training, preparing them for situations that may occur in a real educational environment. Games and virtual worlds support and help the students in many ways, in this study, to simulate a daycare is the way that the research group found to create a good environment to learn, but it is not so easy to constitute a great virtual environment to learn (Oliver, 2009).

Thus, the work seeks to identify how it is possible to simulate a real situation that would happen in a daycare. In this study, the situation chosen was to feed the babies. This way, studies were made about the behavior of babies, how they act in the feeding situation and what are their reactions towards the behavior of teachers. This data was gathered and with it, a computational model of affection was created so that these babies could become EPAs in the virtual daycare.

The affective model consists in a series of rules, that describe how the babies need to react to the actions of the teachers. These rules basically, determine how the babies reacts, when each type of action be triggered, in relation of the teachers action. These rules were made according to the description of the researchers that worked with babies at schools in the city of Itajai.

Through a simulated environment, one can have a safe environment where the student can perform tests and experiments, and when this professional is dealing with a child in a real environment, this will also be in a safer environment due to the experience of the professional. Parents who place their children in daycare centers believe that the child will be well treated and cared for with love, affection and respect, and that this environment has highly qualified professionals. This expectation cannot and should not be contradicted.

AFFECTIVE

Henri giving his point of view about relations between educators and children. His fundation is about how the education can be improved by the use of emotion and affetiveness by the teachers and the educators in general.

According to Wallon (Tassoni, 2000, p. 3) the emotional bond established between adults and children in the initial stage of the learning process is critical, given the fact that the child will have access to the symbolic world through this bond, thus gaining significant advances in respect to cognition.

Following this but with a different approach, is possible to quote Ledoux (2012) who say that emotion is an important thing to let the human survive and learn. The emotional state has its importance because it is the trigger to make the learning system work (in a conditioned ambient).
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