Chapter IV

Maga Vitta: Conversational Ecological Agent in an Interactive Collective Construction Environment for Basic Education

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ABSTRACT

This chapter presents the development of CIVITAS project for the construction of virtual cities, particularly with regards to Maga Vitta, which is an interactive agent ecologically concerned as the collective city develops. CIVITAS project consists of four environments: a creativity environment, an environment for interactive distance communication, study and research environment, and educational game-like environment, in order to give better pedagogical support to both, dialogical processes, and sociocognitive learning processes of students in primary school. The Maga Vitta belongs to the creativity environment of CIVITAS, and is an affective, embodied, conversational agent with an ethical point of view based on respect and solidarity relations amongst the city inhabitants and a regulating ecological pattern. She recognizes the user’s actions and express emotions as it follows the user, offering support, advice, deciding tasks, and memorizing the user’s actions during the construction of the virtual city under development in the CIVITAS pedagogical environment.
INTRODUCTION

The research educational project CIVITAS (Cidades Virtuais com Tecnologias para Aprendizagem e Simulação), which is being developed at the Laboratory of Studies in Language, Interaction and Cognition (LELIC) of the Faculty of Education (FACED) of the Federal University of Rio Grande do Sul (UFRGS), has, as a main technological objective, creating and developing a CIVITAS environment for the construction of virtual cities through simulation by using the users’ ideas and intentions. The environment is based on multiuser interaction and sharing of digital contents in conformity with an ethical-political-pedagogical proposal that can be freely applied to different educational contexts. It is expected that students will work with contents in a reflective way based on subsidies produced by CIVITAS (Axt, Vicari, Martins, Andrade, Longhi, Alvez, Elias, & Bastos Filho, 2003) when in classroom.

Consequently, another main objective is to develop a classroom work methodology amongst teachers that will strengthen this educational conception technology application in order to enhance creative processes in learning (Axt, 2004; Krug, 2006; Stülp, 2006). This objective required pari passu, the development of a methodology for in-work teacher training focusing on creative processes that must be creative in itself (Axt & Martins, 2006). However, due to limited space, neither this methodology for in-work teacher training nor the work methodology for students in classroom will be discussed here. This chapter will focus on the development of some technological applications of the project, particularly with regards to Maga Vitta, which is an interactive agent increasingly ecologically concerned as the collective city develops and is related to the “city editor” known as CITTA. This city editor allows the construction of collective cities by students and is the environment where Maga Vitta is implemented.

The virtual city under construction consists, metaphorically, in the presentation of stories, legends, or myths about a city, created by the users as characters that inhabit the city. The students place objects representing physical entities found in the real world on a surface that represents the land to be shaped. Apart from shape, position, orientation, and properties, such as color and texture, each object also has a historical narrative. That is, as an object is added as a new feature in the virtual city, the student is invited to register a story about it. Based on these stories, teachers and those in charge can guide the discussion around the virtual city planning and the way the students are managing the city. At the same time, educational researchers will have access to excellent data to analyze and discuss the thinking-building-organizing processes applied by students whilst building knowledge. The results of this can be used to help enhancing the training of schoolteachers involved in the project.

The construction of the virtual city is based on social, political, and building rules, some of which are already established in the system, whilst others are added during the construction process. Therefore, the CIVITAS approach is not only, or specifically, computational with respect to its goals. The project also intends to:

1. Make available distinctive practical knowledge and experiences in creative construction and sharing of possible worlds, be they real or imaginary, resulting in reflection and enabling opportunities for social-cognitive processes in knowledge building.
2. Assess the effects of the use of the CIVITAS environment on ways to build valid knowledge, ways to imagine/create, and ways to cooperate.
3. Identify the effects of the connection of subjectivity to digital technologies.
4. Propose alternative methodologies, one for the schoolteacher training processes and an