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 (Ci-
idades Virtuais com Tecnologias para Aprendiza-
gem 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 
hance creative processes in learning (Axt, 
2004; Krug, 2006; Stülp, 2006). This objective 
required pari passu, the development of a meth-
odology 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, leg-
ends, 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 think-
ing-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 knowl-
edge and experiences in creative construc-
tion 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 knowl-
edge, 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