Chapter 5.9
Knowledge Access and Interaction Evolution in Virtual Learning Communities

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ABSTRACT

Interaction among members in Virtual Learning Communities influences the communities' evolution. Starting from this consideration, this chapter provides a discussion on the more widely used software systems that support interaction between virtual communities' members and virtual learning environment underlining the advantages and the disadvantages considering the several processes that characterize the VLCs. Moreover in education environments interactions are important in order to facilitate the learning process, and this chapter describes how the intelligent agent approaches can bean interesting alternative to a human facilitator. The analysis of intelligent agents describes how they allow both analysing interaction and improving the level of participation of members of a Virtual Learning Community.

INTRODUCTION

The Web has been transformed from a place with many readers and few publishers, into a space where everyone can have a voice via tools such as forums and blogs or communities of users that can collaboratively create a body of knowledge about some concrete topic. This evolution of the Web has produced the Web 2.0 or Social Web, and it promises to boost human collaboration capabilities on a worldwide scale, enabling individuals to rendezvous, share information and collaborate by means of read-write web and user

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generated content. A great number of these new forms of communication arise and attract increasing numbers of users from different social backgrounds. This indicates that people's information usage in daily life is changing. Correspondingly, learning processes are facing this change greatly as well. Its impact on e-learning leads to the so-called e-learning 2.0, in which Virtual Learning Communities (VLCs) have paid more attention than common learning repositories or learning management systems.

A VLC is defined as "a particular type of virtual learning environment that must allow learners to engage each other intentionally and collectively in the transaction or transformation of knowledge" (Schwier, 2004). VLCs are emerging as alternatives to classroom-based training. They are similar to Virtual Communities of Practice (VCPs) but are not based on a set of practices. Rather, they are based on the desire of members to learn from each other. VLCs emerge over time as members interact and negotiate so they are products of social interaction (Schwier, 2001). The social interaction enables members to reach their goals. These can be goals for building knowledge, working together or solving problems that require more than one person to solve.

The VLC can be considered as a structure for groups that have the purpose of learning and exchanging ideas, knowledge, skills, experience, and competencies. The communication and the collaboration in VLCs are efficiently supported by the use of technology results and the development of more efficient forms of education.

The use of technological media and tools is focal in VLCs due to the fact that have the purpose to provide a Virtual education (Kurbel, 2001) that refers to instruction in a learning environment where teachers and learners are separated by time and/or space. In this environment the teachers provides course content through course management applications, multimedia resources, videoconferencing, and other computer mediated communication systems.

The Virtual education takes place in a virtual learning environment that can be viewed as a software system designed to support teaching and learning in an educational environment by tools, such as discussion forums, blogs and whiteboards.

This chapter provides a discussion on the more widely used software systems that support interaction between virtual communities' members and virtual learning environment underlining the advantages and the disadvantages considering the several processes that characterize the VLCs.

The main goal of this chapter is to describe how VLCs represent an effective support tool for social interaction, knowledge management and learning promotion among learners analysing how existing technological systems and approaches are able to support these goals. The study will be focused on computer-mediated systems analysing how different types of systems regulate the activities of participants of the learning community.

Moreover in education environments interactions are very important in order to facilitate the learning process, and the intelligent agent approaches can offer an interesting alternative to a human facilitator. Starting from this consideration, this chapter will provide a discussion about intelligent software agents (Lieberman, 1997) that can be viewed as a metaphor or an abstraction tool for the design and the definition of distance-learning systems. The discussion will focuses on how they can be used for both analysing and improving the interaction process among members for supporting users in different way by contributing to gradually improve the level of familiarity of each user with the system and the level of participation.

The paper is organised as follow. After a short introduction, which deals with some issues of categorization and definition of VC and VLCs (section one), the chapter describes the essential elements of a VLC (section two). Considering the interaction process, in section three the chapter describes the most common computer-mediated communication systems used by members of a VLC while section four presents an exposition