

## Chapter 49

# An Innovative “Cybernetic” Organization Improvement Plan through Participatory Action Research in Persistent “Open Source” Virtual Worlds

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### ABSTRACT

*The research interest of this chapter focuses on redefining contemporary structures of organizational cross-ing boundaries, learning processes and diffusion of innovations based on the structure of persistent “open source” virtual worlds (VWs). In this notion, the present study decrypts valuable ways of organizational changes in a virtual learning community and managerial responsibilities of situational complexities that usually interdict on “open-source” VWs, and especially Open Simulator (OS grid). This assumption frequently recapitulated with a “cybernetic” improvement plan that addressed to the organizational structure of collaborative e-learning courses, encountering by the “Viable System Model” (VSM). The participatory action research empowerment appeared initially from the implementation of a multi-dimensional framework for enhancing the dynamic presence of users, according to the “cognitive apprenticeship” model. This establishment approves firstly the latest organizational and administrative practices of an adult learning program, and secondly instructor’s progressing through the cybernetic management that the VSM governs.*

### INTRODUCTION

From the beginning of the 21th century, virtual worlds (VWs) became an integral part of leisure time for both friends’ of social networking (Web 2.0) and almost the last decade used for educational applications. VWs are a potentially growing

area of modern global culture, and decrypted as another social phenomenon. Indeed, the ability of digital- interactive environments to disseminate knowledge initially ignored by instructors, as they did not regard as researching or learning platforms, but only as a mean of entertainment. In these lines, researchers and designers tried repeatedly to

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describe methods and conditions that required for rehabilitation as a supportive capacity for learning, remaining with all convenient features that make it addictive and entertaining. The absolute connection in this way of learning becomes binding and even more enjoyable when the correct assertion that combines performance and learning produced (Burkle & Kinshuk, 2009; Clibum & Cross, 2009). Antecedents’ findings provided methodological principles of designing a successful virtual digital world to impart knowledge and manage it to be as attractive as other platforms (i.e. VLE-Virtual Learning Environments) (Callaghan et al., 2009; de Freitas, 2009).

This chapter investigates affordances of virtual communities of practice (VCoP) in “open source” virtual worlds through a proposed “cybernetic” participatory action research. “Open code programming” virtual worlds (or platforms) are three dimensional (3D) on-line persistent multi-user environments, with an “open-ended” architecture, where users interact and communicate with other cyber entities (avatars).

The aim of this chapter is to investigate the organizational-teaching affordances that VWs can facilitate and support the collaborative e-learning activities. VWs have “a regular occurrence of realness” through to an interactive 3D multi-user “space” or “place,” in which distributed users recreate moments of their own life with their “alter-ego” (avatars). In this research, we enunciate a comprehensive “cybernetic” transfer strategy for adaptive and persistent-state VWs that provide adult users to communicate with reasonable efficiency. Apart from these, the teacher’s role is handling the organizational complexity of interactions that communication channels or collaborative interaction of virtual communities of practice (VCoP) produced. In addition, the existing organizational model enjoys a constantly gracing popularity due to the increasing complexity of organizations and their external environment. The learning community empowerment is resulting from the application of a method for enhancing

the dynamic presence and formal organization progressing through the cybernetic management of Stafford Beer’s Viable System Model (VSM). We will complete research with some researching and methodological implications.

## **THEORETICAL UNDERPINNINGS**

The scientific approach is deliberately multidisciplinary, as we try to combine the industry’s recent findings of applied linguistics, with these pedagogical and socio-cognitive sciences of Technology and Psychology. Besides, the branch of learning that supports collaboration from distributed users (CSCL: Computer-Supported Collaborative Learning) characterized by an interdisciplinary pluralism and convergence from many different areas of research that combines innovative environments, offering a new body of knowledge, according to Contemporary theories of learning. Nevertheless, so far investigations concur that we can reflect on mutual forms, rather than “cooperation” as a widespread and uniform procedure, but as a project that motivates and engages students in learning (Lehtinen, 2003; Nelson & Ketelhut, 2007; Scardamalia & Bereiter, 1994).

Furthermore, for the CSCL approach is now well-known the distinction partnership (cooperation) and collaboration that proposed adequately by several studies (Dillenbourg, 1999c; Pea, 1994; Roschelle & Teasley, 1995), but also these types implemented through “communities of practice” (Dede, 2004; Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000). Although, the confusion probably arises from the use of the term “cooperation” which has two different meanings:

1. A single type of collective interaction, the most amiable and symmetric collaborative procedures, and
2. An “umbrella” that covers all forms of collaborative learning (forms of collaboration).

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