

Chapter 4.13

Reflection and Intellectual Amplification in Online Communities of Collaborative Learning

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ABSTRACT

An alternative theoretical framework for analyzing and designing computer-supported collaborative learning environments is introduced. Bateson's theory (1973) is used as a starting point for considering in what sense the specific dialogical conditions and qualities of virtual environments may support learning. We need more stringent analytical approaches of research that relate communicative qualities of virtual contexts to qualities of the collaborative knowledge-building process. This approach suggests that new didactic and instructional methods, addressing the learner's communicative awareness at a meta-level, need to be developed in order to fully utilize the interactive and reflective potential of online collaborative learning. A deeper understanding of the reflective

nature of the online environment and its potential for enhancing intellectual amplification will give rise to the birth of new and more innovative designs of online collaborative learning.

INTRODUCTION

Flexible computer-supported learning is rapidly emerging as the educational method of choice in modern society. Although most applications of computer-supported learning are primarily interactions of the learner with software, the envisioned educational expectation within distributed computer-supported collaborative learning (CSCL)¹ is design and delivery of flexible learning environments with deeper collaborative and interactive learning qualities (Kaye, 1994). This

expectation has so far not been realized (Collis, 1996; Fjuk, 1998; Sorensen, 1997b, 1998; Collins, Mulholland, & Watt, 2001), primarily because achieving peer interaction remains a complex challenge.

Several studies based on practical applications identify shortcomings in the technology as the main reason for the lack of collaborative learning. They conclude that learning situations unfolding face to face are more conducive to good quality learning than online CSCL situations. In contrast, within CSCL research, the problem of achieving online peer interaction is identified as a shortcoming of not being able to integrate pedagogy, organization and technology (Bates, 1995; Fjuk & Sorensen, 1997) in appropriate ways. CSCL researchers do not interpret online CSCL as lower level quality learning compared to face-to-face learning; instead there is a growing awareness that a more generalized understanding of human interaction and communication is the key to unlocking the interactive learning potential of CSCL (Dillenbourg, Baker, Blaye, & O'Malley, 1995). New insights are needed into the interactive learning conditions of virtual environments.

The general principles of collaborative learning theory are assumed to be at the core of CSCL (Harasim, 1990; Sorensen, 1996, 1997b). However, these principles are only vaguely defined in the continuum between theory and practice and are not focused enough to analyze learning qualities in the virtual environment. We need more stringent analytical approaches that relate communicative potential and qualities of the virtual communicative context to qualities of the learning process. Such insights are expected to inspire new, alternative instructional designs and didactic methods (Koschmann, 1996; Pea, 1994).

This chapter presents an alternative theoretical framework for analyzing and designing CSCL environments, and argues that online collaborative learning environments are conducive to intellectual amplification. It addresses the learning potential of distributed CSCL and the need for

and role of meta-instruction. I will assert that the inability to stimulate online interaction may be traced to a lack of understanding among designers and instructors of the characteristics of dialogue in virtual environments. On this basis, I will attempt to explain how specific dialogical conditions and qualities of virtual environments may enhance interaction and intellectual amplification in asynchronous distributed CSCL. Based on the theoretical perspective of Gregory Bateson (1973) and basic "ontological" principles of online learning environments, I suggest potential reasons for the mixed successes in previous attempts to achieve collaborative learning online. I assume that key impediments to success relate to interconnections between meta-communication and scaffolding (Bruner, Olver, Greenfield, et al., 1966). Empirical examples will be given to illustrate the hypothesis that successful online learning environments that are rich in opportunities for reflection require careful design of meta-communicative scaffolding and instruction.

"Premises of Collaborative Online Dialogue" describes "ontological" premises and conditions for inter-human interaction in asynchronous online learning environments that are significant from the perspective of designing for collaborative learning online. This is followed with a section that presents the core elements in Gregory Bateson's (1973) learning theory on which my theoretical approach and insights for reflective amplification in online collaborative learning are built. In Section 4, I introduce three reflective principles, which I assert contribute to making an online collaborative learning paradigm an amplified intellectual endeavor. Next, the chapter outlines some empirical findings illustrating the amplified reflective collaborative learning process of the online environment, enhanced through the implementation of meta-communicative instruction and scaffolding. The chapter then discusses my conclusions on collaborative learning environments as ideally promoting intellectual amplification,

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