Collaborative Learning in a Contribution–Oriented Pedagogy

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INTRODUCTION

Collaborative learning is a specific approach within the broader context of pedagogy. Collaborative learning encourages student participation via peer interaction in the learning process. It encompasses a set of approaches to education, sometimes also called cooperative learning or small-group learning (NISE, 1997; Collis, 1994). Collaborative learning creates an environment "that involves students in doing things and thinking about the things they are doing" (Bonwell & Eison, 1991, p.2).

Collaborative learning involves communication. From the early availability of computer-mediated communication (CMC), questions of appropriate and adequate pedagogies using such technologies were put forward; in particular, when students are working together in collaborative learning (Kaye, 1992; Turoff, 1991). Collaborative learning can also be connected with other computer technologies, such as educational software (Wegerif, 1996) and intelligent collaboration learning systems (McManus & Aiken, 1996), or serve as a mechanism to integrate; for instance, computer conferencing with live lectures on the Internet (Eisenstadt, Brayshaw, Hasemer, & Issroff, 1996). Olson and Olson (1996) are among those who study the use of collaborative technologies to facilitate the work of groups. Referring to the widespread tools based on network or Internet technologies (World Wide Web, computer conferencing, groupware or tools for computer-supported collaborative work – CSCW), Dillenbourg and Schneider (1995) emphasize that often the appearance of new technologies "reactivates the belief that technology per se enhances education, which repeatedly has shown to be wrong in the history of educational technology". In this context, Romiszowski and Ravitz (1997) state that, "one of the most important areas for tactical research at the moment is to investigate the potential applications and specific methodologies for collaborative learning" (p. 758). Therefore, the question about how to use computer and network technologies in education, and in particular in the context of collaborative learning, is still very relevant. In this chapter, the authors respond by suggesting a specific approach making use of Web-based tools and collaborative learning within a contribution-oriented pedagogy.

After a brief review of different pedagogical models, a contribution-oriented pedagogical approach in which students find, create, submit and/or share resources using a Web-based course-support environment is identified as a model particularly valuable for forms of online and computer-based learning. Examples of the model in practice and issues with managing the model are discussed.

BACKGROUND

The traditional learning model in education has been one of knowledge acquisition via an instructivist philosophy. Pedagogies relating to an instructive philosophy emphasize what the teacher (or course-design team) will do, present, provide and assess (Gagne & Briggs, 1974). The responsibility of course-design teams for online and computer-based learning based on an instructivist philosophy is to prepare, in advance, high-quality materials, "usually in the form of a narrative, where learners are led through a learning sequence by a well-choreographed story" (Oliver & Herrington, 2003, p. 154).

There are alternative learning philosophies that either differ from a knowledge-acquisition approach

or can exist as complements to it. An example is constructivism. Constructivist theories stress the need for an active construction of meaning by the learner for learning to occur. Constructivist principles can include active learning, goal setting and self direction, authentic learning, articulation, collaboration, intentional learning, social interaction, collective knowledge sharing and metacognitive processes such as reflection (Oliver & McLoughlin, 1999). An important aspect of a constructivist pedagogy is generative learning activities. Students, through their learning activities, generate something they use to "test their ideas with each other … becoming active investigators, seekers and problem solvers" (Grabinger, Dunlap, & Duffield, 1997, p. 10). Collaborative learning can be used as a specific pedagogical strategy to support a constructivist approach.

From a different perspective on collaboration, Sfard (1998) focuses on learning as becoming a member of a community of practice, learning from the community but also contributing to it, which Sfard calls a participation model of learning. She contrasts the acquisition and participation models of learning and argues that both are necessary.

In a contribution-oriented pedagogy, participation by the learner or collaboration with others is not enough; the learner must also contribute to make a difference. Working collaboratively, learners relate to each other to create or develop projects or products meaningful to someone besides the individual or group creating the product, such as other peers in the course or even others outside of the classroom or course, and then donate their results to the authentic user groups. Participation and contribution are the essential components of a contribution-oriented pedagogy. Collaboration is also involved: when the learners work together on the creation of the objects to be contributed or make use of each other's contributions for subsequent knowledge construction.

TYPICAL "CONTRIBUTIONS" FOR A CONTRIBUTION-ORIENTED PEDAGOGY

Contribution-oriented pedagogy involves different sorts of learning activities, methods of student assessment and uses of computer technology than does an instructivist approach. In a contribution orientation, learning activities are focused on finding, creating and designing, new products, while in an instructivist

Table 1. Summary of basics of a contribution-oriented approach (Collis & Moonen, 2001, p. 88)

"The Contributing Student"
Key ideas: Learners contribute to the learning materials via contributions made available to others in a Web-based system. The others may be others in the same group or others at other times. The others may be at the same or different locations.
Key characteristics: The Web site is largely empty at the start of the learning experience; the learners and instructor will fill it via the process of many activities during the course. Learners learn from realistic and peer-created materials as much as or more than professionally developed materials. Learning materials contributed by students are reused in other learning settings.
Role of instructor: Designer of activities and of feedback monitoring, and assessment strategies for activities. Manager of the activities, feedback, monitoring and assessment processes.
Role of technology: To facilitate all aspects of the activities; to allow the contributions to be accessible and reusable to other learners.