Chapter 10
Collaborative Knowledge Construction in Online Learning Environment:
Why to Promote and How to Investigate

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ABSTRACT

The current study is based on academic on-line course and examines the effectiveness of collaborative learning vs. individual learning. Fifty eight graduate students in the Open University participated in course entitled "From information to knowledge" collaborating in a Google Docs environment as their final task of the course. The purpose of the study was to examine whether students with a collaborative learning orientation differ from students with an individual learning orientation, as was measured through their contribution to the process of knowledge construction in a collaborative online database environment. The students' contribution to the database was analyzed through personal and collective criteria of knowledge construction. The results showed differential achievements among learners with different learning orientations. While the 'collaborative learners' contributed more collective knowledge, the 'individual learners' focused on constructing their own personal knowledge. These findings have important implications on planning, coordinating and evaluating collaborative learning environments.

ORGANIZATION BACKGROUND

Distance teaching and the self-study method, developed specifically for the Open University, provides conditions that meet the constraints of individuals who work or raise a family. The method is not space-or time-dependent as it is not based on a central campus where lecturers and students gather, or on an established and uniform schedule. Courses offered by the Open University are fundamentally different from courses offered at other universities. The customary image of a course - a classroom with a teacher on the podium facing a group of students - does not apply to the Open University, or

only partially. A course at the Open University is first and foremost a printed scholarly or scientific work: one or more volumes written and produced especially for Open University students. Thus, learning at the Open University is primarily conducted through self-study of written material, supported by advanced technologies rather than face to face instructor-student interaction.

SETTING THE STAGE

The Open University utilizes advanced technologies to improve its distance teaching. It provides a wealth of learning materials and technological platforms to facilitate continuous contact with faculty and students in various courses (e.g. video conferences, synchronic sessions, online tasks' system, online forums, blogs, wiki, google collaborative database). Most of the courses offer websites on the internet. The websites include, among other things, additional materials, links to databases and Internet sites related to the course material, multimedia materials, as well as individual and group communication between students and tutors, and among the students themselves. In some of the courses, computer-mediated tutorials alternate with the tutorial sessions in various study centers. These aspects of distance education developed by The Open University, along with the university's open admission policy, aim to open the world of higher education to all, irrespective of age, sex, prior achievements' certificate or occupation, in order to enable every individual to realize and fulfill his or her academic ability.

CASE DESCRIPTION

Collaborative knowledge construction refers to mutual engagement of peers of equivalent learning prerequisites in learning tasks with intertwined layers of socio-cognitive processes (e.g. Berieter, & Scardamalia 1989). Creating effective collab-

orative learning environment may entail cognitive challenges and social dilemmas which involves processes of reflection and argumentation. The purpose of this study was to examine whether learners with a collaborative learning orientation differ from learners with an individual learning orientation, as was measured through their contribution to the process of knowledge construction in a collaborative online database environment. The study examined students' contribution to the database using personal and collective criteria of knowledge construction. Students' collaborative learning orientation was measured by their previous contribution to the forum of the e-learning course. This paper presents the rationale for collaborative knowledge construction in online learning environments and discusses the results of the study regarding collaborate knowledge building. Measures of individual and collective knowledge are presented. The relationship between these measures and their contribution to e-learning environments are further discussed and challenged.

Theoretical Background

The use of Instructional Technologies enables collaborative learning and has become a popular topic for research within the field of education. Computer technologies enable intellectual partnership between the learner and cognitive tools (Jonassen, 2000). These tools are mainly intended for activities and intellectual partnerships that encourage thinking and support learning in a social context. The theoretical basis for learning as a social process was developed by Vygotsky, who placed great emphasis on the social context of the learning process. This concept became particularly relevant in relation to learning processes involving computer mediated communications (CMC). Vygotsky stressed the importance of the interaction between the learner and his or her environment, and presented the gap created between the learners' level of performance and the level of their own

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