Research Approaches in Computer-Supported Collaborative Learning

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ABSTRACT

Computer Supported Collaborative Learning (CSCL) is concerned with how people learn when working and interacting in groups with the assistance of ICTs. The field involves collaboration, computer mediation, online – distance education which raises interesting theoretical considerations regarding the actual studying of learning within CSCL settings. Being a rather interdisciplinary research field in nature, it has a long history of controversy about its theory, methods, and definition. In this editorial, through a quick review of the literature the diversity of issues examined under the CSCL research field becomes obvious. Moreover, an attempt to categorize these research issues is made. In this vein, the four interesting contributions of this Special Issue, regarding theoretical perspectives and issues of research of the field, are introduced. They comply with the distinguished categories, but they open new research borders as well.

Keywords: Collaborative Learning, Computer Supported Collaborative Learning (CSCL), Information Communication Technologies, Learning Sciences, Research Approaches, Theories

INTRODUCTION

Computer-Supported Collaborative Learning (CSCL) is a branch of the Learning Sciences which studies how people can learn together in groups (co-located and/or distributed) with the assistance of Information and Communication Technologies (ICTs) (Stahl, Koschmann, & Suthers, 2006). It also concerns the understanding of the actions and activities mediated by ICTs. Educational applications range from generic collaboration environments (e.g., communication tools) to tools for developing domain-specific knowledge (Ludvigsen & Mørch, 2010). Although this looks like a simple and easy to understand statement (learners collaborate using computer media), it conceals considerable complexity. The field involves collaboration, computer mediation, online – distance education which raises interesting theoretical considerations regarding the actual studying of learning within CSCL settings.

DOI: 10.4018/jec.2013010101
As Stahl, Koschmann, and Suthers (2006) clearly state, the CSCL research field has a long history of controversy about its theory, methods and definition, mainly due to the fact that it is rather interdisciplinary in nature, it has a complex relationship to established disciplines, it evolves in ways that are hard to pinpoint and it includes important contributions that seem incompatible.

In this Part of the Special Issue, a brief historical overview of the CSCL field is attempted in order to highlight the diversity of issues examined under the CSCL research “umbrella” and proceed with four interesting contributions regarding theoretical perspectives and issues of research of the field.

ISSUES OF RESEARCH WITHIN THE CSCL FIELD

CSCL is a research filed which has emerged during the past 20-25 years. The term was first publicly used at an international workshop in 1989 in Maratea, Italy. As discussed in Part I of this Special Issue, the study of group learning began long before CSCL came into the picture and the research on small groups has an even longer history within social psychology (Stahl, Koschmann, & Suthers, 2006). Furthermore a distinction between Cooperative and Collaborative Learning was made, based on Dillenbourg’s definition; “In cooperation, partners split the work, solve sub-tasks individually and then assemble the partial results into the final output. In collaboration, partners do the work ‘together’” (Dillenbourg, 1999). Moreover, following the definition of Collaboration proposed by Roschelle and Teasley (1995) the social dimension was raised, as well as the notion of collaborative construction of new problem solving knowledge, through negotiation. Similarly, Scardamalia (2002) introduced the notion of Knowledge Building which relates not only to establishing a mutual benefit among collaborators but also is concerned with the advancement of knowledge within a community of collaborators.

CSCL is a research field characterized by diversity. It emerged in response to skills that are important in a knowledge-based society (Ludvigsen & Mørch, 2010). These are skills that are not easily taught through memorizing and fact-finding using textbooks, which are prevailing methods for learning basic skills. There are many theories (Hsiao, 2006; Roschelle & Pea, 2002; Scardamalia & Bereiter, 2003) that contribute to the understanding of CSCL (Stoilescu, 2009): a) Socio-cultural theory (based on Vygotsky’s theories on inter-subjectiveness and the Zone of Proximal Development); b) Constructivism theory; c) Self-regulation learning (skill, will, and execute control); d) Situated cognition; e) Cognitive apprenticeship; f) Problem-based learning; g) Cognitive flexibility theory; h) Distributed cognition (“effect of” and “effect with” technology); i) Fostering learning communities; and j) Distributed intelligence. All these theories are based on the same underlying assumptions that individuals are active agents, purposefully seeking and constructing knowledge within a meaningful context.

Examining some of them briefly may reveal the issues of research within the CSCL field. According to Vygotsky’s sociocultural theory (Vygotsky, 1978), human intelligence is contextualized by the social and/or the cultural settings and individual cognitive gain occurs through interaction with one’s social environment. Issues like mediation, scaffolding, metacognitive, inquiry strategies and critical thinking are raised, following this theoretical approach, while examining how the social environment can influence the students’ learning and thinking. Mediation is a core issue in CSCL because the learning of students is mediated by technological networking as well as by collaborative interaction (Stahl, 2011). Another important aspect of the Vygotskian approach is what he called Zone of Proximal Development (ZDP). He defined ZPD as the region of activities that individuals can successfully accomplish with the help of more capable peers, adults or artifacts. Thus ZPD distinguishes what individuals can do by themselves from what they can do in collaboration. In this case, it is peer, mentor or artifact support that mediates individual cognitive abilities development. Methodologically,
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