ORIGINAL ARTICLE

Computer Support For Collaborative Learning

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Abstract:

One of the basic requirements for education in the future is to prepare learners for participation in a networked, information society in which knowledge will be the most critical resource for social and economic development. Educational institutions are being forced to find better pedagogical methods to cope with these new challengesIn this development it is expected that computers could play an important role in restructuring teaching and learning processes to be better prepared for future challenges. Still in the late eighties most experiments on computer-supported learning were based on the so-called solo-learner model, and the opportunities to individualized learning processes were supposed to be the crucial feature of computers.

Computer-supported collaborative learning (CSCL) is one of the most promising innovations to improve teaching and learning with the help of modern information and communication technology. Collaborative or group learning refers to instructional methods whereby students are encouraged or required to work together on learning tasks. It is widely agreed to distinguish collaborative learning from the traditional 'direct transfer' model in which the instructor is assumed to be the distributor of knowledge and skills.

Computer Support for Collaborative Learning

A widely experienced concern in any society is how it is possible to prepare future generations to cope with cognitive, social, and motivational challenges of the emerging knowledge based society. Historically a similar question has concerned educationalist during all notable technical or cultural changes. When printed books became more frequent, educational theorist anticipated that only a small portion of population is smart enough to learn reading. A few decades ago computer literacy was supposed to be possible for a minor specialist group only. Although the history shows that cultural evolution provides humankind with the skills and knowledge needed in coping with changing historical situations, one can ask if the rate of change in information society is accelerated too much.

An obvious educational challenge emerging from the knowledge society is the need to train citizens to use technical tools such as computers, information networks, multimedia, and virtual realities that constitute the most concretely visible part of the knowledge society. Surviving in the emerging knowledge society requires that each citizen is able to productively function in a high-tech environment. Only a part of the Indian population has an access to information technology. There are significant differences between people in their access to and skills of using the information and communication technology (ICT) in terms of their socio-economic position, life situation, and age.

The challenges of the information society and globalization continue to grow. Dramatic breakthroughs in the creation of networks and communication technology in the 1990s have begun to alter the educational scene. For example, there have been genuine attempts to break out of the confines of traditional educational institutions and orient teaching around expert cultures, thus enabling students to become acquainted with expert networks. Signs of these changes have been found in India, as well. This convergence of education and the "real world" coincides with two related developments: 1) the revolution of ICT; and 2) profound paradigm shifts in our concepts of learning. These developments are being harnessed and guided by national educational ICT strategies and policies.

It appears that the skills of using the new technology and searching of new information (i.e., basic information skills) is not enough, but people need more advanced skills for acquiring knowledge, and using it meaningfully in different contexts (knowledge acquisition skills). In other words, network-based operating practices are not only about possessing the skills to use information technology hardware and media, but also of possessing more general skills of collaboration, information processing, and communication. The essential element in these skills is ensuring that the information acquired through the networks be understood and transferred into usable knowledge by connecting it to meaningful contexts. This means that a relatively large share of students leave the school with insufficient skills to comprehend complex texts and to evaluate and elaborate propositions presented in texts.

What is Collaborative Learning?

Dillenbourg (1999) defined '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'.

Collaborative Learning = Participation + Negotiation + Critical dialogue + Critical reflection.
Supporting Collaboration with Computers

Throughout history, our conceptions about human cognition and learning have been related and shaped by the development of technology (Bolter, 1984). This parallelism between our psychological understanding and the technologies available is clear in the field of computer-supported collaborative learning (CSCL), where technology meets psychology, philosophy, and pedagogy. Instructional designers and software developers, educational psychologists, learning theorists, computer scientists, and even sociologists are interested in this rather new area of research.

What is COMPUTER SUPPORTED COLLABORATIVE LEARNING (CSCL)?

It is hard to say when CSCL emerged as a separate field of study, or as an emerging paradigm of educational technology. The first CSCL workshop took place in 1991 (Koschmann, 1994), and the first international CSCL conference was held 1995 in Bloomington, Indiana.

CSCL is described by Ward and Tiessen (1997) as an instructional approach that attempts to engage students in the intentional pursuit of their own learning goals and in social interactions aimed towards the development of understanding.

CSCL is one approach that has sought to embrace information technology as an affording space for collaborative and creative 'messing' with ideas where the major focus is on the building of conceptual artifacts rather than on the completion of tasks and /or the passive reception of pre packaged ideas.

CSCL is focused on how collaborative learning supported by technology can enhance peer interaction and work in groups, and how collaboration and technology facilitate sharing and distributing of knowledge and expertise among community members. Partly, the inspiration for CSCL arose from the research on Computer-Supported Cooperative Work (CSCW).

Learners should be empowered through thoughtful use of technologies as well as through innovative use of technologies, and benefit from social distributions of cognitions.

What promotes learning in the context of CSCL?

CSCL approach to learning is supported by a variety of educational theories and instructional practices including collaborative learning, active learning, intentional learning, distributed expertise, resource based learning, constructivist theory and project based instruction (Ward & Tiessen, 1997)

The roots of collaborative epistemology as related to CSCL can be found in Vygotsky's Social Learning Theory which talks about Zone of proximal development wherein a range of tasks that is too difficult for a learner to master by himself but is made possible with the assistance of a more skilled individual or teacher. CSCL promotes Internalization of knowledge which can be developed by one's interaction with one's surrounding culture and society.

Knowledge emerges through the network of interactions and is distributed and mediated among those (humans and tools) interacting.
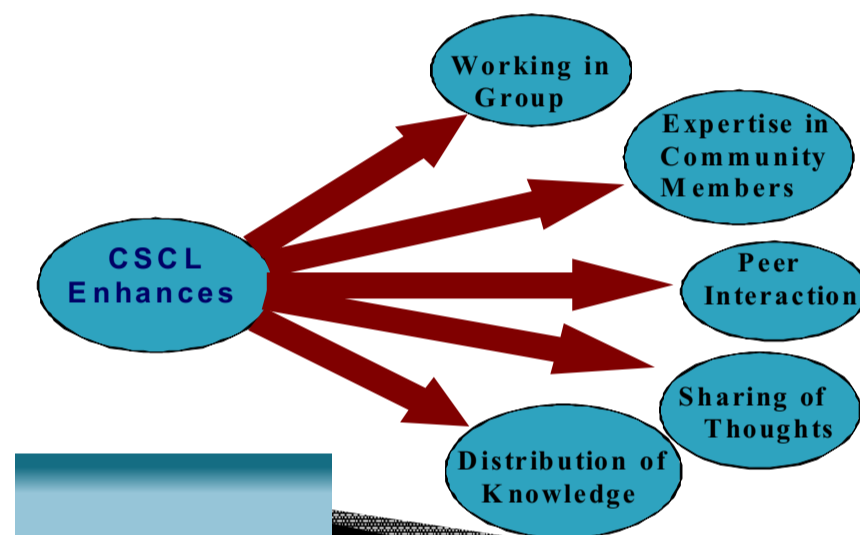
Strategies

Currently, CSCL is used in instructional plans in classrooms both traditional and online from primary school to post-graduate institutions. Like any other instructional activity, it has its own prescribed practices and strategies which educators are encouraged to employ in order to use it effectively. Because its use is so widespread, there are innumerable scenarios in the use of CSCL, but there are several common strategies that provide a foundation for group cognition.

One of the most common approaches to CSCL is collaborative writing. Though the final product can be anything from a research paper, a Wikipedia entry, or a short story, the process of planning and writing together encourages students to express their ideas and develop a group understanding of the subject matter. Tools like blogs, interactive whiteboards, and custom spaces that combine free writing with communication tools can be used to share work, form ideas, and write synchronously.

Technology-mediated discourse refers to debates, discussions, and other social learning techniques involving the examination of a theme using technology. For example, wikis are a way to encourage discussion among learners, but other common tools include mind maps, survey systems, and simple message boards. Like collaborative writing, technology-mediated discourse allows participants that may be separated by time and distance to engage in conversations and build knowledge together.

Group exploration refers to the shared discovery of a place, activity, environment or topic among two or more people. Students do their exploring in an online environment, use technology to better understand a physical area, or reflect on their experiences together through the Internet. Virtual worlds like Second Life and Whyville as well as synchronous communication tools like Skype are ideal for this kind of learning.

There are many ways in which "learning" can take place: over short and long time periods, in solitude and

socially, formally and informally, tacitly and explicitly, in practice and in theory. There are many ways in which people collaborate and learn: by teaching each other, viewing from different perspectives, dividing tasks, pooling results, and brainstorming, critiquing, negotiating, compromising, and agreeing.
Researches conducted using CSCL approach:

To name a few Uusimaki, Lisa & Nason, Rod (2006) used CSCL environment to develop maths confidence in preservice teachers. In the year 2009 McDougall, Mathew Jon used distributed collaborative learning tools in Preservice teacher education. Chan, Carol K.K. & Aalast, Jan Van conducted a study on Hong Kong and Canadian Teachers' development through Computer Supported Knowledge Building. But all these studies were conducted abroad, so there is a need to conduct researches using CSCL approach in our Indian Educational system.

References:

· Chalmers, Chris,Nason Rod(2003) Developing primary students' group metacognitive processes in a computer supported collaborative Learning environment.Retrieved on 06/07/12 from worldwide web: http://www.aare.edu.au/03pap/nas03501.pdf

· Dillenbourg, P.; Fischer, F. (2007).Basics of computer-supported collaborative learning. Retrieved on 22/02/12 from worldwide web: http://www.red-ink.ch/events_materials/is01/RED-INK_IS01Schwarzsee_program.pdf

· Kreijns, Karel; Kirschner, Paul A; & Jochems, Wim(2002) The sociability of computer-supported collaborative learning environments. Retrieved on 23/03/12 from world wide web: http://www.ifets.info/journals/5_1/kreijns.html

· Ludvigsen, S.R.; Morch, A.I. Computer supported collaborative Learning: Basic concepts, multiple perspectives, and emerging trends. Retrieved on 15/06/12 from world wide web: http://www.uio.no/studier/emner/matnat/ifi/TOOL5100/h09/undervisningsmateriale/papers/f5-oct1/CSCL_Research_LM_09.pdf

Stahl, Gerry; Koschmann, Timothy & Suthers, Dan(2006) Computer-supported collaborative learning: An historical perspective. Retrieved on 15/07/12 from world wide web: http://gerrystahl.net/cscl/CSCL_English.pdf