

E-Collaborative Learning (e-CL)

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INTRODUCTION

Electronic collaborative learning (e-CL) is a highly topical issue in today's world of worldwide online communication. It can be regarded as a type of learning focusing on a specific learning method, collaboration, and a specific collaborative learning medium or resource, electronic technology (e-technology). The objectives of this article are to clarify the highly debated and promising concept of e-CL and its related terms, to provide insight in its process, and to present current, especially promising, trends.

E-CL appears new to the present digital age when employing digital technology, but its roots are found back in history as regards e-technology (Kock, 2008). The concepts and practices of collaboration and learning were evident in several forms from the beginning of human history and life.

BACKGROUND

Learning and Knowledge

To approach the meaning of e-CL the concept of learning must be examined. First of all, it should be noted that in this article human learning is considered although it may occur among other creatures, such as animals. Second, the concept of learning is interpreted by learning theories connected with the concept of knowledge. The hereby adopted interpretation of the learning process is as knowledge building, or creation or construction, following Scardamalia and Bereiter (2006).

To further explore the concept of knowledge, it is worth mentioning that there is a widely accepted progressive distinction of informative elements

into data, information, knowledge, and wisdom. At a data level there is isolated and meaningless information. Data are transformed into information when they acquire meaning. Information is enriched into knowledge or intelligence when it acquires situated context. Finally, knowledge is transformed into wisdom when it acquires personalised pragmatic context.

What is also worth noting is that four basic and increasingly difficult and important types of knowledge can be considered. Declarative, or factual or plain, knowledge regarding what, where, and when, as an instance; procedural or skill knowledge regarding how; conditional, or conceptual or structural or contextual or competence, knowledge regarding the previous in an interrelated context and regarding why; and finally, metacognitive knowledge or metaknowledge regarding cognition and knowledge (Krathwohl, 2002). The first two types may be characterised lower-order knowledge whereas the last two, the most valued, higher-order knowledge.

Collaboration

In addition, e-CL incorporates collaboration, which should be considered as a partnership community process, that is, the collaborating members share a sense of belonging, inclusivity, trust, and reciprocity as well as a common thinking and performing area. Moreover, the term collaboration is different from cooperation, since the former implies the construction of shared, mental or material, products to achieve a shared, mental or material, goal, for instance, problem solving, whereas in the latter each team member undertakes one part of the whole responsibility, constructs a separate product, combined with other members'

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products in a later stage, and achieves a subgoal (Arvaja, Häkkinen, & Kankaanranta, 2008; Ertl, 2008; Laurillard, 2012).

Technology

Another e-CL fundamental notion is technology, which in general refers to any intended, mental or material, product of a mind-bearing being. In certain contexts it may be used to denote the digital technology. In this study it is used in the sense of e-technology, which can be analogue or digital, but with a great focus on the digital aspect used for collaborative learning purposes, which is more often and widely applied.

e-CL

Taking the previous conceptual descriptions into account one attempt to define learning is as the knowledge building process with knowledge building goals or objectives, and, in that sense, collaborative learning is regarded as the communicative shared-knowledge building process with shared-knowledge building goals. Following these, e-CL is considered as the communicative shared-knowledge building process with shared-knowledge building goals using networked electronic devices (Kock, 2008; Laurillard, 2012). The constructed shared knowledge is also referred to by the term 'collective intelligence'.

What is more, some discriminations are to be made. First, this study is concentrated on formal and not non-formal or informal learning. According to Werquin formal learning implies intended process and preset goals whereas non-formal implies intended process but non-preset goals and informal implies non-intended process and non-preset goals (Cameron & Harrison, 2012). Second, collaboration in learning differs from each of communication, interaction, discussion, inquiry, and practice in learning, although it may include them, by being a process involving management, iterative development, and agreements

to produce shared knowledge and outcomes based on it (Laurillard, 2012).

Third, this article focuses on digital devices, although the networked electronic devices do not necessarily imply computers, desktop or portable, but they may also be interconnected analogue electronic devices, such as, telephones or cameras (Kock, 2008). When computer networks are employed e-CL may appear as computer-supported collaborative learning (CSCCL) applies. Finally, in the e-CL process several learning elements are identified. These are here distinguished into human, supportive, and framework elements and are examined below.

HUMAN ELEMENTS

In the e-CL process there are several roles of human participants or partners (Good & Robertson, 2006). They are usually considered and presented as communities or groups, although in lacking or trivial learning environments they may be constituted by only one person or be merged with each other. In large projects the communities may consist of several subcommunities and even create a structured hierarchy of nested communities. Furthermore, participants may be members of more than one community creating overlapping communities (Masterman & Vogel, 2007).

For the normal operation of the communities intra- and inter-community collaboration is essential. The participants in e-CL are also called stakeholders and the communities may be online or virtual, offline, face-to-face or real, or blended. Two frequently used terms, related to the e-CL process communities, are the community of enquiry (CoE) (Garrison, Anderson, & Archer, 1999) and the community of practice (CoP) (Wenger, 1998), which use enquiry and practice to achieve their goals, respectively.

The human elements are classified into the following communities; the management, the design, the implementation, the learning, the technology,

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