

# Chapter 61

## E-Collaborative Learning (e-CL)

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### ABSTRACT

*This chapter investigates the highly topical issue of electronic collaborative learning (e-CL) in a holistic overview. First of all, a clarification of the term and context of e-CL is provided comparing it with similar concepts. Second, the human elements and communities of e-CL are examined, together with their roles and aspects. Third, the supportive learning elements—technology, pedagogy, and methodology—are visited, exploring the media, applications, environments, infrastructure, learner modelling, learning objectives, major learning theories, methodological activities, and the learning content and its modalities. Fourth, the framework elements—time, space, and society—are described and a classification of e-CL approaches according to them is provided. Fifth, the e-CL process is examined following the ADDIE model, analyzing its five phases and the design element hierarchy. Finally, future directions of e-CL are considered, and conclusions are reached. Throughout the chapter, key and significant approaches, methods, and terms are pinpointed and concisely developed.*

### 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' 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

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