



Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Collaborative learning in postgraduate level courses

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ARTICLE INFO

Article history:

Available online xxx

Keywords:

Collaborative learning
Postgraduate level courses
Mobile learning
Mobile networks
Social networks

ABSTRACT

Nowadays, we are immersed in the social and mobile networks era. As a positive consequence of this, collaborative and mobile learning in educational environments have been encouraged thanks to the use of computing for human learning. By coupling the advantages of collaborative and mobile learning, the teaching–learning processes involved in postgraduate courses may be greatly enhanced. The pedagogical experiences in this regard lived by the authors in the Alpha–Beta Research Group when coupling collaborative and mobile learning in the context of postgraduate level courses, are presented in this paper.

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1. Introduction

The social and mobile networks era has caught up with us. Impressive technological advances are already here, generating drastic changes in our day-to-day activities. In educational environments, collaborative and mobile learning have been encouraged due to the use of computing for human learning.

According to Lehtinen, Hakkarainen, Lipponen, Rahikainen, and Muukkonen (1999), one of the prime goals of education in the near future will be to enable learners to actively participate in an interconnected society, whose main resource for development (either personal, social, or economical) will be knowledge. The challenges implied by such requirement have pushed educational institutions to find, develop, and implement new appropriate pedagogical methods. It is understood that computers could play an important role in restructuring and developing teaching and learning processes to be better prepared for future challenges. One of the most promising concepts arising from such developments is computer-supported collaborative learning. Clearly, these authors correctly perceived, before the onset of the new millennium, the relevant role played by computer-supported collaborative learning in educative contexts.

On the other hand, a lot of contemporary authors refer to the importance of the modern educational technologies. For example, Webster and Murphy (2008) state that novel technologies present

research opportunities for the teaching and learning processes. In this sense, the challenges to learning with technology include open source software developments, social networking tools, mobile devices, and management systems. However, achieving a balance between these and other factors presents a challenge to all educators. The authors conclude that the institutions can act strategically to both encourage innovation and—at the same time—ensure that the technological underpinnings of the learning and teaching environment are stable and supportive. In regards to this line of thought (which serves as support in our research) we shall mention two recent works of strategic importance. On one hand, Bottino (2012) expresses some notions and perspectives about framing technology enhanced learning environments, with a vision according to our work premises. On the other hand, Benson, Morgan, and Tennakoon (2012) present a framework for knowledge management in higher education, which we have taken into account in formulating our pedagogical experiences.

An emerging concept coupled with social and mobile networks is that of Semantic Web, whose importance is highlighted by such authors as Vossen, Lytras, and Koudas (2007). They express that the concept of semantics and its capacity to support a new era of applications challenges the traditional perceptions for the never-ending journey of computing. These authors even claim that knowledge and data representation, as well as retrieval, require new conceptual models and the move to a human Semantic Web vision seems timelier than ever.

On the same proverbial page, Lytras and de Pablos (2009) establish that, as semantic technologies prove their value with targeted computing solutions, there are increasing opportunities to consider their application in social contexts for knowledge, learning, and

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human development. These kinds of novel technologies are able also to enable a better use of intellectual assets, in addition to which many governments are forced to increasingly deal with knowledge services that form larger parts of the current and future global economy and society.

The influence of the modern educational technologies has been so pervasive that it has even given rise to a strong debate between specialist: on one hand, there are those who favor information technologies as a technical and functional expression of modernity (the Accolatory), and on the other hand (the Dismissive) there are those who protest the use and abuse of information technologies. Aside from this debate, it is publicly known that both students and mentors make everyday use of this kind of educational technologies (Moreno-Moreno & Yáñez-Márquez, 2008; Yáñez-Márquez, Aldape-Pérez, López-Yáñez, & Camacho-Nieto, 2014).

Lytras and de Pablos (2011) posit that software technologies can play a critical role towards the evolution and innovation of state of the art approaches to well-known deficits of performance in knowledge generation and management. Then, they establish the following open question, in the knowledge society context: how can ideas and abstractions about effective solutions be transformed to functional solutions?

With respect to social and mobile networks, Alexander (2004) and Traxler (2007) note that the socializing power of mobility could bring about collaborative learning and that in these new environments, mobile learning allows students to access academic online resources from any location, at any given time, thanks to the use of mobile devices in social networks.

In the current paper, the pedagogical experiences lived by the authors in the Alpha–Beta Research Group when coupling collaborative and mobile learning in the context of postgraduate level courses, are presented. The rest of this paper is organized as follows: Section 2 is dedicated to describing the nature and basic concepts about collaborative and mobile learning. The third section describes technological advances in educational environments, namely repositories and tools. Pedagogical experiences are presented in Section 4, and a discussion of related works in Section 5; leaving conclusions and future work for Section 6, and finally the references are included.

2. Collaborative and mobile learning

In this section, the nature, development and basic concepts about collaborative and mobile learning are described. In this regard, it is convenient to part from the interesting concepts and ideas included in Lytras and Kurilovas (2014), which are framed in a special edition whose topic is information and communication technologies for human capital development. In this context, the authors state that in the last decade, the appearance and evolution of emerging technologies have given rise to a new environment for using human behavior as a basis for knowledge and learning intensive settings. They claim to have found six technologies with a marked influence in the development of contemporary scientific research, among which learning technologies stand out. In particular, new forms of collaborative development of knowledge and learning objects bases promote further the understanding of how people construct, structure, and reuse knowledge. Further, the authors propose that mobile learning, along with flexible infrastructures using portable smart devices, is quite adequate for the diffusion of micro-content and micro-blogging components to learners on demand.

2.1. Collaborative learning

The concept of collaborative learning is essential for this work, since the Alpha–Beta Research Group is very interested in coupling

collaborative and mobile learning in the context of postgraduate level courses.

Dillenbourg (1999) provides a very broad definition of collaborative learning, as a situation in which two or more people attempt to learn something together. Notice that, in this definition, particular forms of interaction (triggering learning mechanisms) are expected, yet not guaranteed. Thus, a general concern in collaborative learning is to improve the probability of interactions which enable learning happen.

Regarding the approaches underpinning the existence and use of collaborative learning, Zurita and Nussbaum (2004) claim that collaborative learning is considered to enable cognitive development, since it stimulates social interaction and learning among the members of a group. In this regard, two major theoretical approaches explain the role of social interaction in collaborative learning. On one hand, the Vygotskian perspective considers that individual change arises as the result of an internalization of regulatory activities, such as member coordination and interaction of constructive processes, achieved by the mediation of communication between them. On the other hand, the Piagetian approach posits that collaborative learning is effective because it promotes the emergence of socio-cognitive conflicts due to different opinions and strategies employed by the partners.

Independently from the adopted theoretical approach, the members of the Alpha–Beta Research Group are convinced of the benefits of adopting collaborative learning in postgraduate level courses, as Roberts (2005) highlights:

Academic benefits: promotes critical thinking skills by through discussion and debate; involves students actively in the learning process by creating an environment of active, involved, exploratory learning; improves classroom results by promoting higher achievement and class attendance, as well as innovation in teaching and classroom techniques; and fosters the development of problem solving techniques, potentially helping weaker students improve their performance when grouped with higher achieving students.

Social benefits: develops a social support system for students; builds diversity understanding among students and staff; and establishes a positive atmosphere for modeling and practicing cooperation, as well as team work.

Psychological benefits: can help to reduce anxiety and encourage students to seek help and accept tutoring from their peers; and develops positive attitudes towards teachers.

The benefits of collaborative learning within a computer-supported environment can be at least as great as those within a classroom or lecture hall. In an asynchronous environment, students do not need to meet at a regular place at regular times, so “missing a session” has a lesser impact. Fruitful and constructive discussion and dialogue can take place at any time of the day or night, whenever inspiration or enthusiasm strikes. Good ideas are less likely to be lost, and thoughts can be followed through without regard to the normal time constraints. Opinions can be considered on their merits, without some of the stereotypical assumptions that may be superimposed in a face-to-face environment based on the speaker's gender or physical appearance.

Based on the former concepts, the members of the Alpha–Beta Research Group have strongly incorporated practices inherent to collaborative learning in their academic tasks, with highly encouraging results.

2.2. Mobile learning

The concept of mobile learning, in the context of the current paper, is considered as a relevant complement to collaborative learning, especially when applied in postgraduate level courses at the Alpha–Beta Research Group.

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