An Innovative Collaborative Approach to University Training for Learner-Teachers

Jamal Eddine Barhone, Abdelmalek Essaâdi University, Morocco*

iD https://orcid.org/0000-0002-7473-5021

Mohamed Erradi, Research Team in Computer Sciences and Educational Engineering, Abdelmalek Essaâdi University, Morocco

iD https://orcid.org/0009-0003-5507-1578

Mohamed Khaldi, Research Team in Computer Sciences and Educational Engineering, Abdelmalek Essaâdi University, Morocco

iD https://orcid.org/0000-0002-1593-1073

ABSTRACT

This paper reports on the experimentation of a collaborative learning approach in university training for a Master's degree in "Pedagogical and Multimedia Engineering". It is carried out with learner-teachers training in Instructional Design. The approach adopted focuses on the complexity of the collaborative situation, and is based on three andragogical models: shared cognition, self-directed learning and transformative learning. The aim of this study is twofold. On the one hand, to assess the relevance of a totally collaborative approach that fully integrates students into their learning. On the other hand, to design a collaborative model in the form of a grid that can be used to assess the collaborative potential of a learning situation. The indicators evoked by the collaborative groups in relation to each component of the model they developed reflect their level of appropriation of the model, and the impact of the approach on the development of skills for analyzing and designing learning situations.

KEYWORDS

1. INTRODUCTION

The rapidly changing educational landscape, accentuated by the emergence of new technologies and the diversification of learning methods, is prompting educators to explore innovative approaches to improving the effectiveness of education. Among these approaches, collaborative learning stands out as a promising method, capitalizing on social interaction and the collective construction of knowledge. However, the current context of education is marked by a growing diversity of learners, changing expectations, and the ubiquitous integration of technology into the educational process.

*Corresponding Author

The challenges are manifold, ranging from the need to respond to diverse learning styles to preparing learners for active participation in an increasingly interconnected society. Over the years, numerous studies and research projects have demonstrated the enormous potential of collaboration in developing learners' ability to retain and reinforce the knowledge and skills they have acquired, in the collective construction of knowledge, in the development of a deep understanding of concepts, etc.

2. RESEARCH CONTEXT

The literature reveals numerous meta-analysis studies relating to collaborative learning. These studies aim to report on the different impacts of collaboration on the quality and processes of learning, on the development of cognitive and metacognitive skills, etc. In this respect, we cite the work of (Kyndt et al., 2013; Pai et al., 2015; Cherneiy et al., 2018; Chen et al., 2018).

More recently, Cindy and Heisawn, 2021 carried out a meta-analysis, which examined 700 articles on computer-assisted collaborative learning. The results of these analyses reveal the importance of interdisciplinarity in collaboration and the development of effective learning. In the same vein, Amparo et al., 2021 carried out a meta-analysis of 45 articles on collaborative learning from the Scopus, EBSCO, and Scielo databases between 2017 and 2021. The results of these analyses reveal that collaborative learning makes a significant contribution to the development of learning processes, improves interaction between learners, develops non-technical skills and critical thinking, and promotes values such as responsibility, solidarity, group work, shared cognition, etc.

Other studies have focused more specifically on the design and evaluation of pedagogical approaches and scenarios to be adopted to enable effective and optimized collaborative learning. In this article, we cite the work of (Chitiva, 2021, Molina et al., 2021, Vijayalakshmi & Kanchana, 2020 and Marij et al., 2020), which highlight the importance and effectiveness of collaborative approaches based on problem situations, complex tasks, or collective productions in creating rich and effective collaborative learning experiences.

In their study, Nathalie et al. 2020 described a theoretical model for implementing the collaborative approach in higher education using Mezirow's theory of transformative learning. Boating, 2022, for his part, relied on the notion of directed self-learning to set up a didactic approach integrating the collaborative approach by using modern technologies in adult education.

On the question of assessment applied to collaborative learning, most studies have focused on assessing the influence of psychological factors on the development of collaborative learning using subjective measurement techniques (Abuhasna et al., 2020), peer evaluations (Yokoyama & Miwa, 2021), rating grids (Swan et al., 2008), checklists of complex task indicators (Lee & Osman, 2021), multiple choice questions (Bermert et al., 2020), semi-directed interviews (Cheng, 2021), and questionnaires (Ghaviferk, 2020).

Borge et al. 2019 used the analysis of collaborative scripts to conclude the resources of shared cognition in the collaborative group. Other researchers have used collaborative learning analysis techniques such as the analysis of written traces and social interactions to deduce emerging models of collaboration and the feedback to be put in place (Reiman et al., 2020). Dillenbourg & Hong, 2020 use a large-scale approach to examine the subtleties of collaborative learning in various disciplinary contexts. While Pijiera-Diaz & Suthers, 2020 analyzed the semantic networks generated by collaborative groups during group problem-solving.

All studies on collaborative learning recognize the importance of the learning situation and the learning tasks to be carried out in designing effective collaborative learning scenarios. However, the analysis and evaluation of collaborative potential (in terms of knowledge, know-how, and interpersonal skills) have not received the same attention from research in the educational sciences, cognitive psychology, or computer environment technologies.

Moreover, not all learning situations necessarily require a collaborative approach, as Summers & Volet, 2010 point out, and the choice between individual and collaborative learning depends largely on

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