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The Effect of the Prior Collaborative Experience on the Effectiveness and Efficiency of Collaborative Learning

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Abstract: This study investigates, from a cognitive load perspective, the effect of prior collaborative experience on the effectiveness and efficiency of collaborative learning. Performance, mental effort, and efficiency were measured during collaborative learning and in individual post-tests after one and seven days (i.e., retention and delayed retention test respectively). The results with 90 high school participants found that students who were members of experienced groups outperformed, invested less mental effort, and were more cognitively efficient than students in non-experienced groups in both tests. These results have important instructional implications for designing collaborative environments and provide support for the advantages of forming teams with relevant collaborative experiences before starting collaborative learning.

Keywords: collaborative learning, cognitive load theory, prior collaborative experience.

Introduction

Collaborative learning is an extensively used instructional technique in educational settings. It is the process by which individuals interdependently interact in small groups to learn from solving academic problems (Gillies, 2016; Slavin, 2014). This instructional approach has been broadly studied from multiple disciplines and perspectives (Hmelo-Silver, Chinn, Chan, & O'Donnell, 2013; Hmelo-Silver & Chinn, 2015). Although there is research from different perspectives using different theories, the conditions under which collaborative learning