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Using cognitive load compliant instructions to support working memory for anxious students

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USING COGNITIVE LOAD COMPLIANT INSTRUCTIONS TO SUPPORT WORKING MEMORY FOR ANXIOUS STUDENTS

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Instructional materials designed in accordance with Cognitive Load Theory (CLT) aim to support learning by making the most efficient use of limited working memory (WM) resources Previous research has confirmed CLT compliant instructional materials reduce extraneous cognitive load leading to improved learning and efficiency (Chandler & Sweller, 1991; Paas & Sweller, 2012). There has been little research investigating the relationship between CLT and affective aspects of learning, such as anxiety. Anxiety is a physiological condition that can place a burden on limited WM (Eysenck, 1985; Darke, 1988). A series of three experiments investigated the impact of CLT compliant learning materials on cognitive load, performance and anxiety when solving algebraic problems. The experiments examined differences in the performance of highly anxious high school and undergraduate students under conditions of high, moderate and low intrinsic cognitive load determined by element interactivity with either CLT compliant instructional materials or non CLT-compliant instructional materials. Preliminary results suggest that CLT-compliant instructions can support highly anxious students to solve algebraic problems. This research is novel as there are few studies examining the connection between CLT and anxiety. The research provides an understanding of how mathematics instruction may be designed to better support anxious students so as to facilitate their learning of mathematics.

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