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How primary school students can self-manage cognitive load when presented with redundant information

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Abstract

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HOW PRIMARY SCHOOL STUDENTS CAN SELF-MANAGE COGNITIVE LOAD WHEN PRESENTED WITH REDUNDANT INFORMATION

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Students are often exposed to learning materials incompatible with human cognitive architecture. For example, instructional material with evident redundancy (i.e., presence of unnecessary duplication of information in both text and diagrammatic form) can overload students' working memory and hinder learning. However, there has been limited research undertaken to explore the benefits of teaching students how to manipulate instructional materials themselves, that is, self-managing their cognitive load. This paper presents a work in progress investigating how primary school students can self-manage cognitive load when presented with instructional materials with evident redundancy. The study will be undertaken with Stage 3 (Year 5-6) primary school students (aged 9-11) in two regional Australian schools. Participants will be randomly allocated to one of three instructional groups: (1) Redundancy group, in which participants have to learn from self-explanatory diagrams with evident redundancy (duplicated information); (2) Teacher-managed cognitive load with similar instructional materials as Group 1, but in a redundancy-free format; and (3) Self-managed cognitive load with the same instructional material as Group 1, but with explicit guidance in the form of written instructions on how to self-manage the cognitive load imposed by the redundancy effect.. This research builds on existing research about how learners can self-manage their cognitive load (Agostinho, Tindall-Ford, & Roodenrys, 2013; Roodenrys, Agostinho, Roodenrys, & Chandler, 2012; Tindall-Ford, Agostinho, Bokosmaty, Paas, & Chandler, in press). A discussion of preliminary results of this study will be provided at the conference.

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