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Proposal Data

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Title of the Proposal: The isolated interacting elements effect: isolated or single elements?

Session Format: Paper presentation

Abstract:

Aim.

The isolated interacting elements effect can be obtained when learning elements are presented in isolation without indicating the manner in which they interact (Sweller, 2008). This procedure is superior to presenting the full interacting material twice. This effect is one of the less replicated effects in the cognitive load theory (Pollock, Chandler & Sweller, 2002). The fact that the effect is obtained when elements are presented in isolation is a bit intriguing: Is the effect caused by the transition from the simple to the complex or by the fact that single elements are isolated? What would happen if the interacting material was presented first, the single elements after? The aim of this study was to replicate this effect and to test it against two alternative presentations: single but not isolated elements first, and interacting material before single elements.

Method.

70 students of three different technology universities participated to the experiment. The students had to learn how the thermal regulation function, what are the elements implicated in thermal regulated systems and how those elements interact. Three versions of the same content were designed: (a) elements isolated were presented before the interacting system; (b) single elements were presented first, but each element was presented with its relationships with others elements, the interacting system was presented after; (c) the interacting system was presented before the elements. The knowledge about thermal domain, regulation, and components of thermal systems were assessed before (pre-test) and after (post-test) learning. Transfer questions were also asked after learning.

Results.

An ANOVA showed a strong learning effect and a material effect. The learning gain (post-test – pre-test / post-test) was significant in the “single first” condition (+.19), in the “system first” (+.16) and the “isolated first” condition (+.44). But there were no significant difference between “single first” and “system first”.

Conclusion.

This study replicate and contribute to specify the isolated interacting elements effect.