

The seductive details in online mathematics learning

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ATTRACTIVE ENVIRONMENTS

The new technologies and multimedia formats have given rise to highly attractive synchronous virtual environments for learning mathematics. However, the cognitive theory of multimedia learning suggests that it is preferable to eliminate seductive information from a multimedia presentation.

VIDEOCONFERENCES?

Nevertheless, it is still unclear whether this effect manifests in ecological situations such as synchronous video conferences.

EFFECT OF IMAGES

In order to address this gap, two experiments were conducted to examine the effect of instructional, decorative, and seductive images on mathematics learning through synchronous video conferences, for both beginner and advanced students.

TWO EXPERIMENTS

The first experiment ($n = 156$) revealed that both materials with instructional graphics and materials without graphics are more efficient (i.e., they generate higher performance with equal mental effort) than materials with seductive graphics. In the second experiment, the moderating role of prior knowledge was analyzed ($n = 163$), including advanced students in the study.

RESULTS

The results suggested that novice students performed better with materials containing instructional and decorative graphics compared to those presenting seductive graphics. However, this disadvantage of learning with seductive graphics disappeared in advanced students.

CONCLUSION

It is concluded that the effectiveness of online mathematics learning depends on the type of graphics used and the level of prior knowledge. These results are discussed from the perspective of cognitive load and multimedia learning, and practical guidelines are provided for teaching and researching online mathematics learning.