



The comparison of the effectiveness of traditional, electronic and combined (electronic and traditional) training on the cognitive load of talented adolescent girls

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Abstract

Aim: This study aimed to determine the comparison of the effectiveness of traditional, electronic and combined training the cognitive load of talented adolescent girls. **Methods:** It was a quasi-experimental study with pre-test-post-test design and follow-up with a control group. The statistical population of this study included all talented adolescent girls in the high school of the district one of Kerman city. Among these 2500 girls, 60 talented girl adolescents in the age group of 18 years were selected by multi-stage cluster sampling method, and were randomly assigned into four experimental groups of traditional, electronic, combined and control (15 people in each group). To conduct this research at the beginning of the course, the assessment of cognitive load was designed based on traditional, electronic and combined training and then administrated on experimental group students. The control group also passed the same evaluation at the pre-test stage. The cognitive load questionnaire of Paas and Van Merrienboer (1994) was used to evaluate the effectiveness of these three educational methods. The repeated measures variance was used to analyze the data. **Results:** The results indicated that all three trainings were effective on cognitive load ($F = 111.82, P = 0.001$). The results also indicated that the learners were significantly more satisfied with the combined approach than the other two groups ($P = 0.01 < 0.05$). **Conclusion:** Adolescents, especially the talented, should receive training in a multimedia way with new technologies. And this training should pay special attention to the principles of processing and effects of cognitive load to reduce external cognitive load, maintain optimal cognitive load and manage internal cognitive load to maximize students' academic achievement.

Keywords: Traditional, Electronic, Combined, Cognitive Load, Talented Adolescents

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