In search of gender effects on cognitive load: Possible implications for the future of cognitive load theory?

Andrew Bevilacqua - Bevilacqua Research Corporation
Genomary Krigbaum - Grand Canyon University
Fred Paas - Erasmus University Rotterdam, University of Wollongong

A recent experiment using a dual-task methodology with 39 test subjects indicated that cognitive load levels might actually be reduced in test subjects when certain kinds of movement were introduced in the far peripheral visual field. This effect was more pronounced for males than for females. A larger follow-up experiment that attempted to replicate those results using 126 test subjects failed to show statistical significance however there were some indications that cognitive load levels changed when both continuous and intermittent movement was presented and that that effect may have been different for male and female subjects. The test results from the first two experiments are presented along with short discussion regarding the possibility that there are gender differences in the way that working memory processes movement in males and females. During the data analysis of the second experiment it was discovered that there might have been a significant major limitation in the experiment setup that adversely affected the test results. Specifically there was no chin rest to keep the heads of the test subjects fixed. It is suspected that this limitation in the study design caused the presentation of movement in the far peripheral visual field to be outside of the test subjects view in some cases leading to the non-significant results. To solve this problem in future studies a prototype wearable appliance to present movement in the far peripheral vision of test subjects for a future experiment is introduced. This appliance is expected to help researchers to understand how different kinds of movement from the physical learning environment may affect cognitive load levels and if that effect is different between the sexes.