Annotated bibliography for LRC 515


This quantitative study investigates how different multimedia formats affect verbal and visual learners’ emotions and learning performance. Instead of stating research questions, the researchers state three hypotheses to be examined:

- “Hypothesis 1. There are significant differences in positive and negative emotions when visualizers and verbalizers are presented with different multimedia materials for learning (1276).”

- “Hypothesis 2. There are significant differences in learning performance when verbalizers and visualizers are presented with different multimedia materials for learning (1276).”

- “Hypothesis 3. There are significant relationships in learners’ emotions and learning performance when verbalizers and visualizers are presented with different multimedia materials for learning (1276).”

160 students from fifth Grade of a primary school in Taiwan were participated in this experiment. They were divided into three groups studying the same content but using different multimedia formats. The first group used static text and images based materials while the second group used video based materials. The third group introduced to the content using animated interaction based multimedia materials. The methodology used in this study tested the students’ emotions using a technology system called emWave to indicate the heart rate variability (HRV) that directly responsive to emotion states. Pre and posttest also applied to measure the students’ prior knowledge about the content and the performance after the experiment. Each student had the same amount of time doing
the experiment test including 10 minutes of studying the materials provided. The results of the study revealed as follows:

- Regarding the first hypothesis, the results suggest that using video based material generated positive emotions for verbalizer comparing to the other two groups. For visualizer learners, there were no significant different among the three formats and the researchers explained the reason that all the formats presented visually.

- The second hypothesis was seeking the impact of the three formats on learning performance. The results show that the prior knowledge of all groups did not differ significantly. For verbalizers, video based material has a significant impact on their performance while the other two formats did not. Video based material has a significant impact on the visualizers’ performance as well as the animated multimedia based material.

- Examining the third hypothesis, the correlation between emotions and learning performance was strongly indicated with verbalizers who used video based materials.

Generally, the study shows that using video and animated multimedia are better format for visualizers, which is expected. However, verbalizers performed better when using videos that contain both texts and other types of multimedia such as sounds and images.