Visualizing Physics Questions

Curtis Bradley\(^1\), Jessica Allred\(^2\), Mohammad Zeidan\(^2\)

Khalifa University, Physics Department, College of Arts and Science, Abu Dhabi, United Arab Emirates\(^1\)
Khalifa University, Preparatory Department, College of Arts and Science, Abu Dhabi, United Arab Emirates\(^2,3\)

ABSTRACT

Physics is one of the most required subjects in science and engineering. Students cannot master it just by watching their lecturer solving the end of chapter problems or other extra problems. Students must fully participate in solving these problems. The aim of this study is to investigate the effects of visualizing physics problem on students’ success in physics course. 28 of undergraduate and 10 preparatory students was randomly assigned to participate in this study to solve physics problems related to their mechanic’s physics course. These problems were presented in plain English, and students were asked to convert a mental image from the text into a diagram/sketch. The result of the study indicates the importance of training students on visualizing Physics problems to help them with solving the problems and enhance their understanding to the Physics concepts.

Keywords: Physics education; visualization, mental image; scientific language; solving problems