

A study on the changes of attitude toward STEM among senior high school girl students in Taiwan

Lou, S.-J. ; Diez, C. R. ; Hsiao, H.-C. ; Wu, W.-H. ; Chang, Shu-Hsuan

Abstract

This study aims to explore the change of attitude toward STEM among senior high school girl students after participating in a solar automatic trolley contest. The questionnaire survey and focus group interviews were adopted as research methodologies. The data was analyzed through attitude scale and the quantitative data and qualitative materials of interview contents. The subjects were the 11th grade girl students in a senior high school who participated in the solar automatic trolley contest in teams. A total of 77 students participated in 18 teams. The results found that 1) books and teachers were their important sources of scientific information and practical teaching was more likely to trigger learning motivation; 2) the advantage of the technology learning was the enhancement of the sense of achievement; the disadvantage was the effect of the effectiveness of work; 3) the learning engineering could cultivate systematic thinking, problem-solving ability; 4) mathematics is an indispensable tool in daily life and teachers have played an important role in mathematics learning. Therefore, the research proposed that school should create more successful learning opportunities as well as provide the models of successful women; schools and businesses should encourage women to grasp learning and working opportunities in STEM field; teachers should strengthen integrated professional knowledge about STEM through special topic production curriculum, strengthen students' integrated knowledge about STEM.

Key words: Attitude; Senior high school girl students; STEM