

Impact of a STEAM Lab on Science Achievement and Attitudes for Girls

Barbara H. Cifaldi

ABSTRACT

This research identifies a problem of practice with standardized science test scores declining over the last eight years. Sea Turtle Elementary School for the Creative Arts (STESCA; pseudonym) schedule allowed 150 minutes per week for science instruction, compared with 450 minutes per week for mathematics instruction. Science instruction has been implemented primarily through direct instruction and the use of textbooks and videos. In addition to the limited instructional time for science and predominant use of direct instructional methods, there is a lack of racially diverse and female role models evident in the curriculum. With STESCA PASS science test scores declining over the last eight years, the staff has embraced the integration of STEAM (Science, Technology, Engineering, Arts, Math) into the curriculum. The identification of the problem led to the question: Will implementing a STEAM lab that promotes inquiry, cooperative learning, and hands-on activities have a positive impact on science achievement and attitudes towards science of elementary age girls? To answer the question, an action research study will be utilized using the four stages: planning, acting, developing, and reflecting (Mertler, 2014). The action research study will be comprised of a one-group pretest-posttest pre-experimental design.