

Improving STEM Education Awareness via Math, Science, and Robotics Club Activities in a K-12 Environment

Faruk Taban, Ph.D.

Instructor
Western Nevada College

Murat Yuksel, Ph.D.

Assistant Professor
University of Nevada, Reno

Erdinc Acar, M.Sc.

Executive Director
Coral Academy of Science

Abstract

We investigate the impacts of specific club activities on STEM education such as Math, Science, and Robotics Clubs at Coral Academy of Science in Reno, Nevada - a Science, Math, and Technology emphasis K-12 Charter School.

In regards to Math and Science, we explore effects of club activities such as participation in Math Counts, Math League competitions, and Math and Science Olympiads. The Math Club has always participated in Math Counts competitions since the school was established in 2000. It has also been active in Math League and Math Olympiads for 3 years. Middle and High School Science Clubs have been really active in Science Olympiads and recently won the State Championships in 2007.

Each year since 2003, a team from middle school students has designed and developed a LegoRobot and has competed in the FIRST Lego League using Lego Mindstorm technology. On the other side, each year a high school robotics team has built an actual robot and participated in the FIRST Robotics Competition. The robotics clubs involved activities with an integration of various basic engineering concepts such as manufacturing, construction design, and algorithmic thinking.

The student teams have been sponsored by either partnership through NASA Nevada Space Consortium grant or by some local sponsors.

The school, at the beginning of each year, has set up several student teams to participate in each competition. Several local engineers, graduate students, and parent volunteers have contributed to these projects.

After these activities, we have been pleased to observe more awareness to STEM education at the school in general.