

Teacher intervention as a tool for bridging the gap between formal and informal science and technology education: The “KamatZ” program

Orna Fallik

Advisors: Bat-Sheva Eylon and Sherman Rosenfeld

Today, science and technology classes in junior-high schools are large (between 30-40 students per class) and their students are heterogeneous in many different aspects, i.e., abilities, skills, learning styles and socio-economic backgrounds. As a result of this size and diversity, many teachers choose to teach by lecturing. Even when teachers adopt cooperative learning methods, with small student groups, the emphasis is usually on reading, writing and memory skills. While these are important skills, when they are emphasized without an experiential approach, they create obstacles for some students, resulting in low achievement. However, the possibility exists that by teaching via different learning styles, giving students more attention, and focusing on their personal needs, the same students will have a better chance to succeed.

The Kamatz program is an informal, out-of-school science and technology programs that tries to deal with and promote under-achieving students. It was initiated by Dr. Oved Kedem, the Director of Educational Projects of Davidson Institute for Science Education. The program's main goal is to increase the students' achievement and self-efficacy by teaching them about science principles through hands-on activities. However, like many informal science programs, there may not necessarily be a connection between the program and the students' progress in school. The purpose of this study is to investigate how best to bridge the gap between the Kamatz program and formal school science. Some of the study's questions are: To what extent do teachers take into account the students' experiences in Kamatz? Why are students motivated to participate in the Kamatz program? Under what conditions might teachers become involved with their Kamatz students? The research tools will include questionnaires of Kamatz students and their school classmates; interviews with stakeholders, Kamatz students and school teachers; and observation of the Kamatz students during the meetings.