



2 Times 5 Initiative – Engineers in Schools Evaluation Study – Interim Findings

March 2015

Program Description

The 2 Times 5 Initiative was developed by a coalition of foundations, nonprofit organizations, business companies and the Ministry of Education. Its goal is to advance excellence in mathematics, sciences, and technology. The initiative specifically seeks to double the number of high school students in Israel who choose and complete matriculation on the level of 5 study units in math, sciences, and technology. As part of this initiative, a program of lectures for students and parents was offered in approximately 100 schools in Israel during the 2014-15 academic year. In this program, engineers from hi-tech companies (Intel, SanDisk, Qualcomm, Microsoft, Marvell, Redhead, Philips) visit schools where they give lectures to ninth grade students and introduce them to the hi-tech world. The goals of the lectures are to increase student motivation and confidence for choosing advanced scientific-technological subjects.

Purpose of the study

To examine the program's impact on the students, and to provide information regarding the quality of the lectures.

Methodology

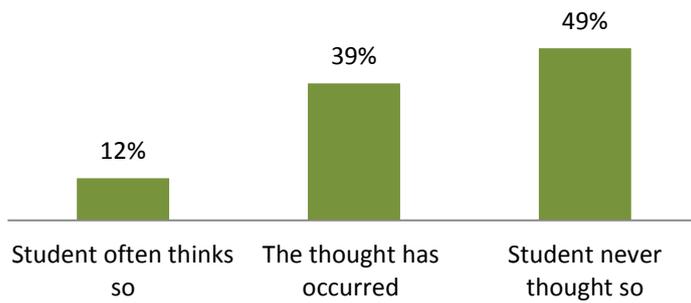
Based on the program's theory of change, student and teacher questionnaires were developed for this research. 481 students from 13 schools responded to the student questionnaires, and 65 teachers from 64 schools responded to the teacher questionnaires. The questionnaires were distributed to the students and teachers after the lecture and examined these variables: need for the program, impact on choosing enhanced science subjects, future employment horizon, motivation, quality of the lectures.

The data collection will be completed towards June 2015.

Main Findings

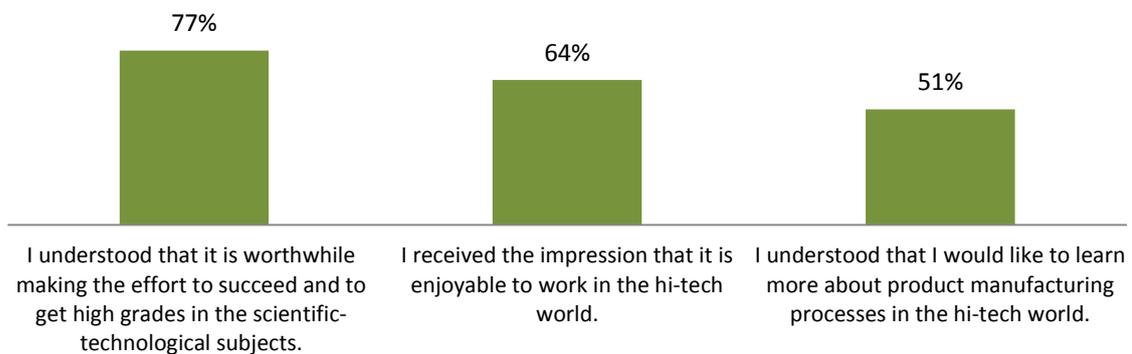
- The research shows that the program addresses a real and actual need. The program participants are students in science classes who receive additional hours of instruction in the sciences and technology (from 7th grade). 51% of the students said that they considered dropping out of the science track. Only 70% of the students claimed that they intend to choose advanced level scientific-technological subjects in high school. These findings show the need for the engineer lecture program, since one of its primary goals is to encourage students to remain in an intensive course of study which requires substantial effort.

The number of students who in recent months thought that science and technology studies are not suited to them (N=481).



- The research showed indications that the lecture program contributes to increasing the motivation of students to choose scientific technological subjects in the future. Most of the students report that the lecture awakened in them an interest in hi-tech subjects and an understanding that employment in hi-tech companies can be very beneficial to them in the future. For example, 77% of the students understood after the lecture that it is worthwhile putting effort into advanced science subjects in high school in order to attain high grades. Similarly, 78% of the teachers thought that an engineer's lecture can have an influence on increasing student motivation to choose advanced level scientific-technological studies.

The contribution of the lecture to increasing student motivation (N=485)



- Most of the teachers and students agreed that the program contributed to increasing their perceived capability for pursuing academic study of science. For example, 63% of the students indicated that due to the lecture they understood that despite the anticipated challenges, they are capable of studying a scientific-technological subject at a university or college in the future.
- The survey of students and teachers indicates that the lectures are of high quality. Approximately 90% of the teachers reported that the content of the lecture was clear and that the lecture was adapted to the relevant age level of the students and to their world. The teachers also report high quality lecturers, who were responsive to the questions of the students, knew how to talk to an audience, and kept the attention of the students.
- An analysis of the statements made by the students and teachers indicates that certain aspects of the program require improvement. Some of the teachers thought that the lecturers did not actively involve the students in the lectures. About 50% of the

students reported that they did not learn new things about the hi-tech world from the lecture. It is also apparent that boys benefitted more from the program than girls.

Interim Summary

When the data from all of the schools in which the program is operating has been gathered, it will be possible to draw conclusions regarding the impact of the program on choosing to study enhanced scientific-technological subjects. At the present stage, one can say that among teachers and students the satisfaction from the program is high, and there are indications that the program is achieving its goals of increasing the motivation and the level of capability among students to pursue science studies in high school and academia.