



Evaluation of the CERN Particle Accelerator Program

Executive Summary

November 2013

Program Description

The program takes groups of excellent pupils (grades 11-12) from southern Israel to visit the particle accelerator on the Swiss-French border. During the two-week visit, pupils are introduced to cutting-edge knowledge and research in physics, and meet top researchers from around the world. The purpose of the program is to encourage participants to choose higher education in the sciences and technology, with emphasis on physics.

The Research Goal

The purpose of the research was to examine the degree to which the program achieves its goals and to provide information that will help shape and improve the program.

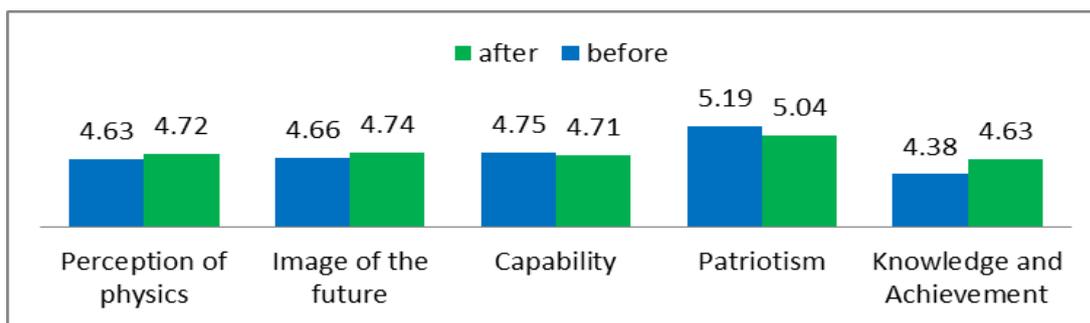
Methodology

As part of the research, participants were given questionnaires before the trip (N=16) and afterwards (N=24). In addition, semi-structured interviews were conducted with pupils and operators of the program. The tools examined the following variables: perception of physics as a subject, image of the future, self-efficacy in physics, acquisition of knowledge, patriotism, expectations and attitudes towards the program.

Main Findings

- An analysis of interviews and questionnaires revealed that the visit was perceived by pupils as a one-time, unique experience. Pupils described a moving and powerful experience that caused them to want to continue studying physics.
- The visit was found to be effective to some extent in improving attitudes towards physics, in the desire to work in physics in the future and in understanding the world of particle physics. No increase was observed in capability to practice physics or in patriotism.

Attitudes with regards to the program's goals



* On a scale of 1-6

- With regards to the organization of the trip, the research indicated irregularities and insufficient preparation. Pupils complained of substandard hotels and a shortage of food. Pupils also claimed that they were not sufficiently prepared and had a hard time following lectures which were of extremely high level and in English.
- Only one pupil said that his final project is related to particle physics, and two pupils went with the delegation despite not having sufficiently succeeded in mechanics.

Points for Improvement

- Almost all participants noted that better preparation was needed. The content was at an extremely high level, with some of the pupils lacking a sufficient basis.
- Several participants noted their difficulty in following the lectures, which were in English. It is recommended that preparation should include an introduction to professional terms in English.
- The recommendation is to review the logistical failures in the program and draw the necessary conclusions.

Conclusions

The visit was a one-time experience for participants, and it appears to have made a short-term contribution towards improving their knowledge. At the same time, the visit only moderately increased their desire to pursue physics in the future (studies and occupation). The research also found a very minor increase in the passion for physics and in some capability parameters. Based on this data, it is suggested to consider re-defining the purpose of the program or the target population.