

Introduction

The Department of Science Teaching was officially founded on December 5th, 1968, by the Executive Council of the Weizmann Institute of Science, which unanimously approved the visionary proposal by the late Professor Amos de-Shalit. The rationale for the founding of this department was twofold: to entrust the leadership of science and mathematics education projects to an academic research entity and, at the same time, to group and considerably enhance the already existing activities in science education on campus (e.g. summer camps, popular science lectures and the like). The Department was envisioned to become a full-fledged academic department, with the implicit recognition of science education as an academic discipline of research at the Weizmann Institute of Science. Thus, the Department was expected to “enable young scientists interested in this activity to graduate doing their doctorate in science education,” contributing to both science education and “adding to the positive image of the Institute in Israel” (quoted from the founding document).

de-Shalit's founding proposal shaped the structure of the Department, its mission and its work philosophy, from its inception till today: we consider the development of innovative learning materials and pedagogical models and their implementation, teachers professional development, as well as evaluation and research (on science learning and teaching) to be continuous, dynamic and long-term activities that feed and guide each other through interactive spiraling cycles. These activities are conceived, guided and tested under the highest academic standards, by using and refining existing theoretical frameworks or producing new ones when needed, with the ultimate goal of enhancing the effectiveness of science education in Israeli schools and in institutions for teacher education and professional development throughout the country.

Currently, the Department operates six disciplinary groups: Mathematics, Physics, Chemistry, Life Sciences, Earth and Environmental Sciences, and Computer Science, and one interdisciplinary group: Science and Technology for Junior High Schools. We carry out extensive research and development projects in all of these areas, aimed at (1) studying science and mathematics learning and teaching and their development, (2) producing and implementing improved and up-to-date learning and teaching materials that integrate the use of modern technologies, and (3) providing professional development for teachers throughout Israel. Research studies focus on cognitive, socio-cultural and affective aspects of learning, teaching and

learning to teach science and mathematics, using various research methodologies: quantitative, qualitative and mixed methods. The Department is also involved in three types of graduate studies: a graduate program, a teaching-certificate program, and more recently, the Yad Hanadiv (Caesarea) program for the enhancement of science and mathematics teachers. In addition, the Department operates two national centers for science teachers—physics and science and technology for junior high school —specializing in the development of leadership among these teachers and in their continuous professional development using research-based models.

The booklet consists of abstracts referring to the research carried out by the current graduate students as well as recent graduates of the department, and short biographies of the invited speakers.

Avi Hofstein

Head of the Department of Science Teaching