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Educating Youngsters to Communicate and Distribute Knowledge in the Contemporary World

Bruria Haberman, *bruria.haberman@weizmann.ac.il*

HIT, Holon, Israel and Davidson Institute of Science Education, Weizmann Institute of Science, Rehovot, Israel

Avi Cohen, *avi@csit.org.il*

The Ministry of Education, Tel Aviv, Israel

Abstract

The increasingly dynamic technological world, which recently has encouraged globalization in many domains, poses new educational challenges regarding preparing individuals to become well-educated and beneficial citizens who are capable of simultaneously functioning on personal, national, and global levels. One basic aspect of globalization is management of shared and distributed knowledge, and the dissemination of knowledge. Hence, one main goal of a modern educational system is to promote an environment in which youngsters can acquire and develop their ability to solve problems, to share knowledge, and communicate meaningfully with others. Many questions arise in this context, such as: what (new) types of skills do learners need, and how these skills should be assessed? Which educational contents and contexts should be emphasized to optimize opportunities for knowledge growth and cultivation of dissemination of knowledge? One specific challenge that educational systems face is to enhance individuals' basic skills as well as the general competencies needed for effective functioning that characterize each distinct level (personal, national, and global). Moreover, educational systems should provide students with the tools needed to maintain balanced, optimal functioning that interleaves between these levels. We suggest that during their formative years students should acquire five basic languages, one of which is computer science, as tools for communication and for processing information. The languages are a mother-tongue, an elective international foreign language, a language of science (mathematics), a language of art and body, and a language of technology (computer science), each of which is used to express themes, ideas and ways of thinking associated with specific domains. Besides enabling basic communication and formalization of ideas and solutions to problems in various contexts, these languages reflect a range of cultures as well as approaches and norms of different communities of practice. The suggested languages should be taught and acquired in a broad sense of cultural and globalization related context. We believe that long-term study of these five languages, along with intelligent practice and utilizing communication skills, is highly useful for citizens to successfully function on personal, national, and global levels. The presentation, based on a paper published by the authors [3], will illustrate various aspects of the suggested educational framework while relating to cultural, technological and practical aspects. Challenges of global (international) assessment (e.g. in the framework of PISA and TIMMS exams) of skills enhanced through applying the suggested educational framework will be discussed.

Keywords

Communication skills, languages, globalization, computer science, assessment

Biographies

Bruria Haberman is a senior instructor in the department of computer science at Holon Institute of Technology, Israel. She is also the head of the “Computer Science, Academia & Industry” program for talented high school students and the Beaver program for K-12 students, both conducted at the Davidson Institute of Science Education, Weizmann Institute of Science, Israel. Her primary research interest is computer science education research.

Avi Cohen is a superintendent-in-chief of Computer Science and Information Technology in the Ministry of Education in Israel. He is responsible for the K-12 Computer Science studies, curriculum, matriculation, and CS teachers' authorization. His primary research interest is XML Web Services and Web development, and Internet stateless programming.

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