The effect of 'Computer Science Unplugged' activities on middle school student's attitudes towards computer science

Rivka Taub

Advisor: Mordechai Ben-Ari

Despite of the growing need for computer scientists, studies show a decline in the number of students choosing to study computer science. One of the reasons is that many students hold an incorrect perception or hold no perception of what computer science is. In order to try eliminating these perceptions, a series of learning activities called 'Computer Science Unplugged' was developed by Tim Bell in of the University of Canterbury in New Zealand. The activities expose young people to central concepts in computer science in a fun and challenging way, *without requiring a computer*. Their objectives are to change students' attitudes towards computer science so that they will consider it to be interesting and challenging, and to try and make students better understand what computer science is.

My research investigates students in two seventh-grade classes that participate in the activities of CS Unplugged once a week after or during school hours during an entire school year. My aim is to check whether there will be a change in the students' attitudes towards computer science, and if so, to try to characterize it. In the beginning of the year the students filled a questionnaire that measured their attitudes, and at the end of the year they will fill in the questionnaire again. In order to better interpret the results, I am observing the activities and I am interviewing the students and asking them about their attitudes.

During interviews the students raised the problem that for some of the activities, they could not think of any relation of the activity to computer science. The same phenomenon was observed during class interactions as well. We suggest two possible reasons for this difficulty: Some of the new concepts presented in the activities ignore students' *prior knowledge* about computer science, and some of the activities are not *explicitly related* to computer science. Therefore in my research I also intend to characterize the activities in terms of their relation to students' prior knowledge and of their explicit relation to computer science.