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BAR-ILAN UNIVERSITY

What Can We Learn from Teachers, Students, and Analysis of Best Practice Lessons on the Factors that Determine the Quality of a Lesson in 1:1 Personal Laptops Elementary Classroom?

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Submitted in partial fulfillment of the requirements for the Master's Degree in the School of Education, Bar-Ilan University

Ramat Gan, Israel   **2015**

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Abstract

In recent years the one-to-one computing model has been gaining momentum in Israel and around the world. According to this model, all of the students and all of the teachers are each provided with a laptop computer. This allows constant connection between the students and the teacher, and amongst the students themselves at school and even after school hours, at home. In the literature many studies investigated the advantages and challenges of the one-to-one model. Most of these researches indicate that a correct integration of computers in education requires significant pedagogical change.

In the 21st century, simple transfer of knowledge to the students is not enough and there is a strong need for the youth to learn compatible learning skills that correlate with contemporary needs. So far there was little attempt to define what is an optimal lesson using the one-to-one computing model.

The purpose of this research is to define what is a good lesson in one-to-one computing classroom. This research used qualitative method. The research included the observations of actual classes given by 6 teachers from 2 different elementary schools who were considered by their peers and the principals of their schools to be experts in instruction with this method; in-depth interviews with those teachers; qualitative questionnaires given to those teachers and interviews with 13 students of these teachers.

An inductive data analysis of the information revealed 11 different categories. The main categories were: The teachers' role, meaningful learning, 21st century skills, technological contribution, assessment, differential instruction, class management, difficulties/disadvantages/limitations, the students role, the type of the task given and teacher-student relationship.

The data analysis also included a comparison between the students and the teachers' perceptions, and between the teachers' perceptions and the actual lessons' observations. Comparison between the teachers and students' perceptions showed that some of their perceptions correlated but that in some cases their perceptions deviated significantly. Both teachers and students seemed to agree about the students' learning responsibility about the technical difficulties that exist and about the essential contribution to the technology to the learning process as a vast source of knowledge and as a mean that assists in organization and assessment of the learning outcomes. The differences between the teachers and the students' views, were noticeable mainly in regard to the role of the teacher: the teachers viewed their role to be guides and instructors while most of the students viewed the teachers' role in the more traditional way - as knowledge transferors. An additional gap between teachers' and students' perceptions was that the teachers thought that they were teaching in a relevant and experiential manner while most students barely mentioned this in their answers. Another difference was about the teachers' differential instruction to answer the students' needs: while the teachers emphasized this point, the students mentioned this very little. While comparing the teachers' perceptions to their actual classes there was a much higher correlation.

The conclusions of this research were that in order for a class in the one-to-one computing model to have optimal instruction it needs to have the following conditions: A professional teacher specializing in the one-to-one computing model; a teacher that holds positive approaches towards this model and the use of technology; the teacher has to have a multi-level function: both as a mediator of the learning material and as an educator; having the learning process take place with no restrictions of time or place, and not having a class just as a 45 minute unit; early preparation of the learning material by the teachers; giving computerized learning tasks that are relevant to the students' lives and will allow exploration, creativity and collaboration; responding in a differential manner that allows all students to express the best of themselves and in accordance with their

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capabilities; correct pedagogy; addressing social issues; explicit instruction of 21st century skills; technical support; formative assessment; avoiding unnecessary computer usage; a systematic approach by the school to preserve and develop the students skills.

The research findings raised the need for continuous training for the teachers, and the need to provide them with technical and emotional support throughout the year. Policy makers should encourage increasing teamwork between the teachers and allocate it a fixed time in the schools weekly schedule.