Bar-Ilan University

What is a Good Lesson in 1:1 Class? Identifying Criteria of Best Practice Teaching through the Viewpoint of Teachers, Students & Analysis of 1:1 Lessons in Middle School

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Abstract

The use of computers nowadays is very common and essential in all areas of our lives. Accordingly, the demand from the education system to train the student to function in the 21st century is growing. Recently, more and more schools and classrooms have adopted the model of one-to-one (1:1) laptop program, one laptop per child (OLPC), using information and communications technology (ICT). According to this model, every student and every teacher in the classroom has a personal laptop that accompanies him/her regularly at school and at home. Many studies have examined the effects of this learning environment method, the ICT - 1:1, and found a beneficial effect in terms of technology, technological literacy, writing and success on standardized tests. In addition, the studies found that teachers play a vital role in the effective implementation of the ICT - 1:1 model.

In Israel, the Education Ministry of Israel initiated a national program for computerization as part of the adjustment of the education system for the 21st century. Studies that were conducted on the use of these technology-intensive environments indicate an advantage in teaching and learning according to the ICT - 1:1 model as opposed to old traditional method of teaching.

Despite many published studies which indicate the effectiveness of integrating technology in teaching, there is no published study, as of yet, which examined, in depth, the criteria for best ICT - 1:1 lesson.

The objective, and uniqueness of this study, is defining the characteristics to create the best environment for ICT - one-to-one model classroom. This objective was achieved by performing an in-depth qualitative study, asking both the teachers and the students as to what is the optimal pedagogical use of the ICT - 1:1 method.

The study included 6 teachers, from different disciplines, who teach both junior-high and high school students, in schools who combine personal laptop computers in a ratio of 1:1 in a systematic and ongoing manner. The teachers who participated in the study are experienced teachers, who have been teaching several years, successfully, by the ICT - 1:1 method. The study also included 26 students, who attend the classrooms of the 6 teachers included in the research.

In the first phase of the study, each teacher answered a qualitative questionnaire designed to verify his/her point-of-view about of teaching and learning by the ICT - 1:1 method. The teachers filled the written questionnaire, then were observed while

teaching, and then were interviewed. In addition to that, all of the participating students were interviewed.

In order to obtain reliable observations and conclusions, the videos of the teaching process were observed several times, as well as all the interviews with the teachers and students. The qualitative data collected from the study was analyzed, mapped, and categorized using the tool called school observation method (SOM).

The following categories and sub-categories were observed:

- The contribution of the technology - access to information, tools, and visualization.

- The nature of learning tasks - high order thinking, asking questions, peer teaching, choice.

- 21st Century Skills - technology, learning, teamwork.

- meaningful learning - experiential pleasure and interest, relevancy, active learning.

- difficulties/disadvantages/limitations - diversions, technical difficulties, the ease with digital illustration rather than actual observation on the phenomenon, the nature of the learning task.

- teaching management – control, time management.

- Assessment - test, assignments, assessment during the lesson.

- the role of the teacher - the teacher as a guide, leader, mediator, conveys knowledge, lesson preparation and selection of the online learning tool.

- Differential response – variations in learning abilities, different expressive ability of the student.

- The role of the student - collaboration, investment, taking responsibility for learning, listening.

- Student teacher relationships - active student, teacher is not threatened by the student knowledge, honesty.

According to these categories, the findings included four parts. Analysis of questionnaires and interviews with teachers; A comparison between the findings of the questionnaires and interviews with teachers and their lesson observations, analysis and teaching practice; Analysis of interviews with students studying in classes of teachers participating in the study; Comparison between the perceptions of the teachers and the perceptions of the students.

The analysis of the findings in light of valid categories, and review of the relevant literature, shows that in order to obtain an optimized learning environment in the 21st

century, which include a personal laptop for each student, care must be taken on a number of characteristics - some characteristics relate to the teacher professionalism and adapting to the work environment, and some properties of the lesson itself.

One of the obvious conclusions of the study is that increased allocation of resources for continuous training, in order to implement the changes, could help strengthen the teachers confidence in using the ICT - 1:1 method of teaching.

Also, it is recommended that the school will provide mentoring for teachers who are not experienced in teaching classes according to the 1:1 method, so that these teachers could train other staff.

In addition, it is important that the learning environment and schedule would allow teamwork. Despite the budgetary constraints, it is desirable that schools will allocate learning spaces that meet these needs.

In teaching classes in the 1:1 method, it is advisable to plan extended learning units rather than individual lessons of 45 minutes. In the 1:1 method of learning, the technology poses significant learning capabilities and many opportunities for students to be exposed to information. In order for this process to take place in its best manner, it is necessary to allow the students and the teachers to spread out their class periods over a number of hours. There is also a need to investigate optimal learning according to the different disciplines.

In light of the mentioned above, the main recommendation is to provide ongoing support for teachers who integrate the ICT method. Even teachers who are considered experts in ICT in their schools, still need support and consultation. This support is vital and necessary and must be sustained for numbers of years.