

Chapter 17

Interactive Boards in Schools: Middle and High School Teachers' Uses and Difficulties

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ABSTRACT

This chapter examines middle school and high school teachers' use of interactive boards in the classroom, as well as the goals behind this use and the difficulties encountered throughout it. Ten middle school and high school science and mathematics teachers who use the interactive board for teaching science and mathematics were interviewed to elicit their practices, goals, and difficulties when using interactive boards in the classroom. The first two stages of the constant comparison method were utilized to analyze the collected data. The research findings show that science and mathematics teachers made different uses of the interactive board, which could be related to treating scientific relations, phenomena, and experiments, as well as practicing learned materials and engaging students in building activities in games and in discussions. Utilizing the different options of the interactive board, the participating teachers had various goals: giving students the ability to investigate, motivating them to learn, attracting them to the lesson, making them enjoy their learning, encouraging their collaboration, shortening the teaching time, and loading previously taught lessons. Using the interactive board in the classrooms, the teachers encountered some difficulties, such as: technical difficulties, owning the appropriate skills for using effectively the interactive board's different options, preparing appropriate activities, fulfilling students' expectations, and keeping class order.

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INTRODUCTION

The interactive whiteboard is a large interactive display that combines a whiteboard, a computer and front projection. As learning tools they engage students with multimodal resources, as images, video and audio. Further, they enable what is done on a computer screen to be projected onto an interactive whiteboard. According to Smart Technologies Company, the first interactive board was introduced by Smart Technologies in 1991 (Smart technologies, 2006). Since then, they are becoming an integral part of the educational scene in schools in the western countries and are not considered just an additional aid to teaching (Kent, 2004a, 2004b). This also has been the case for the last couple of years in the Arab schools in Israel; what necessitates examining different educational aspects associated with the interactive board presence in the classrooms. One aspect of this learning is the teachers' perception of the interactive boards as tools for teaching and learning. This research will attempt, using quantitative methods, to examine such perceptions regarding didactic and pedagogic issues. It will examine whether there are differences between (1) teachers in public schools vs. teachers in private schools; and (2) teachers who use computers in their teaching vs. teachers who do not. Further the research will examine teachers' reasons for not using the interactive boards in their teaching and whether there are differences in these reasons between teachers in public schools vs. teachers in private schools.

BACKGROUND

Researchers point at the interactive boards as tools which contribute to teaching and learning in the classroom. We describe below those researches differentiating between them regarding the subject of the benefit (teacher/ student) and the aspect of the benefit (adding resources, adding motivation, etc.).

Researchers point that interactive boards help change, improve or add to the teaching methods of teachers who use them in the classroom (Cuthell, 2002; Latham, 2002; Levy, 2002; Jones & Vincent, 2010). Cuthell (2002), for example, administered a questionnaire in internet sites about teachers' opinions regarding the use of interactive boards in learning in elementary and middle schools. The findings show that when the interactive boards are installed in the classrooms and when the teachers have the required skills for using those interactive boards, a technological environment will be created which will support teachers and enable the transformation of their teaching methods to diversified ones.

Interactive boards add more resources and strategies to the teaching methods of teachers, enabling them to use more efficiently learning resources (Campbell & Kent, 2010; Cuthell, 2002; Glover & Miller, 2001; Levy, 2002). Specifically, they help teachers provide the students with more challenging learning opportunities (Latham, 2002). Levy (2002), for example, found that teachers looked at the interactive boards as aiding in presenting information and learning resources (as the easiness with which it is possible to draw on a greater number and wider variety of information and learning resources), in facilitating classroom interaction and activity (as freeing up time for interaction and task-related activity), and in their educational impact (as helping teachers to give more effective explanations).

Interactive boards not only contribute to the teacher but to the student too, supporting his learning - enabling understanding, concentrating, presenting information, remembering, thinking processes, and playing, and causing motivation (Kuzminsky, 2008; Levi, 2002; Schmid, 2008; Wall, Higgins, & Smith, 2005); stimulating learning - through increasing motivation, fun, self confidence, attention, and interest (Beeland, 2002; Wall, Higgins, & Smith, 2005); providing preferred learning approaches - through supporting different learning styles: visual, audio, verbal-social, and kinesthetic (Schmid, 2008;

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