

ANALYSIS OF EFFECTS OF TABLET PC TECHNOLOGY IN MATH EDUCATION OF FUTURE TEACHERS

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The concept of a “digital divide” separating those with access to computers and communications technology from those without is simplistic. Research (Peslak, 2005) shows that computers per students and total number of computers in a school significantly effects student learning, but surprisingly there is a negative impact of this metric on standardized reading and math scores. Another study (Warschauer, 2005) shows that students from a higher socioeconomic status are more likely to use computers for experimentation and critical inquiry, while students from a lower socioeconomic status usually engage in less challenging drills. To benefit from computers teachers should be familiar with the available software and should be able to create math activities that guide students to higher order thinking.

The main focus of our research is the study of the impact of Tablet PC technology on mathematical content pre-service teachers. We also consider other dimensions involved, i.e., "instrumental" dimension (“taking into account that a student using a tool to do mathematics develops knowledge on the tool together with mathematical knowledge” (Lagrange, 2005)).

Future teachers enrolled in math, math methods courses, and internships at local elementary schools were participants of this study: treatment group (15 students that regularly met in a professional development school and used Tablet PCs) and control group (23 students who were enrolled in the same courses with the same instructors, but met at different times and location and did not use Tablet PCs). We statistically compared the effectiveness of our technology-enhanced method for teaching mathematics. This comparison was based on the results of two distinct items: Final Exam given at the end of a four month learning period and students’ Final Grade (cumulative grade based on all the investigations throughout the semester). Our analysis shows that the treatment group achieved significantly higher mean scores than the control group. These higher mean scores imply that the treatment group acquired greater understanding of math content when compared to the control group. This result can be directly contributed to the effective implementation of the Tablet PC technology in the math and math methods courses.

References

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