The Effect of Time to Know Environment on Math and English Language Arts Learning Achievements (Poster)

Yigal Rosen
Time To Know, Inc.;
Faculty of Education, University of Haifa
yigal.rosen@timetoknow.com

Technology-rich learning environments are becoming more prevalent in the classroom and have been used as intellectual partners for active participation in construction of knowledge (Lajoie, 2000; Rosen, 2009; Rosen & Salomon, 2007; Salomon & Perkins, 2005; Weston & Bain, 2010). The current abstract is based on study conducted by Rockman et al, an independent research, evaluation, and consulting firm. The goal if the study was to explore the effects of teaching and learning in Time To Know environment on Mathematics and ELA achievements of 4th grade students, compared to the traditional settings. Time To Know teaching and learning environment is based on social-constructivist approach to learning and teaching (Fosnot, 2005; Von Glasersfeld, 1995). Time To Know interactive teaching and learning environment includes one-to-one student computing with a workstation for the teacher, a Digital Teaching Platform (DTP) that enables the teacher to conduct or plan a lesson (see Figure 1), to receive formative and summative assessment reports for data-driven instruction (see Figure 2), animated narratives, classroom management tools and student assessments (Walters, Dede & Richard, 2009; Weiss & Bordelon, 2010). Every teacher who joins to the teaching process with the environment takes part in professional learning and guidance from an instructional coach.

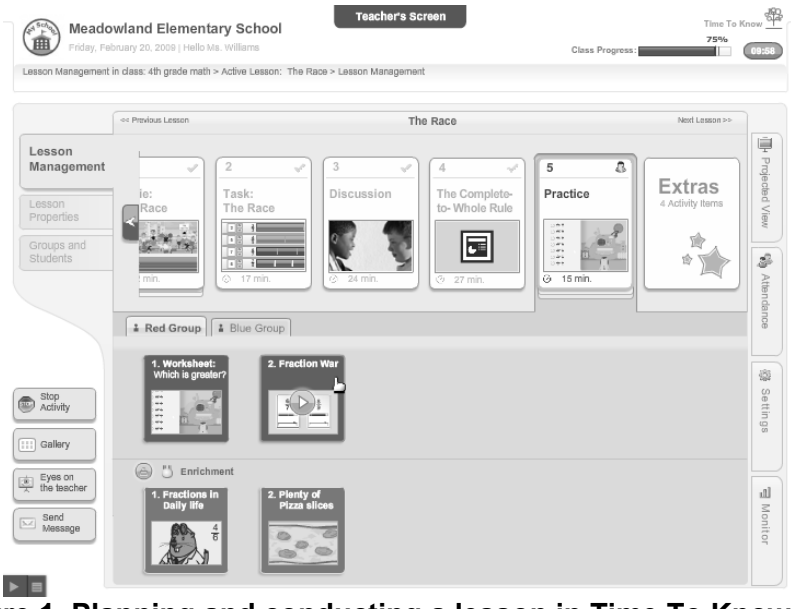


Figure 1. Planning and conducting a lesson in Time To Know DTP

Proceedings of the Chais conference on instructional technologies research 2011: Learning in the technological era
Y. Eshet-Alkalai, A. Caspi, S. Eden, N. Geri, Y. Yair (Eds.), Raanana: The Open University of Israel

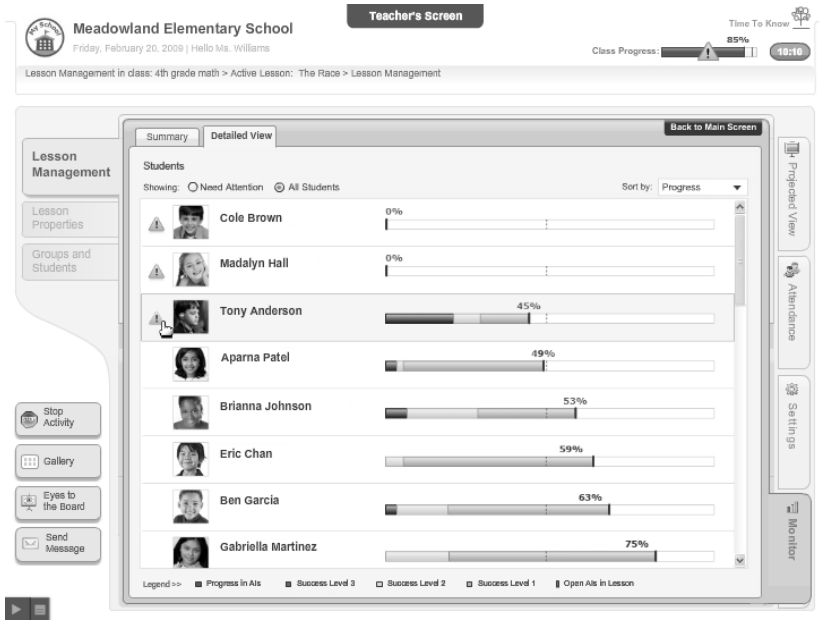
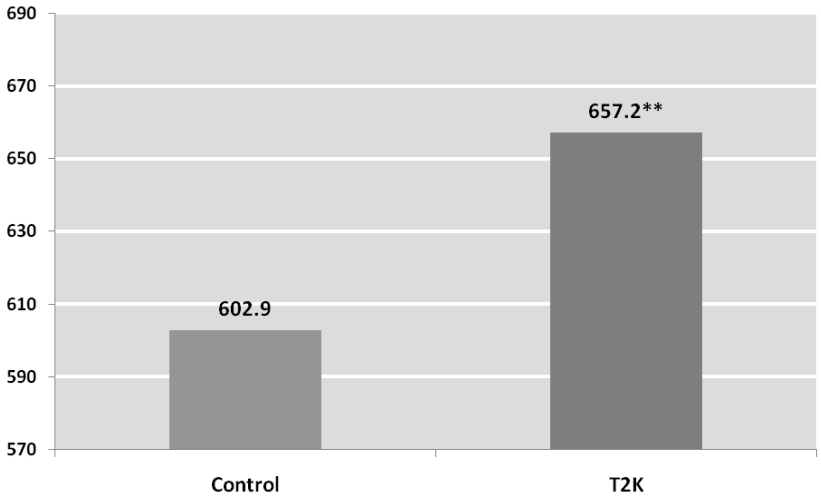


Figure 2. Assessment report in Time To Know DTP

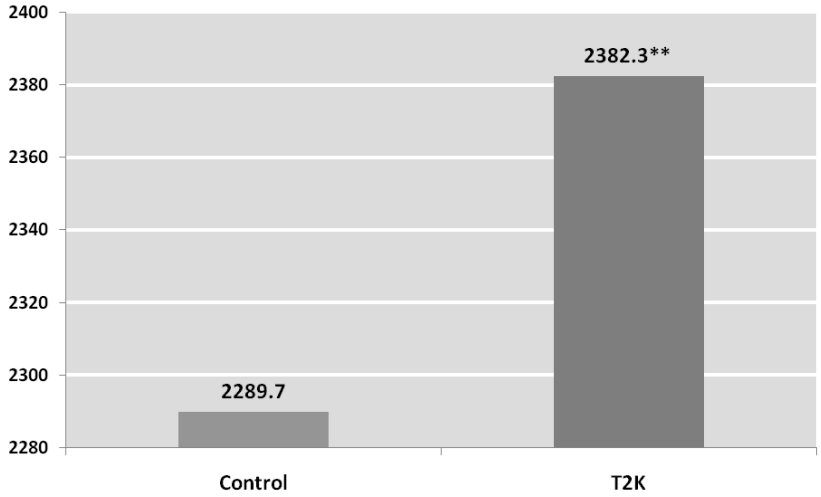
The study was based on the quantitative methodology using a quasi-experimental design. Overall, 127 4th grade male and female students from four elementary schools from the Dallas-area district (59 experimental and 68 control students).

The results indicated that learning in Time To Know environment contributed significantly to 4th grade students' academic outcomes in reading, writing and Mathematics, as measured by Texas Assessment of Knowledge Skills (TAKS) standardized tests (see figures 3-5).



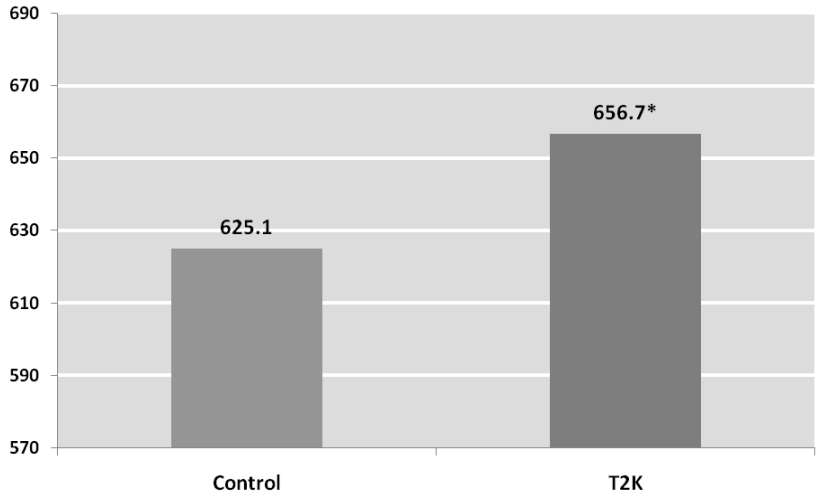
** p<.01

Figure 3. Effects of Time To Know environment on reading achievements



** p<.01

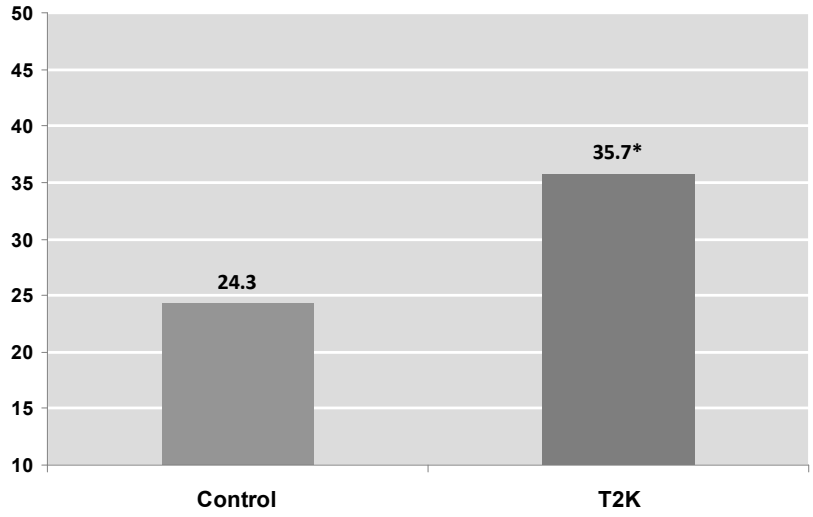
Figure 4. Effects of Time To Know environment on writing achievements



* p<.05

Figure 5. Effects of Time To Know environment on Mathematics achievements

In addition, Time To Know students far out-performed the control students on the Mathematics reasoning assessment overall (see Figure 6).



* p<.05

Figure 6. Effects of Time To Know environment on Mathematics reasoning

Meaningful learning and achievement gains are more likely to emerge from innovative teaching and learning involving individualized, problem-based instruction, increased motivation, and engagement (Cuban, 2003, 2006; Jonassen, 2008; Salomon, 2002). Overall, the findings of the current study are showing the high potential of Time To Know environment, in which a comprehensive digital content is combined with a constructivist-oriented learning and teacher-led teaching platform.

References

Cuban, L. (2003). *Why is it so hard to get good schools?* New York: Teachers College.

Cuban, L. (2006). *1:1 laptops transforming classrooms: Yeah, sure*. New York: Teachers College Record.

Fosnot, C. (2005). *Constructivism: Theory, perspectives, and practice*. New York: Teachers College Press.

Jonassen, D. (2008). *Meaningful learning with technology*. Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Lajoie, S. P. (2000). *Computers as cognitive tools: No more walls* (Vol. 2). Mahwah, NJ: Erlbaum.

Rosen, Y. (2009). Effects of animation learning environment on knowledge transfer and learning motivation. *Journal of Educational Computing Research, 40*(4), 439-455.

Rosen, Y. & Salomon, G. (2007). The differential learning achievements of constructivist technology-intensive learning environments as compared with traditional ones: A meta-analysis. *Journal of Educational Computing Research, 36*(1), 1–14.

Salomon, G. (2002). Technology and pedagogy: Why don't we see the promised revolution? *Educational Technology, 42*(2), 71-75.

Salomon, G., & Perkins, D. N. (2005). Do technologies make us smarter? Intellectual amplification with, of, and through technology. In D. D. Preiss & R. Sternberg (Eds.). *Intelligence and technology* (pp. 71–86). Mahwah, NJ: LEA.

Von Glasersfeld, E. (1995). A constructivism approach to teaching. L. Steffe & J. Gale (Eds). *Constructivism in education* (pp. 3–15). Hillsdale, NJ: Lawrence Erlbaum.

Walters, J., Dede, C., & Richards, J. (2010). *Pedagogical fit: An analysis of the design of Time To Know*. New York: Time To Know.

Weiss, D. & Bordelon, B. (2010). The instructional design of Time To Know's teaching environment. *Meeting on Digital Teaching Platforms*, Graduate School of Education, Harvard University.

Weston, M. E., & Bain, A. (2010). The end of techno-critique: The naked truth about 1:1 laptop initiatives and educational change. *The Journal of Technology, Learning, and Assessment, 9*(6), 5–25.