

4-18-2012

Research exercise: Highly Effective Teaching Strategies That Impact Low Achieving Mathematics Classrooms

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"Research exercise: Highly Effective Teaching Strategies That Impact Low Achieving Mathematics Classrooms" (2012). *Stander Symposium Posters*. 182.

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Highly Effective Teaching Strategies That Impact Low Achieving Mathematics Classrooms

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Teacher Development

- Teacher preparation should lead to teachers mastering their subjects (Ball, 2010, ¶ 17)
- Teachers should be able to analyze a student's response (Jacobs & Philipps, 2010, p. 101)
- Teachers need to be better prepared when they enter the work force (Ball, 2010, ¶ 22)

Lesson Plan Success (5E Cycle)

- 5E cycle: focuses on a cycle that will help students understand the lesson at hand (Eisenkraft, 2003, p. 57)
- Jeff Marshall and Robert Horton found that teachers who had students explore before they explained the lesson received high proficiency ratings (2011, p. 95)

Introduction

- Research on finding a set of teacher strategies that will help students succeed in mathematics and science regardless of economic status
- Need for teachers to perform "high-leverage" practices (Ball & Forzani, 2011, p. 19)
- It is unethical that students are not receiving a high quality education (Ball, 2010, ¶ 22)

Focus Areas

- Teacher Development
- Lesson Plan Success (5E Cycle)
- Science, Technology, Engineering, and Mathematics (STEM)
- Common Core State Standards

References

- Testimony to the United States House of Representatives: Testimony to the United States House of Representatives: (2010).
- Jacobs, V. R., & Philipp, R. A. (2010). Supporting children's problem solving. *Teaching Children Mathematics*, 17(2)
- Eisenkraft, A. (2003). Expanding the 5E method. *The Science Teacher*, 70(6), 56-59.
- Marshall, J. C., & Horton, R. M. (2011). The relationship of teacher-facilitated, inquiry-based instruction to student higher-order thinking. *School Science and Mathematics*, 111(3), 93-101.
- Breiner, J. M., Johnson, C. C., Harkness, S. S., & Koehler, C. M. (2012). What is STEM? A discussion about conceptions of STEM in education and partnerships. *School Science & Mathematics*, 112(1), 3-11. doi:10.1111/j.1949-8594.2011.00109.x
- Thompson, R., & Bolin, G. (2011). Indicators of success in STEM majors: A cohort study. *Journal of College Admission*, (212), 18-24.
- Phillips, V., & Wong, C. (2010). Tying Together the Common Core of Standards, Instruction, and Assessments. *Phi Delta Kappan*, 91(5), 37-42.
- Haycock, K. (2010). Building Common College-Ready Standards. *Change*, 42(4), 14-19.
- Flick, M., & Kuchey, D. (2010). Common Core Standards Emphasize Problem Solving. *Ohio Journal Of School Mathematics*, (62), 54-57.

Science, Technology, Engineering, and Mathematics (STEM)

- Help students understand science and the language that surrounds science (Breiner et al., 2012, p. 4)
- STEM careers are on the rise (Thompson & Bolin, 2011, p. 19)
- STEM helps students reach a higher level of thinking (Laird et al., 2011, p. 26)

Common Core State Standards

- The Common Core State Standards provide teachers and parents with clear and precise standards (Phillips & Wong, 2010, p. 39)
- Take the guesswork out of creating effective lessons (Haycock, 2010, p.18).
- Improve students' mathematical ability (Flick & Kuchey, 2010, p. 55)