**References for the Guiding Principles**

**Mathworks Curriculum Project**

***1. Doing mathematics*** *is about making sense of and thinking deeply about fundamental concepts.*

Anghileri, J. (2006). Scaffolding practices that enhance mathematics learning.

 *Journal of Mathematics Teacher Education, 9*(1), 33-52.

Boaler, J., & Humphreys, C. (2005). *Connecting mathematical ideas: Middle*

*school video cases to support teaching and learning*. Portsmouth, NH: Heinemann.

Borasi, R. (1996). *Reconceiving mathematics instruction: A focus on errors*.

 Norwood, NJ: Ablex

Bransford, J., Brown, A., & Cocking, R. (Eds.). (1999). *How people learn: Brain,*

*mind, experience, and school*. Washington, D. C. : National Academy Press.

Burton, L. (1984). *Thinking things through: Problem solving in mathematics*. New

 York: Simon & Schuster Education.

Cuoco, A., & Goldenberg, P. M., J. (1996). Habits of minds: An organizing

 principle for mathematics curricula. *Journal of Mathematical Behavior, 15*,

 375-402.

Doerr, H. M. (2006). Examining the tasks of teaching when using students'

 mathematical thinking. *Educational Studies in Mathematics, 62*, 3-24.

Handa, Y. (2003). A phenomenological exploration of mathematical engagement:

Approaching an old metaphor anew. *For the Learning of Mathematics*, 23, 22-28.

Henningsen, M., & Stein, M. K. (1997). Mathematical tasks and student cognition: Classroom-based factors that support and inhibit high-level mathematical thinking and reasoning. *Journal for Research in Mathematics Education, 28*(5), 524-549.

Hiebert, J. (Ed.). (1986). *Conceptual and Procedural Knowledge: The Case of*

 *Mathematics*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Hiebert, J., Carpenter, T. P., Fennema, E., Fuson, K., Wearne, D., & Murray, H. (1997). *Making Sense: Teaching and learning mathematics with understanding*. Portsmouth, NH: Heinemann.

Hiebert, J., & Grouws, D. A. (2007). The effects of classroom mathematics teaching on students' learning. In J. Frank K. Lester (Ed.), *Second Handbook of Research on Mathematics Teaching and Learning* (pp. 371-404). Charlotte: Information Age Publishing.

Hiebert, J., & Wearne, D. (2003). Developing Understanding through Problem Solving. In H. L. Schoen & R. I. Charles (Eds.), *Teaching Mathematics through Problem Solving: Grades 6-12*. Reston, VA: NCTM.

Hoffman, B., Breyfogle, M. L., & Dressler, J. A. (2009). The Power of Incorrect Answers. *Mathematics Teaching in the Middle School, 15*(4), 232-238.

Holt, J. (1982). *How students fail* (Revised ed.). New York: Delta/Seymour Lawrence.

Kahan, J. A., & Wyberg, T. R. (2003). Mathematics as Sense Making. In H. L. Schoen & R. I. Charles (Eds.), *Teaching Mathematics through Problem Solving: Grades 6-12*. Reston, VA: National Council of Teachers of Mathematics.

Kazemi, E., & Stipek, D. (2001). Promoting Conceptual thinking in Four Upper-Elementary Mathematics Classrooms. *The Elementary School Journal, 102*(1 (Sep., 2001)), 59-80.

Polya, G. (1945, 1957). *How to solve it, 2nd edition*. Garden City, NY: Doubleday Anchor Books.

Resnick, L. B. (1988). Treating Mathematics as an Ill-Structured Discipline. In R. I. Charles & E. A. Silver (Eds.), *The Teaching and Assessing of Mathematical Problem Solving* (Vol. 3, pp. 32-60). Reston, VA: Lawrence Erlbaum Associates.

Schoenfeld, A. H. (1985). *Mathematical problem solving*. Orlando, FL: Academic Press.

Schoenfeld, A. H. (1988). When Good Teaching leads to Bad Results: The Disasters of "Well-Taught" Mathematics Courses. *Educational Psychologist, 23*(2), 145-166.

Schoenfeld, A. H. (1992). Learning to think mathematically: Problem solving, metacognition, and sense-making in mathematics. In D. Grouws (Ed.). New York: MacMillan.

Silver, E. A., & Stein, M. K. (1996). The QUASAR Project: The 'Revolution of the Possible' in Mathematics Instructional Reform in Urban Middle Schools. *Urban Education, 30*(January, 1996), 476-521.

Sorto, M. A., McCabe, T., Warshauer, M., & Warshauer, H. (2009). Understanding the value of a question: An analysis of a lesson. *Journal of Mathematical Sciences & Mathematics Education, 4*(1), 50-60.

Strayer, J. F., & Brown, E. (2012). Teaching with High-Cognitive-Demand Mathematical tasks Helps Students Learn to Think Mathematically. *Notices of the American Mathematical Soceity, 59*(1), 55-57.

Warshauer, M., Hazlewood, D., and Stouffer, S., (1989). “Suzuki Meets Polya, Teaching Algebra to Elementary School Children,” *The Arithmetic Teacher*, Vol. 37, Number 3, 8-10.

White, A., Lesser, L, and Sorto, A., (2011). “Understanding Student Attempts to Find a Line of Fit,” *Teaching Statistics,* Volume 33, Issue 2, 49 – 52.

White, A., McCabe, T., and Sorto, A., (2010). “Algebra on the Number Line,” *Mathematics Teacher*, Volume 104, Issue 5, 379.

White, A., and Van Dyke, F., *(2006).* “Habits in the Classroom, *Mathematics Teacher*, November 2006 **.** Reprinted in *Virginia Mathematics Teacher*, Spring 2007.

White, A., and Van Dyke, F., (2004). “Making Graphs Count*,”* *Mathematics Teaching,*42 - 45.

*2.* **Persistence** is critical to success in problem-solving and doing mathematics

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*, 261-271.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processess. *Journal of Educational Psychology, 79*, 409-414.

Anderman, E. M., & Maehr, M. L. (1994). Motivation and schooling in the middle grades. *Review of Educational Research, 64*(2), 287-309.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Dweck, C. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040-1048.

Dweck, C. S. (2000). *Self theories: Their role in motivation, personality, and development*. Philadelphia: Psychology Press.

Dweck, C. S. (2006). *Mindset: The New Psychology of Success*. New York: Random House.

Gamoran, A., and Hannigan, E. (2000). *Algebra for Everyone? Benefits of College-Preparatory Mathematics for Students with Diverse Abilities in Early Secondary School*, Educational Evaluation and Policy Analysis, Vol. 22, No. 3, 241-254, American Educational Research Association.

Gresalfi, M., Martin, T., Hand, V., & Greeno, J. (2009). Constructing competence: an analysis of student participation in the activity systems of mathematics classrooms. *Educational Studies in Mathematics, 70*(49-70), 49-70.

Pajares, F., & Miller, M. D. (1994). Role of self-efficacy and self-concept beliefs in mathematical problem solving: A path analysis. *Journal of Educational Psychology, 86*, 193-203.

Stevenson, H. W., & Stigler, J. W. (1992). *The Learning Gap: Why our schools are failing and what we can learn from Japanese and Chinese education*. New York: Summit Books.

Warshauer, H., “Productive Struggle In Middle School Mathematics Classrooms,” *The Journal of Mathematics Teacher Education*, August 2014.

Warshauer, M., and Reinke, K., *“*Mathworks: Preparing Young Hispanic Students for Algebra,” *2003 Education Monograph Series, National Association of Hispanic and Latino Studies, Heritage and History: A Celebration of Diversity*, Houston, Feb. 2003.

Warshauer, M., and Fischer, J., “Mathworks: An Innovative Approach to Systemic Change in Mathematics Education,” *The Journal of the Society of Educators and Scholars*, Carolyn Morales, Chief Editor, Inter American University of Puerto Rico, San Juan, Puerto Rico, March 26, 2003.

Warshauer, M., McCabe, T., Sorto, A., Strickland, S., Warshauer, H., and White, A., Chapter 8: Equity, “*The Peak in the Middle, Developing Mathematically Gifted Students in the Middle Grades*,” National Council of Teachers of Mathematics, Reston, VA, 155-170, 2010.

White, A., and Van Dyke, F., (2004). “Examining Students’ Reluctance to Use Graphs*,”* *Mathematics Teacher,*Vol. 98, 110.

Wiliam, D. (2007). Keeping learning on track: Classroom assessment and the regulation of learning. In J. Frank K. Lester (Ed.), *Second handbook of research on mathematics teaching and learning* (pp. 1051-1098). Charlotte, NC: Information Age Publishing.

Zaslavsky, O. (2005). Seizing the opportunity to create uncertainty in learning mathematics. *Educational Studies in Mathematics, 60*(3), 297-321

*3. Teachers need to establish a* ***classroom culture*** *that develops students’ curiosity and imagination*

Ball, D. L., & Bass, H. (2003). Making mathematics reasonable in school. In J.

Kilpatrick, W. G. Martin & D. Schifter (Eds.), *A Research Companion to Principles and Standards for School Mathematics* (pp. 27-44). Reston, VA: National Council of Teachers of Mathematics.

Bass, H. (2005). Mathematics, mathematicians, and mathematics education.

 *Bulletin of the American Mathematical Society, 42*(4), 417-430.

Bass, H. (2011). A Vignette of Doing Mathematics: A meta-cognitive tour of the production of some elementary mathematics. *The Montana Mathematics Enthusiast, 8*(1 & 2), 3-34.

Boaler, J. (1998). Open and closed mathematics: Student experiences and understandings. *Journal for Research in Mathematics Education, 29*(1), 41-62.

Carter, S. (2008). Disequilibrium & Questioning in the Primary Classroom: Establishing routines that help students learn. *Teaching Children Mathematics, 15*(3), 134-138.

Dewey, J. (1910, 1933). *How we think*. Boston: Heath.

Doyle, W. (1988). Work in Mathematics Classes: The context of students' thinking during instruction. *Educational Psychologist, 23*(February 1988), 167-180.

Fennema, E., Carpenter, T. P., Franke, M. L., & Carey, D. A. (1993). Learning to use children's mathematical thinking: A case study. In R. B. Davis & C. A. Maher (Eds.), *Schools, mathematics, and the world of reality* (pp. 93-117). Boston: Allyn & Bacon.

Herbel-Eisenmann, B. A., & Breyfogle, M. L. (2005). Questioning our patterns of questioning. *Mathematics Teaching in the Middle School, 10*(9), 484-489.

Hiebert, J., & Wearne, D. (1993). Instructional tasks, discourse, and students' learning in second-grade arithmetic. *American Educational Research Journal, 30*(2), 393-425.

Inagaki, K., Hatano, G., & Morita, E. (1998). Construction of mathematical knowledge through whole-class discussion. *Learning and Instruction, 8*, 503-526.

Kennedy, M. M. (2005). *Inside teaching: How classroom life undermines reform*. Cambridge, MA: Harvard University Press.

Lampert, M. (2001). *Teaching problems and the problems with teaching*. New Haven, CT: Yale University Press.

Pool, P. (2003). What do you do when you don't know what to do? *Mathematics Teaching, 182*(March), 42-44.

Rittle-Johnson, B., & Koedinger, K. R. (2005). Designing Knowledge Scaffolds to Support Mathematical Problem Solving. *Cognition and instruction, 23*(3), 313-349.

Rogoff, B., & Wertsch, J. V. (1984). Children's learning in the "zone of proximal development". In B. Rogoff & J. V. Wertsch (Eds.), *Children's learning in the "zone of proximal development"* (pp. 102). San Francisco: Jossey-Bass.

Romberg, T. A. (1994). Classroom instruction that fosters mathematical thinking and problem solving: Connections between theory and practice. In A. H. Schoenfeld (Ed.), *Mathematicl thinking and solving*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Schoenfeld, A. H. (1994). Reflection on doing and teaching mathematics. In A. Schoenfeld (Ed.), *Mathematical thinking and problem solving* (pp. 53-69). Hillsdale, NJ: lawrence Erlbaum Associates.

Smith, M. S., Bill, V., & Hughes, E. K. (2008). Thinking through a lesson: A key to successfully implementing high-level tasks. *Mathematics Teaching in the Middle School, 14*(3), 132-138.

Stein, M. K., & Lane, S. (1996). Instructional tasks and the development of student capacity to think and reason: An analysis of the relationship between teaching and learning in a reform mathematics project. *Educational Research and Evaluation 2*(October, 1996), 50-80.

Stein, M. K., Lane, S., & Silver, E. A. (1996). *Classrooms in which students successfully acquire mathematical proficiency: What are the critical features of teachers' instructional practice?* Paper presented at the Annual Meeting of the American Educational Research Association.

Stein, M. K., Smith, M. S., Henningsen, M., & Silver, E. (2000). *Implementing Standards-Based Mathematics Instruction: A casebook for professional development*: Teachers College Press.

Stigler, J. W., & Hiebert, J. (2004). *The Teaching Gap: Best ideas from the world's teachers for improving education in the classroom*. New York: Free Press.

Sullivan, P., Tobias, S., & McDonough, A. (2006). Perhaps the decision of some students not to engage in learning mathematics in school is deliberate. *Educational Studies in Mathematics, 62*(1), 81-99.

vanZee, E., & Minstrell, J. (1997). Using questioning to guide student thinking. *The Journal of the Learning Science, 6*(2), 227-269.

Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes* Cambridge, MA: Harvard University Press.

*4.* ***Communication*** *between students and teachers is critical for learning.*

Carpenter, T. P., Fennema, E., Peterson, P. L., Chiang, C. P., & Loef, M. (1989). Using knowledge of children's mathematics thinking in classroom teaching: An experimental study. *American Educational Research Journal, 26*, 499-531.

Cobb, P., Wood, T., Yackel, E., & McNeal, E. (1993). Mathematics as procedural instructions and mathematics as meaningful activity: The reallity of teaching for understanding. In R. B. Davis & C. A. Maher (Eds.), *Schools, mathematics, and the world of reality*. Boston: Allyn & Bacon.

Eggleton, P. J., & Moldavan, C. (2001). The value of mistakes. *Mathematics Teaching in the Middle School, 7*(1), 42-47.

Ellis, A. B. (2007). The influence of reasoning with emergent quantities on

 students' generalizations. *Cognition and instruction, 25*(4), 439-478.

Kahan, J. A., & Schoen, H. L. (2009). Visions of problems and problems of vision: Embracing the messiness of mathematics in the world. *Journal for Research in Mathematics Education, 34*(2), 168-178.

O'Connor, M. C., & Michaels, S. (1993). Aligning academic task and participation status through revoicing: Analysis of a classroom discourse strategy. *Anthropology and Education Quarterly, 24*(4), 318-335.

Sfard, A. (2001). *Learning mathematics as developing a discourse.* Paper presented at the Proceedings of the twenty-third annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Snowbird, UT.

Sherin, M. G. (2002). A balancing act: developing a discourse community in a mathematics classroom. *Journal of Mathematics Teacher Education, 5*, 205-233.

Yackel, E., & Cobb, P. (1996). Sociomathematical norms, argumentation, & autonomy in mathematics. *Journal of Mathematical Behavior, 21*, 423-440.

*Additional References*

Bryk, A., Sebring, P., and Allensworth, E., (2010). *Organizing Schools for Improvement: Lessons from Chicago*, University of Chicago Press.

Kawanaka, T., Stigler, J. W., & Hiebert, J. (Eds.). (1999). *Studying mathematics classrooms in Germany, Japan, and the United States: Lessons from the TIMSS Videotape study*. Philadelphia, PA: Falmer Press.

Kilpatrick, J., Swafford, J., & Findell, B. (Eds.). (2001). *Adding it up: Helping children learn mathematics*. Washington, D. C.: National Academies Press.

Loucks-Horsley, S., Stiles, K. E., Mundry, S. E., Love, N. B., & Hewson, P. W. (2010). *Designing Professional Development for Teachers of science and mathematics* (3rd ed.). CA: Corwin.

National Commission on Mathematics and Science Teaching for the 21st

Century. (2000). *Before It's too late: A report to the nation from the national commission on mathematics and science teaching for the 21st century*. Washington. D. C.: Department of Education.

National Council of Teachers of Mathematics (NCTM). (1991). *Professional*

 *Standards for Teaching Mathematics*. Reston, VA: NCTM.

National Council of Teachers of Mathematics (NCTM). (2000). *Principles &*

 *Standards for School Mathematics*. Reston: NCTM.

National Council of Teachers of Mathematics (NCTM), & Association of State

Supervisors of Mathematics (ASSM). (2005). *Standards and Curriculum: A View from the Nation*. Reston, VA: National Council of Teachers of Mathematics (NCTM)

National Mathematics Advisory Panel. (2008). *Foundations for Success: The final report of the national mathematics advisory panel*. Washington, D. C.: U. S. Department of Education.