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Learning Research and Development Center  
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Pittsburgh, PA 15260  
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**EDUCATION**  
Ph.D.

**University of Pittsburgh**  
Educational Psychology, 1986

M.A.

**The Pennsylvania State University**  
Counselor Education, 1976

B.S.

**The Pennsylvania State University**  
Rehabilitation Education, 1975

**AWARDS AND  
HONORS**

**Fellow**, American Educational Research Association, 2014

**Invited Chair** of Study Group on Research on Teaching and Classroom Practice, International Congress on Mathematics Education-13, Hamburg, Germany, 2016

**Invited Speaker**, United States National Presentation, International Congress on Mathematics Education-12, Seoul, South Korea, 2012

**Visiting Scholar**, Monash University, Melbourne Australia, 2012

**University of Pittsburgh Nominee and National Finalist**, Carnegie Corporation of New York Fellowship Program  
2000 and 2003

**Finalist, Spencer Foundation Post-Doctoral Fellowship**  
University of Pittsburgh, 1989

**PROFESSIONAL  
EXPERIENCE**

**Professor**, 2005 – present  
Learning Sciences and Policy, School of Education, University of Pittsburgh

**Senior Scientist**, 2005 – present  
Learning Research and Development Center, University of Pittsburgh

**Associate Director for Education Research and Practice**, 2008 – 2020  
Learning Research and Development Center, University of Pittsburgh

**Chair**, 2006 – 2014  
Learning Sciences and Policy Program, School of Education, University of Pittsburgh

**Associate Professor**, 1999 – 2005

Department of Administrative and Policy Studies, School of Education,  
University of Pittsburgh

**Research Scientist**, 1998 – 2005

Learning Research and Development Center, University of Pittsburgh.

**Research Associate**, 1989 – 1998

Learning Research and Development Center, University of Pittsburgh

**Post Doctoral Fellow**, 1986 – 1989

Learning Research and Development Center, University of Pittsburgh

**Graduate Research Assistant**, 1983 – 1986

Learning Research and Development Center, University of Pittsburgh

**Teaching Fellow**, 1981 – 1983

School of Education, University of Pittsburgh

**Teaching Assistant**, 1980 – 1981

School of Education, University of Pittsburgh

**Assistant to the Dean of Student Affairs**, 1976 – 1980

The Pennsylvania State University, Altoona (1976 - 1978) and New  
Kensington (1978 - 1980) Campuses

## GRANTS

### Principal or Co-Principal Investigator

#### Current:

Teacher Learning to Enact Productive Discussions in Mathematics and Literacy. The McDonnell Foundation, 2018-2023. With Richard Correnti, Christian Schunn, Lindsay Clare Matsumura, and Jennifer Russell (award amount: \$2,499,651)

#### Completed:

Improvement of Mathematics Teaching At-Scale. The Spencer Foundation, 2017-2020. PI: Richard Correnti; Co-PI: Mary Kay Stein. (amount: \$1,000,000)

Coaching to Improve Common Core Aligned Mathematics Instruction in Tennessee, IES, July 2014-June 2017. Jennifer Russell, PI; co-PIs Mary Kay Stein, Richard Correnti, Lindsay Clare Matsumura, Victoria Bill, Emily Barton, & Nate Schwartz, (award amount: \$2,500,000)

States as STEM Learning Environments: Building an Indicator System to Guide Instructional Improvement at Scale, National Science Foundation,

October 1, 2013-September 30, 2017. PI: Mary Kay Stein; Co-PIs: Richard Correnti and Jennifer Russell (award amount: \$1,500,000)

Supplement to States as STEM Learning Environments: Building an Indicator System to Guide Instructional Improvement at Scale, National Science Foundation, October 1, 2013-September 30, 2017. PI: Mary Kay Stein; Co-PIs: Richard Correnti and Jennifer Russell (award amount: \$1,500,000)

Collaborative Research: Modeling Engineered Levers for the 21<sup>st</sup> Century Teaching of STEM. National Science Foundation, 2010-2014. PI: Christian Schunn; Co-PI: Mary Kay Stein (award amount: 2,500,000).

The Influence of Classroom Practices on Student Outcomes in Direct versus Inquiry Oriented Approaches to Mathematics Instruction. Internal LRDC Grant, 2011-2013. PI: Mary Kay Stein; Co-PI: Charles Munter and Margaret Smith (award amount: \$85,000).

Collaborative, Technology-Enhanced Lesson Planning as an Organizational Routine for Continuous, School-Wide Instructional Improvement, IES, July 1, 2009 – June 30, 2013. PI: Mary Kay Stein; Co-PIs: Jennifer Russell, Margaret Smith, and Jennifer Cartier (award amount: \$1, 500,000).

Collaborative Research Strategies: The Robot Project. National Science Foundation, 2010-2013. PI: Christian Schunn; Co-PI: Mary Kay Stein.

Algebra: A Challenge at the Crossroads of Policy and Practice. National Science Foundation (RAPID), 2010-2011. PI: Mary Kay Stein (award amount: \$200,000).

Understanding the State “Policy Pipeline”: An Exploratory Comparison of States’ Approaches to Race to the Top Reforms, Internal LRDC Grant, 2010-2012. PI: Mary Kay Stein; Co-PI: Jennifer Russell (award amount: \$150,000).

Measuring Classroom Discussion in Mathematics and Literacy, Internal LRDC Grant, 2008-2010. PI: Mary Kay Stein; Co-PIs: Richard Correnti, Moddy McKeown and Margaret Smith (award amount: \$223,000).

Teacher Excellence Initiative. A+ Schools, 2008. PI: Mary Kay Stein; Co-PIs Richard Correnti and Julia Kaufman (award amount: approx. \$75,000)

Scaling Up Mathematics. National Science Foundation, 2003-2008. PI: Lauren Resnick; Co-PIs: Mary Kay Stein and Carrie Leana (award amount: \$6,000,000).

Study of Research and Practice, MacArthur Foundation, April 2001 – August 2009. PI: Mary Kay Stein; Co-PI: Cynthia Coburn, UC-Berkeley (award amount: \$1,690,000).

Toward Producing Usable Knowledge for the Improvement of Educational Practice. The Spencer Foundation, January 2004-December 2006. PI: Mary Kay Stein; Co-PI: Cynthia Coburn (award amount: \$400,000).

ASTEROID: A Study of Teacher Education: Research on Instructional Design. The National Science Foundation, July 2001-June 2003. PI: Margaret Smith; Co-PI: Mary Kay Stein (award amount: approx. \$600,000).

Reform as Learning: Constructing Communities of Learning in the San Diego City Schools. The Spencer Foundation, November 2000-November 2003. PI: Mary Kay Stein; Co-PI: Hugh Mehan, University of California, San Diego (award amount: \$750,000).

Coordinating and Connecting Social Services within Urban Schools. University of Pittsburgh School of Education, January –December, 2000. Submitted in collaboration with a graduate student in the Administrative and Policy Studies department (award amount: \$2,214.90).

Cases of Mathematics Instruction to Enhance Teaching (COMET). The National Science Foundation, 1998-2001. Co-PI with Edward Silver and Margaret Smith (award amount: approximately \$775,000).

Constructing San Diego's Institute for Learning. The Spencer Foundation, April – November, 1999. Co-PI with Hugh Mehan of the University of California-San Diego (award amount: \$50,000). A six-month planning grant to work with teachers, principals, union representatives and instructional leaders in the San Diego City Schools to plan a study of district-wide reform efforts.

Use of Cases in Mathematics Teacher Education. The Exxon Foundation, 1998. Co-PI with Edward Silver and Margaret Smith (award amount: approximately \$25,000).

Children's' Learning of Functions and Graphing. Graduate School of Education, University of Pittsburgh, 1988. Co-PI with Gaea Leinhardt (award amount: approximately \$500).

**Principal Investigator on Subcontract**

Teaching and Learning Network: Meta Study on Research and Practice. The MacArthur Foundation, January 2002 –July 2009 (award amount: \$500,000).

Reform as Learning: Systematic Educational Reform in the San Diego City Schools. The Office of Educational Research and Improvement, May 2001 – May, 2004 (award amount: \$250,000).

**Director or Coordinator**

Developing and Implementing High Performance Learning Communities. Office of Educational Research and Improvement, 1996-2001. Principal

Investigators: Lauren B. Resnick, Richard Elmore and Anthony Alvarado (award amount: approximately \$6,000,000). Director of Research.

QUASAR. Ford Foundation, 1989-1995. Principal Investigator: Edward A. Silver. Coordinator of Classroom Documentation.

**PUBLICATIONS**    **Books** (\* designates graduate student or post-doctoral fellow)

Smith, M., & **Stein**, M.K. (2018). *Five practices for orchestrating productive mathematics discussions. Second edition*. Thousand Oaks, CA: Corwin Press.

Cartier, J., Smith, M.S., **Stein**, M.K., & Ross, D.\* (2013). *Five practices for orchestrating task-based discussions in science*. Thousand Oaks, CA: Corwin Press.

Smith, M., & **Stein**, M.K. (2011). *Five practices for orchestrating productive mathematics discussions*. Thousand Oaks, CA: Corwin Press.

Coburn, C. E., & **Stein**, M.K. (Editors). (2010). *Research and practice in education: Building alliances, bridging the divide*. Lanham, MD: Rowman & Littlefield.

**Stein**, M.K., & Kucan, L. (Editors) (2009). *Instructional explanations in the disciplines*. New York: Springer.

**Stein**, M.K., Smith, M.S., Henningsen, M.,\* & Silver, E.A. (2009). *Implementing standards-based mathematics instruction: A casebook for professional development. Second Edition*. New York: Teachers College Press.

Hubbard, L., & Mehan, H., & **Stein**, M.K. (2006). *Reform as learning. School reform, organizational culture, and community politics in San Diego*. New York: Routledge.

Smith, M.S., Silver, E.A., & **Stein**, M.K. with Boston, M., Henningsen,\* M., & Hillen, A.\* (2005). *Using cases to transform mathematics teaching and learning (Volume I: Improving instruction in rational numbers and proportionality)*. New York: Teachers College Press.

Smith, M.S., Silver, E.A., & **Stein**, M.K. with Henningsen, M.,\* Boston, M., & Hughes, E.\* (2005). *Using cases to transform mathematics teaching and learning (Volume 2: Improving instruction in algebra)*. New York: Teachers College Press.

Smith, M.S., Silver, E.A., & **Stein**, M.K. with Boston, M., & Henningsen, M.\* (2005). *Using cases to transform mathematics teaching and learning*

(*Volume 3: Improving instruction in geometry and measurement*). New York: Teachers College Press.

Stein, M.K., Smith, M.S., Henningsen, \* M., & Silver, E.A. (2000). *Implementing standards-based mathematics instruction: A casebook for professional development*. New York: Teachers College Press.

**Peer-Reviewed Articles** [\* designates graduate student or post-doc]

\*Menzies, C., Schunn, C., & Stein, M.K. (Under Review). Cultivating community cultural wealth to increase learning opportunities for Black students in high cognitive demand mathematics classrooms: A new pedagogical approach. Submitted to *American Educational Research Journal*.

Witherspoon, E. B., Ferrer, N. B., Correnti, R. R., Stein, M. K., & Schunn, C. D. (2021). Coaching that supports teachers' learning to enact ambitious instruction. *Instructional Science*, 49(6), 877-898.

Stein, M.K., Russell, J.L., Bill, V. *et al.* Coach learning to help teachers learn to enact conceptually rich, student-focused mathematics lessons. *J Math Teacher Educ* (2021). <https://doi.org/10.1007/s10857-021-09492-6>

Tekumru-Kisa, M., Stein, M.K., & Doyle, W. (2020). Theory and research on tasks revisited: Tasks as the context of students' thinking in the era of ambitious reforms. *Educational Researcher*, vol(#), 1-12.  
<https://doi.org/10.3102/0013189X20932480>

\*Yurekli, B., Stein, M., Correnti, R., & Kisa, Z. (2020). Teaching mathematics for conceptual understanding: Teachers' beliefs and practices and the role of constraints. *Journal for Research in Mathematics Education*, 51(2), 234-247.

Russell, J. L., Correnti, R., Stein, J. K., Bill, V., Hannan, M., Schwartz, N., Booker, L., & Pratt, N. R. (2020). Learning from adaptation to support instructional improvement at scale: Understanding coach adaptation in the TN Mathematics Coaching Project. *American Educational Research Journal*, 57(1), 148-187.

Russell, J. L., Correnti, R., Stein, M. K., Thomas, A., Bill, V., & Speranzo, L. (2020). Mathematics coaching for conceptual understanding: Promising evidence regarding the Tennessee math coaching model. *Educational Evaluation and Policy Analysis*, 42(3), 439–466. <https://doi.org/10.3102/0162373720940699>

Kessler, A., Boston, M., & Stein, M.K. (2019). Exploring how teachers support students' mathematical learning in computer-directed learning environments. *Information and Learning Sciences*. Vol. 121 No. 1/2, pp. 52-78 10.1108/ILS-07-2019-0075.

Correnti, R., \*Yu, B., Russell, J., Thomas, A., Stein, M.K., Matthis, C., Booker, L., Schwartz, N. (Revise & Resubmit). Generalized inferences for how coaching influences teaching and student achievement: Design, sampling and balance for a longitudinal, prospectively-matched cohort study. *Journal for Research on Educational Effectiveness*.

Kisa, Z., Correnti, R., & Stein, M.K. (Revise and Resubmit). Teachers' vision, perceived constraints, and conceptual teaching practices: Implications for measuring and improving instruction. *Journal for Research in Mathematics Education*.

Correnti, R., Russell, J., Stein, M.K., Yu, B., Thomas, A., Matthis, C., Bill, V., Speranzo, L., Booker, L., Schwartz, N. (In Review). Main effects of mathematics coaching on teaching and student achievement: Coaching differences for building theories of how coaching influences teaching. *Cognition and Instruction*.

Yurekli, B.,\* & Stein, M.K. (in preparation). Productive struggle in mathematics classrooms. *Mathematical Thinking and Learning*.

Hunt, J.H. & Stein, M. K. (2019). Constructing goals for student learning through conversation. *Mathematics Teacher: Learning and Teaching Pre-K-12*, 1(1), 1-6.

Tekumru-Kisa, M., Stein, M. K., & Coker, R. (2018). Teachers' learning to facilitate high-level student thinking: Impact of a video-based professional development. *Journal of Research in Science Teaching*, 55(4), 479-502.

Schuchardt, A. M., Tekumru-Kisa, M., Schunn, C. D., Stein, M. K., & Reynolds, B. (2017). How much professional development is needed with educative curriculum materials? It depends upon the intended student learning outcomes. *Science Education*, 101(6), 1015-1033.

Tekumru-Kisa, M., Schunn, C., Stein, M. K., & Reynolds, B. (2017). Change in thinking demands for students across the phases of a science task: An exploratory study. *Research in Science Education*, 1-25.

Tekumru-Kisa, M., & Stein, M. K. (Eds. Special Issue). (2017). Designing, facilitating, and scaling-up video-based professional development: supporting complex forms of teaching in science and mathematics. *International Journal of STEM Education*, 4(1), 27.

Tekumru-Kisa, M., & Stein, M. K. (2017). A framework for planning and facilitating video-based professional development. *International Journal of STEM Education*, 4(1), 28.

Russell, J. L., Stein, M. K., Correnti, R., Bill, V., Booker, L., & Schwartz, N.

(2017). Tennessee scales up improvement in math instruction through coaching. *The State Educational Standard*.

Stein, M. K., Correnti, R., Moore, D., Russell, J. L., & Kelly, K. (2017). Using Theory and Measurement to Sharpen Conceptualizations of Mathematics Teaching in the Common Core Era. *AERA Open*, 3(1), 2332858416680566.

Kaufman, J., Stein, M.K., & Junker, B. (2016). Factors associated with alignment between teacher survey reports and classroom observation ratings of mathematics instruction. *Elementary School Journal*, 116(3), pp. 339-364.

Munter, C., Stein, M. K., & Smith, M. S. (2015). Dialogic and direct instruction: Two distinct models of mathematics instruction and the debate(s) surrounding them. *Teachers College Record*, 117(11), 1-32.

Tekkumru Kisa, M.\* & Stein, M.K. (2015). Learning to see teaching in new ways: A foundation for maintaining cognitive demand. *American Educational Research Journal*, 52(1), pp. 105-136.

Tekkumru Kisa, M.\* & Stein, M.K. & Schunn, C. (2015). A framework for analyzing cognitive demand and content-practices integration: Task analysis guide in science. *Journal of Research on Science Teaching*, 52(5), pp. 659-685.

Munter, C., Stein, M. K., & Smith, M. S. (2015). Is there a common pedagogical core?: Examining instructional practices of competing models of mathematics teaching. *NCSM Journal of Mathematics Education Leadership*, 16(2), 3-13.

Kessler, A. M.\* & Stein, M. K., & Schunn, C. D. (2015). Cognitive demand of model tracing tutor tasks: Conceptualizing and predicting how deeply students engage. *Technology, Knowledge and Learning*, 1-21.

Russell, J. L., Meredith, J.\*, Childs, J.\*, Stein, M. K., & Prine, D. W. (2015). Implementing education policy through organizational networks: An analysis of state Race to the Top applications. *Educational Evaluation and Policy Analysis*, 37(1), pp. 92-112.

Iriti, J., Bickel, B., Schunn, C., & Stein, M.K. (2016). Load-bearing conditions for educational technology innovations. *Educational Technology Research and Development*, 64(2), 245-262.

Scherrer, J.\* & Stein, M.K. (2013). Effects of a coding intervention on what teachers learn to notice during whole-group discussion. *Journal of Mathematics Teacher Education*. 16(2), 105-124.



Coburn, C.E., Russell, J., Kaufman, K., & Stein, M.K. (2012). Supporting sustainability: Teachers' advice networks and ambitious instructional reform. *American Journal of Education*, 119(1), 137-182.

Stein, M.K., Kaufman, J., Sherman, M.,\* & Hillen, A. (2011). Algebra: A challenge at the crossroads of policy and practice. *Review of Educational Research*, 81(4), 453-492.

Stein, M.K., & Kaufman,\* J. (2010). Selecting and supporting the use of mathematics curricula at scale. *American Educational Research Journal*, 47(3), 663-693.

Kaufman, J.H.,\* & Stein, M.K. (2010). Teacher learning opportunities in a shifting policy environment for instruction. *Educational Policy*, 24(4), 563-601.

Smith, M.S., Hughes, E.,\* Engle, R., & Stein, M.K. (2009). Orchestrating discussions of challenging tasks: Keeping your eye on the mathematics to be learned. *Mathematics Teaching in the Middle School*.

Stein, M.K., Engle, R.A., Smith, M.S., & Hughes, E.K.\* (2008). Orchestrating productive mathematical discussions: Helping teachers learn to better incorporate student thinking. *Mathematical Thinking and Learning*, 10(4), 313-340.

Stein, M.K. & Coburn, C.E. (2008). Architectures for learning: A comparative analysis of two urban districts. *The American Journal of Education*, 114, 583-626.

Mehan, H., Hubbard, L., & Stein, M.K. (2006). When reform travels: The sequel. *Journal of Educational Change*, 6(4), 329-362.

Stein, M.K., Hubbard, L., & Mehan, H. (2004). Reform ideas that travel far afield: The two cultures of reform in New York City's District #2 and San Diego. *Journal of Educational Change*, 5, 161-197.

Stein, M.K., & Nelson, B.S. (2003). Leadership content knowledge. *Educational Evaluation and Policy Analysis*, 25(4), 423-448.

Stein, M.K., & D'Amico, L. (2002). Inquiry at the crossroads of policy and learning: A study of a district-wide literacy initiative. *Teachers College Record*, 104(7), 1313-1344.

Stein, M.K. (2001). Mathematical argumentation: Putting *umph* into classroom discussions. *Mathematics Teaching in the Middle School*, 7(2), 110-112.

Stein, M.K., & Bovalino, J. (2001). Manipulatives: One piece of the puzzle. *Mathematics Teaching in the Middle School*, 6(6), 356-359.

Stein, M.K., Smith, M.S., & Silver, E.A. (1999). The development of professional developers: Learning to assist teachers in new settings in new ways. *Harvard Educational Review*, 69(3), 237-269.

Stein, M.K., & Mundry, S. (1999). Professional development for science and mathematics teachers: Dilemmas of design. *High School*, 7(2), 14-18.

Stein, M. K., & Smith, M.S. (1998). Mathematical tasks as a framework for reflection. *Mathematics Teaching in the Middle School*, 3(4), 268-275.

Smith, M.S., & Stein, M.K. (1998). Selecting and creating mathematical tasks: From research to practice. *Mathematics Teaching in the Middle School*, 3(5), 344-350

Forman, E., Larreamendy-Joerns, J., Stein, M.K., & Brown, C.A. (1998). "You're going to want to find out which and prove it": Collective argumentation in mathematics classrooms. *Learning and Instruction*, 8(6), 527-548.

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.

Stein, M.K., Grover, B.W.\*, & Henningsen, M. (1996). Building student capacity for mathematical thinking and reasoning: An analysis of mathematical tasks used in reform classrooms. *American Educational Research Journal*, 33(2), 455-488.

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(1), 50 - 80.

Brown, C.A., Stein, M. K., & Forman, E. A. (1996). Assisting teachers and students to reform the mathematics classroom. *Educational Studies in Mathematics*, 31, 63-93.

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(4), 476-521.

Stein, M.K., Baxter, J., & Leinhardt, G. (1990). Subject matter knowledge for elementary instruction: A case from functions and graphing. *American Educational Research Journal*, 27(4), 639-663.

Leinhardt, G., Zaslavsky, O., & Stein, M.K. (1990). Functions, graphs, and graphing: Tasks, learning, and teaching. *Review of Educational Research*, 60(1), 1-64.

Stein, M.K., & Wang, M.C. (1988). Teacher development and school improvement: The process of teacher change. *Teaching and Teacher Education*, 4(1), 171-187.

Freilino (maiden name), M.K., & Hummel, R. (1985). Achievement and identity in college-age vs. adult women students. *Journal of Youth and Adolescence*, 14(1), 1-10.

**Book Chapters** (\* indicates graduate student or post-doctoral fellow)

Smith, M., & Stein, M.K. (Pub date 6/23). Mathematical tasks: The lasting legacy of the QUASAR Project. In J. Cai, G, Stylianides, & P. A. Kenney (Eds.), *On the learning and teaching of mathematics: Research studies in Honor of Edward A. Silver*. Springer.

Stein, M.K., & Meikle, E. (2017). The nature and role of goals in mathematics education (pp. 1-11). In D. Spangler & J. Wanko (Eds.), *Research Companion to Principles to Actions*. Reston, VA: National Council of Teachers of Mathematics.

Stein, M.K., Crowley, K., & Resnick, L.B. (2016). Education policy and the learning sciences: The case for a new alliance. In M.A. Evans, M.J. Packer & R.K Sawyer (Eds.), *Reflections on the learning sciences*. New York: Cambridge University Press.

Stein, M.K., Engle, R.A., Smith, M.S., & Hughes, E.K\*. (2015). Orchestrating productive mathematics discussions: Helping teachers learn to better incorporate student thinking. In L.B. Resnick, C.S.C. Asterhan, & S.N. Clarke (Eds). *Socializing Intelligence through Academic Talk and Dialogue* (pp. 375-389). Washington, DC: American Educational Research Association.

Correnti, R., Stein, M.K., Smith, M., Scherrer\*, J., McKeown, M., Greeno, J., Ashley, K. (2015). Improving teaching at scale: Design for the scientific measurement and learning of discourse practice. In L.B. Resnick, C.S.C. Asterhan, & S.N. Clarke (Eds). *Socializing Intelligence through Academic Talk and Dialogue* (pp. 315-332). Washington, DC: American Educational Research Association.

Stein, M.K., Kaufman, J. & Tekkumru Kisa, M.\* (2013). Mathematics teacher development in the context of district managed curriculum. In L. Yeping & G. Lappan (Eds.) *International Handbook of Research in Mathematics Curriculum*.

Stein, M.K., Russell, J. L., & Smith, Margaret S. (2011). The role of tools in bridging research and practice in an instructional improvement effort. In W. F. Tate, K. King, & C. R. Anderson (Eds.), *Disrupting Tradition: Research and Practice Pathways in Mathematics Education*. Reston, VA: National Council of Teachers of Mathematics.

Stein, M.K., & Smith, M.S. (2010). The role of curricular materials in elementary mathematics classrooms. In D. V. Lambdin & F. K. Lester (Eds.), *Translating Research to the Elementary Classroom*. Reston, VA: NCTM.

Smith, M.S., & Stein, M.K. (2010). Learning from curriculum in high school. In D. V. Lambdin & F. K. Lester (Eds.), *Translating Research to the High School Classroom*. Reston, VA: NCTM.

Stein, M.K., Hubbard, L., & Toure, J. (2010). Travel of district-wide approaches to instructional improvement: How can districts learn from one another? In A. Hargreaves, A. Liberman, M. Fullan, & D. Hopkins (Eds.), *Second International Handbook of Educational Change* (pp. 781-805). New York: Springer.

Stein, M.K., & Smith, M.S. (2010). The influence of curriculum on student learning. In B. Reyes, R. Reyes, & R. Rubenstein (Eds.), *Mathematics Curriculum: Issues, Trends and Future Directions* (pp. 351-362). Reston, VA: NCTM.

Stein, M.K., & Coburn, C.E. (2010). Reframing the problem of research and practice. In C.E. Coburn & M.K. Stein (Eds.), *Research and Practice in Education: Building Alliances, Bridging the Divide*. (pp. 1-13). Lanham, MD: Rowman & Littlefield.

Coburn, C.E., & Stein, M.K. (2010). Key lessons about the relationship between research and practice (pp. 201-226). In C.E. Coburn & M.K. Stein (Eds.), *Research and Practice in Education: Building Alliances, Bridging the Divide*. (pp. 1-13). Lanham, MD: Rowman & Littlefield.

Stein, M.K., & Clare-Matsumura, L. (2009). Measuring instruction for teacher learning. In D. Gitomer (Ed.), *Measurement issues and assessment for teacher quality* (pp. 179-205). New York: Sage.

Stein, M.K., & Kim, G. (2009). The role of mathematics curriculum materials in large-scale urban reform: An analysis of demands and opportunities for teacher learning. In J. Remillard, B. Herbel-Eisenmann, & G. Lloyd, (Eds.), *Mathematics teachers at work: Connecting curriculum materials and classroom instruction* (pp. 37-55). New York: Routledge.

Coburn, C.E., Honig, M. & Stein, M.K. (2009). What's the evidence on districts' use of evidence? In J. D. Bransford, D. J. Stipek, N. J. Vye, L.M.

Gomez & D. Lam (Eds.), *The Role of Research in Educational Improvement* (pp. 67-88). Cambridge, MA: Harvard Education Press.

Resnick, L.B., Stein, M.K., & Coon, S.E. (2008). Standards-based reform: A powerful idea unmoored. In R. Kahlenberg (Ed.), *Improving on No Child Left Behind* (pp.103-138). New York: The Century Foundation.

Stein, M.K., Remillard, J., & Smith, M.S. (2007). How curriculum influences student learning. In F.K. Lester (Ed.), *Second handbook of research on mathematics teaching and learning* (pp. 319-370). Greenwich, CT: Information Age Publishing.

Coburn, C.E., & Stein, M.K. (2006). Communities of practice theory and the role of teacher professional community in policy implementation. In M. I. Honig (Ed.), *New directions in education policy implementation: Confronting complexity*. Albany, NY: The State University of New York.

Stein, M.K., & Spillane, J. (2005). What can researchers on educational leadership learn from research on teaching? Building a bridge. In B. Firestone & C. Riehl (Eds.), *Developing an agenda for research on educational leadership* (pp. 28-45). Thousand Oaks: Sage Publications.

Smith, M.S., Stein, M.K., Arbaugh, F., Brown, C.A., & Mossgrove\*, J. (2004). Characterizing the cognitive demands of mathematical tasks. In G.W. Bright & R.N. Rubenstein (Eds.), *Perspectives on the teaching of mathematics*. Reston, VA: National Council of Teachers of Mathematics.

Stein, M.K., Boaler, J., & Silver, E.A. (2003). Teaching mathematics through problem solving: What does the research say? In H. Schoen & R. Charles (Eds.), *Teaching mathematics through problem solving: It's about learning mathematics*. Reston, VA: National Council of Teachers of Mathematics.

Stein, M.K., & D'Amico\*, L. (2002.) The district as a professional learning laboratory. In A.M. Hightower, M.S. Knapp, J.A. Marsh, & M. McLaughlin (Eds.), *School districts and instructional renewal* (pp. 61-75). New York: Teachers College Press.

Henningsen, M\*, & Stein, M.K. (2002). Supporting students' high-level thinking, reasoning, and communication in mathematics. In J. Sowder & B. Schappelle (Eds.), *Lessons learned from research* (pp. 27 – 36). Reston VA: National Council of Teachers of Mathematics.

Stein, M.K. (2000). Teaching and learning mathematics: How instruction can foster the knowing and understanding of number. In J. Brophy (Ed.), *Advances in research in teaching: Subject-specific instructional methods and activities (Vol. 8)* (pp. 111 – 144). Oxford: Elsevier Science.

Stein, M.K., Silver, E.A., & Smith, M.S. (1998). Mathematics reform and teacher development: A community of practice perspective. In J. Greeno & S. Goldman (Eds.), *Thinking practices in mathematics and science learning* (pp. 17-52). Hillsdale, NJ: Erlbaum.

Stein, M.K., & Brown, C.A. (1997). Teacher learning in a social context: Integrating collaborative and institutional processes with the study of teacher change. In E. Fenemma, & B. Nelson (Eds.), *Mathematics teachers in transition* (pp. 155-191). Hillsdale, NJ: Erlbaum.

Stein, M.K., Leinhardt, G, & Bickel, W. (1989). Instructional issues for teaching students at risk. In R. Slavin (Ed.), *Preventing school failure: Effective programs for students at risk* (pp. 145-194). Boston: Allyn Bacon.

Leinhardt, G., Putnam, R., Stein, M.K., & Baxter, J. (1989). Where subject knowledge matters. In J. Brophy (Ed.), *Advances in research on teaching: Vol.2. Teachers' subject matter knowledge and classroom instruction* (pp. 87 - 113). Greenwich, CT: JAI Press.

#### **Abstracts Published in Refereed Proceedings and Conference Volumes**

Stein, M.K., Kelly, K., Moore, D., Correnti, R, and Russell, J.L. (2016). *Theorizing and measuring teaching for conceptual understanding*. Invited paper et al the 13<sup>th</sup> International Congress of Mathematics Education . Hamburg, Germany.

Tekkumru Kisa, M.,\* & Stein, M.K. (2014). Using contrasting video cases of enactment of cognitively demanding science tasks in professional development. In *Proceedings of the International Conference of the Learning Sciences*, Boulder, CO.

Boston, M., Kessler, A.,\* & Stein, M.K. (2014). Conceptualizing teacher practices that support students' mathematical learning in computer-directed learning environments. In *Proceedings of the International Conference of the Learning Sciences*, Boulder, CO.

Tekkumru Kisa, M.,\* & Stein, M.K. (2013). Developing science teachers' professional vision. In *Abstracts, Biennial Meeting of the European Conference for Research on Learning and Instruction*). Munich, Germany.

Stein, M.K., Kaufman, J., & Tekkumru-Kisa, M\*. (2011). Curriculum as a lever for teacher improvement. In *Proceedings of the 35<sup>th</sup> Conference of the International Group for the Psychology of Mathematics Education, Vol. 1*. Ankara, Turkey, PME.

Stein, M.K. (2010). Research to inform assessment and curriculum policy in the CCSS era. In *Proceedings: Research in Mathematics Education: Where*

*Do We Go From Here?* East Lansing, MI: Institute for Research on Mathematics and Science Education.

Stein, M.K. (2004). Studying the influence and impact of standards: The role of districts in teacher capacity building. In J. Ferrini-Mundy & F.K. Lester (Eds.), *Proceedings of the National Council of Teachers of Mathematics Research Catalyst Conference*. Reston, VA: National Council of Teachers of Mathematics.

Stein, M.K., & Coburn, C.E. (2003). Toward producing usable knowledge for the improvement of educational practice: A conceptual framework. In *Abstracts, Biennial Meeting of the European Conference for Research on Learning and Instruction*. Padova, Italy.

Smith, M.S., & Stein, M.K. (2001). Studying the enactment of and teacher learning from cases and other practice-based materials. In *Abstracts, Biennial Meeting of the European Conference for Research on Learning and Instruction* (p. 217). Fribourg, Switzerland.

Stein, M.K. (2000). The organization and structure of schools at the middle grades: The role of development, subject matter, and teacher professional development. In *Mathematics Education in the Middle Grades: Teaching to Meet the Needs of Middle Grade Learners and to Maintain High Expectations* (Proceedings of a National Convocation). Washington, DC: National Academy Press.

Stein, M.K. (1999). District research as design: Content-driven instructional reform in New York City's Community School District #2. In W. Koops, B. Hopkins, & P. Engelen (Eds.), *Abstracts, Biennial Meeting of the European Conference for Research on Learning and Instruction*. Goteborg, Sweden.

Forman, E., Stein, M.K., & Brown, C. (1994). The development of children's mathematical thinking within sociocultural contexts. In *Abstracts, XIIIth Biennial Meetings of the International Society of the Study of Behavioural Development*. Amsterdam, The Netherlands.

Stein, M.K., & Borko, H. (1993). Teacher change in school-based mathematics reform. In J.R. Becker & B.J. Pence (Eds.), *Proceedings of the Fifteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Vol. 2*. San Jose, CA: The Center for Mathematics and Computer Science Education.

Stein, M.K., Grover, B., & Silver, E.A. (1991). Changing instructional practice: A conceptual framework for capturing the details. In R. Underhill (Ed.), *Proceedings of the Thirteenth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Vol. 1*. Virginia Tech, Blacksburg, VA.

### Videos

Barnett, D., & Stein, M.K. (1998). *Building a Learning Community. Professional Development*. (A 20-minute video of professional development strategies used in District #2). Stein co-wrote the videotext with Barnett and assisted with video sequencing and design.

### PROFESSIONAL PAPERS AND PRESENTATIONS

#### **(2020) Invited Presentations (International and National)**

Stein, M.K., & Correnti, R. (2020 June). Theorizing, measuring and improving teaching for conceptual understanding. Invited plenary at the annual meeting of the Mathematics Education Research Group of Australasia, National Institute of Education, Singapore.

Stein, M.K. (2017 January). *Teacher's role in a technology-enhanced classroom*. Invited talk at National Engineering Research Center for E-Learning (NERCEL), Central China Normal University. Wuhan, China.

Stein, M.K. (2017). *Teaching for conceptual understanding*. Invited talk to College of Education, Florida State University. Tallahassee, FLA

Stein, M.K., & Correnti, R. (2016 October). *Theorizing and measuring teaching for conceptual understanding at scale*. Invited talk at the Fall 2016 meeting of the Council of Chief State School Officers, Minneapolis, MN.

Stein, M.K. (2016 July). *Implementing ambitious mathematics tasks*. Invited talk at US-Finnish Conference on Mathematics Education. Helsinki, Finland.

Stein, M.K. (2016 July). *Sharpening theories of mathematics teaching and student learning in the Common Core era*. Invited talk at the quadrennial meeting of the International Congress on Mathematics Education. Hamburg, Germany.

Stein, M.K. (2016 May). *Fostering research-to-practice connections: Two examples*. Invited talk at Technion: Israel Institute of Technology. Haifa, Israel.

Bill, V., Russell, J., & Stein, M.K. (2016 May). *Collaboration and adaptation at scale*. Presentation at the annual national meeting of the Institute for Learning.

Stein, M.K. (2014). *Improving teaching at scale*. Keynote presentation at the Teachers as Leaders annual meeting. St. Petersburg, FLA.

Stein, M.K., and Russell, J. (2014). *Building capacity and organizing social resources for ambitious mathematics instruction*. Keynote presentation at the annual meeting of the Institute for Learning, Jacksonville, FLA.



Stein, M.K. (2012 November). *At the crossroads of policy and practice in the United States: Assessment and curriculum in the era of the Common Core State Standards*. Invited presentation at Monash University, Melbourne, Australia.

Stein, M.K. (2012 November.) *Using curriculum as a resource for teacher learning*. Invited presentation at Australian Catholic University, Melbourne, Australia.

Stein, M.K. (2012 December). *Five practices for productive discussions in mathematics classroom*. Keynote presentation at the annual meeting of the Victorian Mathematical Association. Melbourne, Australia.

Stein, M.K. (2012 July). *Research perspectives on mathematics standards reform*. Invited presentation for the United States National Presentation at the quadrennial meeting of the International Congress on Mathematics Education (invitation issued by the National Academy of Sciences' US National Commission on Mathematics Instruction), Seoul, Korea

Stein, M.K. (2012 July). *New curriculum and textbooks*. Invited presentation at the Symposium for United States and Korean Mathematics Education, Seoul National University, Seoul, Korea.

Stein, M.K. (2012 April). *Assessment and curriculum in the Common Core State Standard era*. Invited keynote at the annual meeting of the National Council of Supervisors of Mathematics, Philadelphia, PA.

Stein, M.K. (2011 August). *Analyzing the demands on and supports for teachers in elementary mathematics curricula*. Presentation to *Everyday Mathematics* (elementary mathematics textbook series) developers. Chicago, IL.

Stein, M.K. (July 2011). *Examining the relationship between teacher capacity, curriculum use and quality of instruction*. Invited presentation to the Education Faculty, Bogazici University, Istanbul, Turkey.

Stein, M.K., (May, 2011). Invited Plenary, *Assessment and curriculum policy in the CCSS Era: Lessons from the past*. Presented at the "Moving Forward Together: Curriculum and Assessment and the CCSS in Mathematics Conference," Washington, DC.

Stein, M.K. (March 2011). *Building capacity for large-scale change*. Presented at the National Research Council Workshop, "State-Focused Reform Efforts in STEM Education." Washington, DC.

Stein, M.K. (November 2010). Invited Plenary, *Research to inform assessment and curriculum policy in the Common Core Standards era*. Presented at the Inaugural Conference, "Research In Mathematics Education: Where Do We

Go From Here?" of the Michigan State University Institute for Research on Mathematics and Science Education, Washington, DC.

Stein, M.K. (November 2009). *Reframing the problem of research and practice*. Invited Plenary Presentation to the National Education Association's "Research Boot Camp." New Orleans, LA.

Stein, M.K. (May 2009). *How curriculum influences student learning*. Invited plenary for conference sponsored by Portugal's Ministry of Education, Lisbon, Portugal.

Stein, M.K. (April 2009). *The role of instructional tasks in student learning*. Invited presentation to the education faculty at Presov University, Presov, Slovakia.

Stein, M.K., Russell, J., & Coon, S.E. (2008, March). *Education policy from a learning perspective*. Invited presentation at the annual meeting of the Educational Policy and Leadership Center. Harrisburg, PA.

Stein, M.K. (October 2007). *Leadership for the improvement of mathematics instruction*. Plenary presentation to Northwest Educational Leadership Conference. Seattle, WA.

Stein, M.K., (October 2007). *Orchestrating productive mathematical discussions*. Invited presentation to the Northwest Council of Mathematics Teachers. Seattle, WA.

Stein, M.K., & Clare-Matsumura, L. (September 2007). *Measuring instruction for teacher learning*. Invited presentation at a conference hosted by the Educational Testing Service on *Measurement Issues and the Assessment of Teacher Quality*. San Francisco.

Stein, M.K. (February 2007). *Role of curricula in large-scale reform*. Invited presentation at Social Capital Conference. LRDC, Pittsburgh, PA.

Stein, M.K. (2006). *Studying the influence of policy on curriculum use*. Invited plenary talk at the annual meeting of the Center for the Study of Mathematics Curriculum (CSMC), Phoenix, AZ.

Stein, M.K. (2004). *Teaching for understanding: The role of cognitively complex tasks*. Keynote address at the annual leadership conference of *Everyday Mathematics*, Chicago.

Stein, M.K. (2004). *The role of local policy and organizational contexts in shaping teachers' practice*. Presentation in invited symposium at the annual meeting of the American Educational Research Association, San Diego.

Stein, M.K. (2002). *Contributions of generic and subject-specific perspectives on teaching*. Invited presentation in a symposium sponsored by the International Academy of Education at the annual meeting of the American Educational Research Association, New Orleans.

Mehan, H., Stein, M.K., & Hubbard, L. (April) 2001. *Conducting collaborative research in a large urban district: The case of San Diego*. Invited AERA Division C symposium entitled, "Research in Pasteur's quadrant," at the annual meeting of the American Educational Research Association, Seattle.

Stein, M.K. (2001). Presentation to the Forum for the American School Superintendent: A Program of the Danforth Foundation, Orlando, FL.

Stein, M.K., Smith, M.S., & Wilkinson, M. (2001). *Ratcheting up expectations in literacy and mathematics*. Presentation at the American Federation of Teachers Annual Meeting, Washington, D.C.

Stein, M.K. (August 1999). *District research as design: Content-driven instructional reform in New York City's Community School District #2*. Presented at a Keynote Symposium, "Research as design: Learning research as a component of educational reform" at the Biennial Meeting of the European Conference for Research on Learning and Instruction. Goteborg, Sweden.

Stein, M.K. & Johnstone, B. (April 1999). *Content driven reform in literacy*. Presented at an Invited Presidential Symposium entitled, "How districts can facilitate instructional reform," at the annual meeting of the American Educational Research Association, Montreal.

Stein, M.K. (September 1998). *The organization and structure of schools at the middle grades: The role of development, subject matter and teacher professional development*. Plenary presentation at the National Convocation on Mathematics Education in the Middle Grades (sponsored by the National Research Council of the National Academy of Sciences), Washington DC.

Stein, M.K. (September 1998). *Linking research and practice: The case of teachers' use of cognitively challenging problems*. Presentation at the Conference on Research in the Teaching and Learning of Mathematics in the Middle Grades (sponsored by the National Research Council). Washington DC.

Resnick, L.B., Stein, M.K., & Alvarado, A. (November 1997). *The High Performance Learning Communities: A Report on Community School District 2*. Presentation at the U.S. Department of Education.

### Refereed Papers Presented at International Meeting

Yurekli, B.,\* & Stein, M. K. (2018). *What makes struggle productive in mathematics classrooms?* Paper presented at the 6th International Workshop on Advanced Learning Sciences (IWALS), Pittsburgh, PA

Tekkumru Kisa, M.,\* & Stein, M.K. (2013 August). *Developing science teachers' professional vision.* Paper presented at the Tenth European Conference for Research on Learning and Instruction, Munich, Germany.

Stein, M.K., Kaufman, J., & Tekkumru, M.\* (2011). *Curriculum as a lever for teacher improvement.* Paper presented at the 35<sup>th</sup> Conference of the International Group for the Psychology of Mathematics Education, Ankara, Turkey.

Stein, M.K., & Coburn, C.E. (2003). *Toward producing usable knowledge for the improvement of educational practice: A conceptual framework.* Paper presented at a symposium at the Tenth European Conference for Research on Learning and Instruction, Padova, Italy.

Stein, M.K. (2001 August 2001). *Studying the enactment of and teacher learning from cases and other practice-based materials.* Paper presented at a symposium at The Ninth European Conference for Research on Learning and Instruction, Fribourg, Switzerland.

Stein, M.K. (August 1999). *Teaching and learning in a high performance learning community.* Paper presented at keynote symposium. Paper presented at a symposium at the Seventh European Conference for Research on Learning and Instruction, Gothenburg, Sweden.

Forman, E., Stein, M.K., & Brown, C. (July 1994). *Changes in students' and teachers' discourse practices in the classroom: Implications for learning mathematics.* Paper presented in a symposium entitled, "The Development of Children's Mathematical Thinking within Sociocultural Contexts," at the Thirteenth Biennial Meeting of the International Society for the Study of Behavioural Development, Amsterdam, Netherlands.

### Refereed Papers Presented at NATIONAL Professional Meetings

Hillary, H.,\* & Stein, M.K. (2022). *Understanding mirroring effects in coaching on mathematics teaching practice.* Paper presented at the virtual annual research conference of the National Council of Teachers of Mathematics.

Witherspoon,\* E. B., Ferrer,\* N., Correnti, R., Schunn, C. D., & Stein, M. K. (2020). *Coaching that supports teachers' learning to enact ambitious*

instruction. Paper presented at the *International Conference of the Learning Sciences*, Nashville, TN. June 2020.

Yurekli, B. & Stein, M. (2020, Apr 17 - 21) *Defining Productive Struggle in Mathematics Classrooms: Implications of Cognitive Science Research Evidence for Mathematics Education* [Paper Session]. AERA Annual Meeting San Francisco, CA <http://tinyurl.com/rg79d2c> (Conference Canceled)

Stein, M.K., Russell, J.R., Bill, V., Correnti, R.C., & Speranzo, L. (2018). *Unpacking the improvement of coaching practices for lesson planning*. Paper presented at the annual meeting of the American Educational Research Association, New York.

Kisa, Z., Correnti, R. C., & Stein, M.K. (2018). *Teaching mathematics for conceptual understanding: Teachers' vision, practices and their perceived constraints*. Paper presented at the annual meeting of the American Educational Research Association, New York.

Yurekli, B., Kisa, Z., Correnti, R. C., & Stein, M.K. (2018). *Teachers' beliefs and practices in teaching mathematics for conceptual understanding: The role of constraints*. Paper presented at the annual meeting of the American Educational Research Association, New York.

Stein, M.K. (2017). *Autonomy and coherence in the Finnish educational system*. Paper presented at the annual research conference of the National Council of Teachers of Mathematics. San Antonio, TX.

Hunt, J., & Stein, M.K. (2017). *Coaching and mathematical goal setting*. Paper presented at the annual research conference of the National Council of Teachers of Mathematics. San Antonio, TX.

Kelly, K.\*, & Stein, M.K. (2017). *Scaffolding practices and their relationships to profiles of mathematics teaching*. Paper presented at the annual research conference of the National Council of Teachers of Mathematics. San Antonio, TX.

Stein, M.K., Correnti, R., & Kelly, K.\*, (2017). *Using Theoretically Based Observations and Surveys to Measure and Improve Mathematics Instruction at Scale* Paper presented at the annual research conference of the National Council of Teachers of Mathematics. San Antonio, TX.

Tekkumru Kisa, M., & Stein, M.K. (2016). *Designing and facilitating video-based professional development*. Paper presented in a symposium that my ex-graduate student and I designed and chaired at the annual meeting of the American Educational Research Association, Washington, DC.

Stein, M.K., Correnti, R., Russell, J., Kelly, K.\* (2016). *The role of theory in the measurement of mathematics teaching for conceptual understanding at scale*. Paper presented in a symposium that I designed and chaired at the annual meeting of the American Educational Research Association, Washington, DC.

Stein, M.K., Correnti, R., Kelly, K.\* (2016). *Measuring and supporting the improvement of mathematics teaching at scale*. Presentation at the annual meeting of the National Council of Teachers of Mathematics (Research Conference).

Tekumru Kisa, M., & Stein, M.K. (2015). *The impact of video-based professional development on instruction*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

Russell, J., Kehoe, S., Stein, M.K., Correnti, R., & Moore, D. (2015). *Teacher collaboration in the Common Core Era: The role of teachers' networks in the transition to ambitious mathematics instruction*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

Kessler, A.,\* Boston, M., & Stein, M.K. (2014). *Conceptualizing the teacher's role in supporting students' mathematical learning in computer-directed learning environments*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.

Munter, C., Stein, M.K., & Smith, M.S. (2013). *A theory-based approach to comparing direct and dialogic mathematics instruction*. Paper presented at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, Denver, CO.

Kessler, A.,\* & Stein, M.K. (2013). *Teaching and learning mathematics in virtual environments: Introducing high-cognitive demand tasks*. Paper presented at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, Denver, CO.

Boston, M., Stein, M.K., & Kessler, A.\* (2013). *Teaching and learning mathematics in virtual environments: The role of teacher mediation*. Paper presented at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, Denver, CO.

Russell, J., Coburn, C.E., Kaufman, J., & Stein, M.K. (2013). *How teachers' professional networks contribute to sustaining high-quality mathematics instruction*. Paper presented at a roundtable session at the annual meeting of the American Educational Research Association, San Francisco.

Kaufman, J., Tekumru Kisa, M.,\* & Stein, M.K. (2013). *How and when affordances and constraints within ambitious mathematics curricula matter*

*for the quality of teachers' instruction.* Paper presented at a roundtable session at the annual meeting of the American Educational Research Association, San Francisco.

Coburn, C.E., Russell, J., Kaufman, J., & Stein, M.K. (2013). *Supporting sustainability: Teachers' advice networks and ambitious instructional reform.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Kessler, A.,\* Stein, M.K., & Schunn, C. (2013). *Cognitive demand of robot algebra tutor tasks: How students are really enacting tasks.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Stein, M.K. (2013). *Lesson planning for dialogic instruction in an urban secondary school.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Russell, J., & Stein, M.K. (2013). *Teachers' perceptions of lesson planning as shaped by organizational context.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Tekumru Kisa, M.,\* & Stein, M.K. (2013). *Biology teachers' learning to notice: How do students think while implementing science tasks?* Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Tekumru Kisa,\* M., & Stein, M.K. (2013). Teachers' productive discussions about science tasks: "What is the level of cognitive demand?" Poster session at the annual meeting of the American Educational Research Association, San Francisco.

King, S., Stein, M.K., & Schunn, C. (2012). *Designing educative guides: Reconceptualizing teacher's role in teacherless cognitive tutor-based robotics instruction.* Paper presented at the annual meeting of the American Educational Research Association, Vancouver, BC.

Lau, M., Stein, M.K., Reynolds, B., Tekumru, M.,\* Schunn, C., Schuchardt, A.,\* Ruppel, R., Cox, C., & Bender, S. (2012). *Designing and improving educative curriculum materials for teachers: A STEM integrated secondary school biology unit on Mendelian genetics.* Paper presented at the annual meeting of the American Educational Research Association, Vancouver, BC.

Kaufman, J., Stein, M.K., & Correnti, R. (2012). *The influence of district policy on teacher mobility.* Paper presented at the annual meeting of the American Educational Research Association, Vancouver, BC.

Tekumru, M.\* Stein, M.K., Correnti, R., & Kisa, Z. (2012). *Factors influencing quality mathematics instruction*. Paper presented at the annual meeting of the American Educational Research Association, Vancouver, BC.

Stein, M.K., Kaufman, J., Sherman, M.\* & Hillen, A. (2011). *Balancing rigor and equity: A literature review to inform algebra policy making and research*. Paper presented at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, Indianapolis, IN.

Stein, M.K., Kaufman, J., & Tekumru, M..\* (2011). *Mathematics teacher development in the context of district managed curriculum*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

Stein, M.K., Coburn, C.E., Russell, J.L., & Kaufman, J. (2010). *How social capital shapes instruction*. Paper presented at the annual meeting of the American Educational Research Association, Denver.

Kaufman, J., & Stein, M.K. (2010). *Quality implementation of standards-based mathematics curricula: Teachers' work to sustain cognitive demand of tasks and their reform orientation*. Paper presented at the annual meeting of the American Educational Research Association, Denver.

Smith, M.S., Stein, M.K., Correnti, R., & Scherrer, J.\* (2010). *Measuring discussions in mathematics classrooms*. Presentation at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, San Diego, CA.

Scherrer, J.\* & Stein, M.K. (2010). *Effects of a coding intervention on awareness of learning opportunities*.

Stein, M.K., & Kaufman, J.H. (April 2009). *Large-scale innovation in mathematics: Examining the relationship between teacher capacity, curriculum use and quality of implementation*. Presentation at the annual meeting of the Research Pre-session of the National Council of Teachers of Mathematics, Washington, DC.

Stein, M.K., Hubbard, L., & Toure, J.\* (2008). *Travel of district-wide approaches to instructional improvement: How can districts learn from one another?* Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

Stein, M.K., Kaufman, J., & Sutherland, S. (2008). *Examining the relationship between teacher human capital, curriculum use, and quality of implementation*. Paper presented at the annual meeting of the American Educational Research Association, New York.



Kaufman, J., & Stein, M.K. (2008). *Teaching learning opportunities in a shifting and uncertain policy environment for instruction*. Paper presented at the annual meeting of the American Educational Research Association, New York.

Yuan, K., Lockwood, J.R., Hamilton, L., Gill, B., & Stein, M.K. (2008). *Student achievement in districts scaling up mathematics: As related to district policy, human and social capital, curriculum implementation, and instructional style*. Paper presented at the annual meeting of the American Educational Research Association, New York.

Stein, M.K., & Coburn, C.E. (2007). *Role of boundary objects and practices in district-wide reform*. Paper presented at the annual meeting of the University Council for Educational Administration. Washington, DC.

Stein, M.K., Silvestre, G.,\* & Kim, G. (2007). *Human capital and curriculum implementation*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

Stein, M.K., & Kim, G. (2007). *Teachers use of curriculum in large-scale improvement efforts*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

Stein, M.K., & Coburn, C.E. (2007). *Architectures for learning*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

Gill, B., Lockwood, J.R., & Stein, M.K. (2007). *Student achievement in districts scaling up mathematics*. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

Stein, M.K., & Kim, G. (2006). *The role of mathematics curriculum in large-scale urban reform: An analysis of demands and opportunities for teacher learning*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Stein, M.K., Kim, G., & Seeley, M. (2006). *The enactment of reform mathematics curricula in urban settings: A comparative analysis*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Stein, M.K., Remillard, J., & Smith, M.S. (2005). *How curriculum influences student learning*. Paper presented at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, Anaheim, CA.

Stein, M.K., & Coburn, C. E. (2005). *Districts' use of instructional guidance systems in mathematics*. Paper presented at the annual meeting of the American Educational Research Association, Montreal.

Stein, M.K., & Coburn, C.E. (2005). *Toward producing usable knowledge for the improvement of educational practice: A conceptual framework and typology*. Paper presented at the annual meeting of the American Educational Research Association, Montreal.

Coburn, C.E., Silvestre, G., Stein, M.K., Toure, J., Yamashita, M., & Engle, R. (2005). *Toward producing usable knowledge for the improvement of educational practice: A cross-case analysis*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Stein, M.K., Hughes, E., Engle, R., & Smith, M. (2003). *What and how teachers learn from narrative cases*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Stein, M.K., Toure, J., Acquerelli, K., & Ferguson, S. (2003). *Infusing mathematics reform into a literacy saturated environment: A challenge of content-driven systemic reform*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Stein, M.K., & Spillane, J. (2003). *Research on teaching and research on educational administration: Building a bridge*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Stein, M.K., & Nelson, B.S. (2002). *Leadership content knowledge*. Paper presented at the annual meeting of the University Council of Educational Administration, Pittsburgh, PA.

Hubbard, L., Stein, M.K., & Ventura, J. (2002). *District leadership: An analysis of the walkthrough as an adult professional learning strategy*. Paper presented at the annual meeting of the University Council of Educational Administration, Pittsburgh, PA.

Stein, M.K. (2002). *Studying the influence and impact of Principles and Standards for School Mathematics: The role of schools and districts in teacher capacity building*. Paper presented at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, Las Vegas, NV.

Stein, M.K., & Wilkinson, M. (2002). *Patterns in literature discussion: The use of language in elementary classrooms during read-aloud and shared reading activities*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Stein, M.K., Hubbard, L., & Mehan, H. (2002). *Reform ideas that travel far afield: The two cultures of reform in District #2 and San Diego*. Paper

presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

D'Amico, L., Stein, M.K., & Harwell, M. (2001). *Examining the implementation and effectiveness of a district-wide instructional improvement effort*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.

Smith, M.S., Stein, M.K., Silver, E.A., Hillen, A., & Heffernan, C. (2001). *Toward practice-based curriculum for teaching: Integrating narrative cases and other artifacts of practice within a course for teachers of mathematics*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.

Gold-Pearl, E., & Stein, M.K. (2001). *Coordinating and connecting academic and social services within urban schools*. Paper presented in a poster session at the annual meeting of the American Educational Research Association, Seattle, WA.

Stein, M.K. (2000 November). *Learning to become an instructional leader: Is there a role for subject-matter specific cases of classroom-based teaching and learning?* Presented at the annual meeting of the University Council for Educational Administration, Albuquerque, NM.

Stein, M.K., & D'Amico, L. (November 2000). *Administrator support of literacy practices*. Presented at the annual meeting of the University Council for Educational Administration, Albuquerque, NM.

Stein, M.K., & D'Amico, L. (April 2000). *How subjects matter in school leadership*. Paper presented in a symposium entitled, "Policy Implementation, Cognition, and Administrative Practice: Understanding How School Leaders Face the Challenges of Reform" at the annual meeting of the American Educational Research Association, New Orleans, LA.

Stein, M.K., Smith, M.A., & Silver, E.A. (April 2000). *Studying the enactment of case-based instruction*. Presented at the annual meeting of the National Council of Teachers of Mathematics (Research Pre-Session), Chicago, IL.

Harwell, M., D'Amico, L., Stein, M.K., & Gatti, G. (April 2000). *The effects of teachers' reported professional development on student achievement in Community School District #2*. Paper presented at the annual meeting of the American Educational Research Association Meeting, New Orleans, LA.

Smith, M.S., Stein, M.K., & Heffernan, C. (February 2000). *Cases in mathematics teacher education. What do teachers learn from these experiences?* Presentation at the annual meeting of the Association of Mathematics Teacher Educators.

Stein, M.K., & D'Amico, L. (April 1999). *Observations, conversations, and negotiations: Administrator support of literacy practices in New York City's Community School District #2*. Paper presented in a symposium entitled, "Policy Implementation and Cognition: School Leaders and the Implementation of Instructional Policy," at the annual meeting of the American Educational Research Association, Montreal, Canada.

Stein, M.K., Resnick, L.B., D'Amico, L., & Elmore, R. (April 1999). *District as professional educator: Learning from New York's Community School District #2*. Paper presented in a symposium entitled, "The School District as an Environment for the Improvement of Teaching," at the annual meeting of the American Educational Research Association, Montreal, Canada.

Stein, M.K., & Silver, E.A. (April 1998). *The development of mathematics professional developers: The dilemmas of learning to work in school settings*. Paper presented at the annual meeting of the American Educational Research Association, San Diego.

Silver, E.A., & Stein, M.K. (March 1997). *An analysis of factors facilitating and inhibiting mathematics reform in urban middle schools: Lessons from the QUASAR project*. Paper presented at in a symposium entitled, "Improving Mathematics Instruction in Urban Middle Schools: Facilitating and Inhibiting Conditions Encountered in the QUASAR Project," at the annual meeting of the American Educational Research Association.

Smith, M.S., & Stein, M.K. (April 1997). *Developing Teachers' Capacity for Reflective Practice: Using Mathematical Tasks as a Framework*. Presentation at the 29th annual meeting of the National Council of Supervisors of Mathematics, Minneapolis, Minnesota.

Smith, M.S., Silver, E.A., Stein, M.K., Henningsen, M., & Trafton, P. (February 1997). *Assisting Teachers with Cognitively Demanding Tasks: A Case Approach*. Presentation at the first annual meeting of the Association of Mathematics Teacher Educators, Washington, D.C.

Stein, M.K., Lane, S., & Silver, E.A. (April 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, New York.

Stein, M.K., & Lane, S. (April 1995). *Mathematical tasks and student learning: An analysis of the relationship between teaching and learning in the QUASAR project*. Paper presented in a symposium, "Examining the Processes and Effects of Mathematics Instructional Reform in Urban Schools: Some Findings from Projects IMPACT and QUASAR," at the annual meeting of the American Educational Research Association, San Francisco.

Henningsen, M., & Stein, M.K. (April 1995). *Mathematical tasks in reform classrooms: An analysis of factors underlying successful and problematic implementations*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Forman, E., Stein, M.K., Brown, C.A., & Larreamendy-Joerns, J. (April 1995). *The Socialization of Mathematical Thinking: The Role of Institutional, Interpersonal, and Discursive Contexts*. Paper presented in a symposium entitled, "Teacher Support of Children's Thinking in Reform Mathematics Classrooms," at the annual meeting of the American Educational Research Association, San Francisco.

Stein, M.K., & Henningsen, M. (April 1995). *Studying instructional practice in a national reform mathematics project*. Presented at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, Boston.

Stein, M.K., Grover, B.W., & Henningsen, M. (April 1994). *Enhanced instruction as a means of building student capacity for mathematical thinking and reasoning*. Paper presented in a symposium entitled, "Mathematics Instructional Innovation in Urban Middle Schools: Implementation and Impact in the QUASAR Project, 1990-1993," at the annual meeting of the American Educational Research Association, New Orleans, LA.

Stein, M. K., & Henningsen, M. (April 1993). *Teachers Constructing Meaning in School Based Mathematics Reform: The Case of Cooperative Learning Groups*. Paper presented in a symposium entitled, "Teachers Constructing Meaning in School-Based Reform," at the annual meeting of the American Education Research Association, Atlanta, GA.

Brown, C. A., Stein, M.K., & Forman, E. (April 1993). *Discourse Development: Chains of Assistance*. Paper presented in a symposium entitled, "Mathematical Discourse: Four Approaches to Examining How Teachers and Students Renegotiate Classroom Talk," at the annual meeting of the American Education Research Association, Atlanta, GA.

Brown, C. A., & Stein, M. K. (March 1992). *Frameworks for Analyzing Teacher Change*. Presented at the research pre-session of the annual meeting of the National Council of Teachers of Mathematics, Nashville, TN.

Stein, M.K., & Henningsen, M. (April 1992). *Using Triangulation in Classroom Research: An Example from Small Groups in Mathematics Instruction*. Paper presented at the annual meeting of the American Education Research Association, San Francisco, CA.

Stein, M.K. (March 1989). *Teachers' Use of Textbooks*. Paper presented in a symposium entitled, "Graphing and Functions: Cases of Learning, Learning

to Teach, and Teaching," at the annual meeting of the American Educational Research Association, San Francisco, CA.

Stein, M.K. (April 1988). *Teacher Knowledge and its Relationship to Classroom Instruction*. Paper presented in a symposium entitled, "Roles of Representations, Context, and Teacher Knowledge in Instruction: An Analysis of Graphing Lessons," at the annual meeting of the American Educational Research Association, New Orleans, LA.

Stein, M.K. (April 1988). *Shortcuts: Mindless Procedures or Opportunities for Teaching?* Paper presented in a symposium entitled, "The Use of Teachers' Wisdom-of-Practice Knowledge for Teacher Assessment," at the annual meeting of the American Educational Research Association, New Orleans, LA.

Stein, M.K., & Wang, M.C. (April 1986). *The Role of the Teacher in School Improvement Efforts: An Analysis of Teacher Motives, Attitudes, and Competence*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

**HIGHER  
EDUCATION  
TEACHING**

**University of Pittsburgh: Courses taught**

Doctoral Level

Curricular and Policy Issues in STEM Education  
Instructional Policy  
Policy Issues in Mathematics Education  
Introduction to Learning Sciences and Policy  
Policy as a Lever for Change

Masters Level

Leadership for Curriculum Development  
Research Seminar for School Leadership (Spring 2000, 2001, 2002, and 2003)

Undergraduate Level

Psychology of Learning and Development  
Educational Psychology  
Introduction to Psychology  
Psychology of Adolescence

**PROFESSIONA  
L  
AFFILIATIONS**

International Society for the Learning Sciences  
American Educational Research Association  
AERA SIG-Research in Mathematics Education  
National Council of Teachers of Mathematics  
National Council of Supervisors of Mathematics

**NATIONAL  
PROFESSIONAL  
SERVICE**

***Current Advisory and Technical Working Groups***

***Advisory Board:*** Supporting Teachers to Teach Mathematics Through Problem Posing: An Early Stage Longitudinal Study (National Science Foundation) Jinfa Cai (PI)

***Advisory Board:*** Collaborative Research: Synchronous Online Video-Based Development for Rural Mathematics Coaches [SyncOn for Coaches]. (University of Rochester, Jeff Choppin)

***Advisory board:*** Learning Through Collaborative Design – Professional Development project (Florida State University, Sherry Southerland, PI).

***Advisory Board:*** Cross-Cultural Study of Mathematics Curriculum Use (Swedish Research Council) (University of Pennsylvania, Janine Remillard, PI)

**Completed**

***Invited member*** of the Technical Working Group (TWG) for Regional Education Laboratory (REL) Appalachia (awarded to SRI International). 2017-2019.

***Selected Past Advisory Board Participation***

Identifying an Effective and Scalable Model of Lesson Study. PI: Motoko Akiba (Florida State University)

Research + Practice Collaboratory. PI: Bronwyn Bevan, PI. Exploratorium.

Artifact Indicator Project. PI: Drew Gitomer (Rutgers University)

Understanding and Improving Curriculum Materials Design Practices for Effective Large Scale Implementation in Science. PI: Debra Bernstein, TERC.

Learning Trajectory based Instruction. PI: Paola Sztajn (North Carolina State University)

Evaluating the Cognitive, Psychometric, and Instructional Affordances of Curriculum-Embedded Assessments: A Comprehensive Validity-Based Approach. PI: Jim Pellegrino (University of Illinois, Chicago)

I Cubit. PI: Janine Remillard (University of Pennsylvania)

Learning About New Demands in Schools: Curriculum, Algebra, and the Preparation of Educators (NSF funded) PI: Beth Herbel Eisenmann

(Michigan State University) and Janine Remillard (University of Pennsylvania)

***Chair***

National Research Council Committee on Large-Scale Reform in K-12 STEM Education: A Workshop (March 7, 2011) Washington, DC.

***Editorial Boards***

*Handbook of Research on Teaching* (5<sup>th</sup> Edition). (in preparation). Editors: Drew Gitomer and Courtney Bell. Washington, DC: American Educational Research Association.

*Journal of Educational Change*, 2008 – present.

***Invited Member***

Technical Advisory Group for the Chicago Comprehensive High School Evaluation. TAG serves in an advisory role to the Evaluation Steering Group, 2007-2011.

MacArthur Network on Teaching and Learning, an interdisciplinary group of senior scholars that conducted research focused on developing knowledge about how to bridge research and practice. Deborah Stipek, Chair. 2000-2008.

RAND Professional Review Panel. January 2003 – June 2005.

National Council of Teachers of Mathematics' Standards Impact Research Group (1999-2004).

***Panelist***

National Academy of Education Panel on Strengthening the Capacity of Research to Contribute to Educational Practice and Public Policy (1998-1999).

***Co-leader***

Policy Working Group in the National Council of Teachers of Mathematics Research Catalyst Conference: *Studying the Impact of the Standards*. Washington, DC, 2003.

***Grant Proposal Reviewer***

National Science Foundation  
Spencer Foundation  
Institute for Education Sciences



***Assistant Division Chair***

Division C (Learning and Instruction) of the American Educational Research Association. (1997).

***Manuscript Reviewer***

*Journal of the Learning Sciences, American Educational Research Journal, Educational Evaluation and Policy Analysis, Teaching and Teacher Education, and the Journal for Research in Mathematics Education, Cognition and Instruction*

**REGIONAL  
AND LOCAL  
SERVICE**

***Regional***

School Board, Riverview School District, Oakmont, PA (1999-2011)  
Commencement Speaker, Leechburg Area High School, May 2002.  
Strategic Planning Committee, Riverview School District (1996-97).  
Presentations to civic and educational organizations on issues of school reform.

**UNIVERSITY  
SERVICE**

***Founder & Chair***

Learning Sciences and Policy Program, Ph.D. Program (2006 – present)

***Associate Director***, LRDC (2008-2020)

*Co-Chair*: Diversity & Inclusion Committee (2018-2019)

*Co-Leader*: LRDC Strategic Planning Committee, LRDC (2008-09)

*Co-Leader*: Strategic Planning Committee, LRDC Education (2014)

*Co-Chair*: Director's Advisory Committee on Institute for Learning

***Search Committees: Chair***

- Assistant Professor, Science Education. 2018 (Hire: Cassey Quigley)
- Assistant Professor, Mathematics Education. 2017 (Hire: Kari Kokka)
- Helen Faison Endowed Chair, 2011-2012 (Hire: Richard Milner)
- LRDC Research Scientist, 2011-2012 (co-chair, Chris Schunn). Hire: Mushin Menekse.
- Learning Sciences and Policy, 2005-2006 Hires: Jennifer Russell and Richard Correnti
- Learning Sciences and Policy, 2004-2005. Hire: Lindsey Clare Matsumura
- Administrative and Policy Studies, 2000. Hire: Cynthia Coburn.

***Search Committee: Member***

- Helen Faison Endowed Chair, 2007-2008. Hire: Louis Gomez
- LRDC Director, 2007-2008. Hire: Charles Perfetti
- Falk School Principal, 2004-2005. Hire: Wendell McConnaha

***Additional***

Member: Promotion and Tenure Committee, School of Education  
(2017-present)

Chair, Promotion & Tenure Committee, School of Education (2016 to present)

SOE Ph.D. Committee (2015-2017)  
School of Education Executive Committee (2011-2014)  
LRDC Executive Committee (2008-present)  
Academic Affairs Committee, School of Education (2014-2016)  
Ph.D. Committee, School of Education (2015-2016)  
Promotion and Tenure Committee, School of Education (2001-2004;  
2011-2013)  
School of Education Restructuring Committee (2010-2011)  
Outstanding Dissertation Award screening committee (2002)  
Inquiry Panel for Office of Research Integrity. Investigated an allegation of  
possible scientific misconduct (2001 and 2015)  
Faculty Student Research Award Committee (Spring 2000-2002)