

CURRICULUM VITAE

James Hiebert

School of Education
107 Willard Hall Education Building
University of Delaware
Newark, DE 19716
Office: (302) 831-1655
Fax: (302) 831-4110
hiebert@udel.edu

EDUCATIONAL BACKGROUND

Ph.D., Curriculum and Instruction, University of Wisconsin, Madison, Wisconsin, June 1979.

Major: Mathematics Education
Minors: Mathematics, Cognitive Development

M.A., Mathematics, University of Illinois, Urbana, Illinois, August 1972.

B.A., Mathematics, Fresno Pacific College, Fresno, California, June 1970.

PROFESSIONAL EXPERIENCE

Robert J. Barkley Professor of Education, University of Delaware, 2001-present.

H. Rodney Sharp Professor of Education, University of Delaware, 1995-2001

Assistant/Associate/Full Professor, Department of Educational Development, University of Delaware, 1982-1995.

Assistant Professor, Department of Curriculum and Instruction, University of Kentucky, 1979-1982.

Project Assistant, Research and Development Center for Education Research, University of Wisconsin-Madison, 1976-1979.

Mathematics Teacher, Clovis High School, Clovis, California, 1972-1974.

Teaching Assistant, Department of Mathematics, University of Illinois, 1970-1971.

GRANTS

Hiebert, J. (University of Delaware PI). *Mid-Atlantic Center for Mathematics Teaching and Learning* (with University of Maryland and Pennsylvania State University). National Science Foundation. Subcontract through University of Maryland, September 1, 2005 – August 31, 2010 (\$3,096,712; contingent on NSF budget stability).

Hiebert, J. (University of Delaware PI). *Mid-Atlantic Center for Mathematics Teaching and Learning* (with University of Maryland and Pennsylvania State University). National Science Foundation. Subcontract through University of Maryland, August 1, 2000 – July 31, 2005 (\$2,458,865).

Hiebert, J. *Teaching and learning with understanding: A synthesis*. Office of Educational Research and Improvement, Subcontract through the National Center for Research in Mathematical Sciences Education, University of Wisconsin, December 1, 1994 - November 30, 1995 (\$34,690).

Hiebert, J., & Wearne, D. *Long term teacher and student effects of conceptually-based instruction in mathematics: Follow-up*. Office of Educational Research and Improvement, Subcontract through the National Center for Research in Mathematical Sciences Education, University of Wisconsin, July 1, 1992 - June 31, 1993 (\$30,330).

Hiebert, J., & Wearne, D. *Long term effects of conceptually-based instruction in mathematics*. National Science Foundation Grant (No. 8855627), September 1, 1989 - March 15, 1993 (\$353,558).

Hiebert, J. *Research agenda in mathematics education*. National Science Foundation Grant (No. MDR 8550614, Subcontract through San Diego State University), July 1, 1986 - June 30, 1988 (\$12,738).

Hiebert, J., & Wearne, D. C. *Instruction and cognitive change in mathematics: Learning decimal numbers*. National Science Foundation Grant (No. MDR 8651552), August 15, 1986 - January 31, 1990 (\$178,226).

Wearne, D. C., & Hiebert, J. *Learning decimal numbers: A study of knowledge acquisition*. National Institute of Education Grant (No. 3406291502), September 30, 1983 - September 29, 1985 (\$73,936).

Hiebert, J., & Wearne, D. C. *Children's understanding of decimal numbers*. National Science Foundation Grant (No. SED-8109731), June 1, 1981 - November 30, 1983 (\$114,459).

PUBLICATIONS

Books

Stigler, J. W., & Hiebert, J. (1999). *The teaching gap: Best ideas from the worlds' teachers for improving education in the classroom*. New York: Free Press.

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

Hiebert, J., & Behr, M. J. (Eds.). (1988). *Research agenda in mathematics education: Number concepts and operations in the middle grades*. Reston, VA: National Council of Teachers of Mathematics.

Hiebert, J. (Ed.). (1986). *Conceptual and procedural knowledge: The case of mathematics*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Monographs

Hiebert, J., Gallimore, R., Garnier, H., Givven, K. B., Hollingsworth, H., Jacobs, J., Chui, A. M.-Y., Wearne, D., Smith, M., Manaster, A., Tseng, E., Etterbeek, W., Manaster, C., Gonzales, P., & Stigler, J. W. (2003). *Teaching mathematics in seven countries: Results from the TIMSS 1999 Video Study*. Washington, D.C.: U.S. Department of Education, National Center for Education Statistics.

Jacobs, J., Garnier, H., Gallimore, R., Hollingsworth, H., Givvin, K. B., Rust, K., Kawanaka, T., Smith, M., Wearne, D., Manaster, A., Etterbeek, W., Hiebert, J., & Stigler, J. W. (2003). *Third International Mathematics and Science Study 1999 Video Study Technical Report, Volume 1: Mathematics*. Washington, DC: U.S. Department of Education, National Center for Education Statistics. Available online at <http://nces.ed.gov/>

Journal Articles

Hiebert, J., Morris, A. K., Berk, D., & Jansen, A. (2007). Preparing teachers to learn from teaching. *Journal of Teacher Education*, 58, 47-61.

Jacobs, J. K., Hiebert, J., Givvin, K. B., Hollingsworth, H., Garnier, H., & Wearne, D. (2006). Does eighth-grade mathematics teaching in the United States align with the NCTM Standards? Results from the TIMSS 1995 and 1999 video studies. *Journal for Research in Mathematics Education*, 37, 5-32.

Hiebert, J., Stigler, J. W., Jacobs, J. K., Givvin, K. B., Garnier, H., Smith, M., Hollingsworth, H., Manaster, A., Wearne, D., & Gallimore, R. (2005). Mathematics teaching in the United

- States today (and tomorrow): Results from the TIMSS 1999 Video Study. *Educational Evaluation and Policy Analysis*, 27, 111-132.
- Givvin, K. B., Hiebert, J., Jacobs, J. K., Hollingsworth, H., & Gallimore, R. (2005). Are there national patterns of teaching? Evidence from the TIMSS 1999 Video Study. *Comparative Education Review*, 49, 311-343.
- Hiebert, J., & Stigler, J. W. (2004). A world of difference: Classrooms abroad provide lessons in teaching math and science. *Journal of Staff Development*, 25 (4), 10-15.
- Stigler, J. W., & Hiebert, J. (2004). Improving mathematics teaching. *Educational Leadership*, 61(5), 12-17. [Translated, edited, and published in Swedish journal (2004): *Nämna ren*, 31(1), 38-43]
- Hiebert, J., Gallimore, R., Garnier, H., Givvin, K. B., Hollingsworth, H., Jacobs, J., Chui, A. M.-Y., Wearne, D., Smith, M., Manaster, A., Tseng, E., Etterbeek, W., Manaster, C., Gonzales, P., & Stigler, J. W. (2003). Understanding and improving mathematics teaching: Highlights from the TIMSS 1999 Video Study. *Phi Delta Kappan*, 84, 768-775.
- Hiebert, J., Morris, A. K., & Glass, B. (2003). Learning to learn to teach: An “experiment” model for teaching and teacher preparation in mathematics. *Journal of Mathematics Teacher Education*, 6, 201-222.
- Hiebert, J., Gallimore, R., & Stigler, J. W. (2002). A knowledge base for the teaching profession: What would it look like and how can we get one? *Educational Researcher*, 31(5), 3-15.
- Hiebert, J. (2002). Lektionsplanering: Ny verksamhet i gammal form. [Lesson planning reconsidered: Creating a new function for an old form.] *Nämna ren*, 29(1), 53-57.
- Hiebert, J., & Stigler, J.W. (2000). A proposal for improving classroom teaching: Lessons from the TIMSS Video Study. *Elementary School Journal*, 101, 3-20.
- Stigler, J. W., Gallimore, R., & Hiebert, J. (2000). Using video surveys to compare classrooms and teaching across cultures: Examples and lessons from the TIMSS Video Studies. *Educational Psychologist*, 35, 87-100.
- Hiebert, J., Stigler, J. W., & Manaster, A. B. (1999). Mathematical features of lessons in the TIMSS Video Study. *Zentralblatt für Didaktik der Mathematik (International Reviews on Mathematical Education)*, 31(6), 196-201.
- Hiebert, J. (1999). Relationships between research and the NCTM Standards. *Journal for Research in Mathematics Education*, 30, 3-19.
- Grant, T.J., Hiebert, J., & Wearne, D. (1998). Observing and teaching reform-minded lessons: What do teachers see? *Journal of Mathematics Teacher Education*, 1, 217-236.

- Stigler, J.W., & Hiebert, J. (1998). Teaching is a cultural activity. *American Educator*, 22 (4), 4-11.
- Stigler, J.W., & Hiebert, J. (1998). The TIMSS videotape study. *American Educator*, 22 (4), 7; 43-45.
- Hiebert, J. (1997). Re-thinking what cognitive science can contribute to improving students' learning. *Issues in Education*, 3, 93-100.
- Stigler, J.W., & Hiebert, J. (1997). Understanding and improving classroom mathematics instruction: An overview of the TIMSS video study. *Phi Delta Kappan*, 79 (1), 14-21.
- Fuson, K., Wearne, D., Hiebert, J., Human, P., Murray, H., Olivier, A., Carpenter, T., & Fennema, E. (1997). Children's conceptual structures for multidigit numbers and methods of multidigit addition and subtraction. *Journal for Research in Mathematics Education*, 28, 130-162.
- Hiebert, J., Carpenter, T. P., Fennema, E., Fuson, K., Human, P., Murray, H., Olivier, A., & Wearne, D. (1997). Making mathematics problematic: A rejoinder to Prawat and Smith. *Educational Researcher*, 26 (2), 24-26.
- Hiebert, J., Carpenter, T. P., Fennema, E., Fuson, K., Human, P., Murray, H., Olivier, A., Wearne, D. (1996). Problem solving as a basis for reform in curriculum and instruction: The case of mathematics. *Educational Researcher*, 25 (4), 12-21.
- Hiebert, J., & Wearne, D. (1996). Instruction, understanding, and skill in multidigit addition and subtraction. *Cognition and Instruction*, 14, 251-283.
- Wearne, D., & Hiebert, J. (1994). Place value and addition and subtraction. *Arithmetic Teacher*, 41, 272-274.
- Hiebert, J., & Wearne, D. (1993). Instructional tasks, classroom discourse, and students' learning in second-grade arithmetic. *American Educational Research Journal*, 30, 393-425.
- Hiebert, J. (1992). Reflection and communication: Cognitive considerations in school mathematics reform. *International Journal of Educational Research*, 17, 439-456.
- Hiebert, J., & Wearne, D. (1992). Links between teaching and learning place value with understanding in first grade. *Journal for Research in Mathematics Education*, 23, 98-122.
- Hiebert, J., Wearne, D., & Taber, S. (1991). Fourth graders' gradual construction of decimal fractions during instruction using different physical representations. *Elementary School Journal*, 91, 321-341.
- Wearne, D., & Hiebert, J. (1989). Cognitive changes during conceptually based instruction on decimal fractions. *Journal of Educational Psychology*, 81, 507-513.

- Hiebert, J. (1989). The struggle to link written symbols with understandings: An update. *Arithmetic Teacher*, 36 (7), 38-44.
- Hiebert, J. (1988). A theory of developing competence with written mathematical symbols. *Educational Studies in Mathematics*, 19, 333-355.
- Wearne, D., & Hiebert, J. (1988). A cognitive approach to meaningful mathematics instruction: Testing a local theory using decimal numbers. *Journal for Research in Mathematics Education*, 19, 371-384.
- Hiebert, J., & Wearne, D. (1988). Instruction and cognitive change in mathematics. *Educational Psychologist*, 23, 105-117 .
- Wearne, D., & Hiebert, J. (1986). Über typische schülerfehler im bereich der dezimalbrüche. *Der Mathematikunterricht*, 32 (3), 78-88.
- Hiebert, J., & Wearne, D. (1985). A model of students' decimal computation procedures. *Cognition and Instruction*, 2, 175-205.
- Hiebert, J. (1985). Children's knowledge of common and decimal fractions. Education and Urban Society, 17, 427-437.
- Hiebert, J. (1984). Why do some children have trouble learning measurement concepts? *Arithmetic Teacher*, 31, (7), 19-24.
- Hiebert, J. (1984). Children's mathematics learning: The struggle to link form and understanding. *Elementary School Journal*, 84, 497-513.
- Wearne, D. C., & Hiebert, J. (1984). Teaching for thinking in mathematics. *Childhood Education*, 60, 239-245. (Reprinted in *Curriculum Review*, 1985, 25 (1), 65-68).
- Hiebert, J., Carpenter, T. P., & Moser, J. M. (1983). Cognitive skills and arithmetic performance: A reply to Steffe and Cobb. *Journal for Research in Mathematics Education*, 14, 77-79.
- Wearne, D. C., & Hiebert, J. (1983). Elementary and junior high school students' understanding of fractions. *School Science and Mathematics*, 83, 96-106.
- Carpenter, T. P., Hiebert, J., & Moser, J. M. (1983). The effect of instruction on children's solutions of addition and subtraction word problems. *Educational Studies in Mathematics*, 14, 55-72.
- Hiebert, J., & Carpenter, T. P. (1982). Piagetian tasks as readiness measures in mathematics instruction: A critical review. *Educational Studies in Mathematics*, 13, 329-345.

- Hiebert, J., Carpenter, T. P., & Moser, J. M. (1982). Cognitive development and children's solutions to verbal arithmetic problems. *Journal for Research in Mathematics Education*, 13, 83-98.
- Hiebert, J. (1982). The position of the unknown set and children's solutions of verbal arithmetic problems. *Journal for Research in Mathematics Education*, 13, 341-349.
- Carpenter, T. P., Hiebert, J., & Moser, J. M. (1981). Problem structure and first-grade children's initial solution processes for simple addition and subtraction problems. *Journal for Research in Mathematics Education*, 12, 27-39.
- Hiebert, J. (1981). Cognitive development and learning linear measurement. *Journal for Research in Mathematics Education*, 12, 197-211.
- Hiebert, J. (1981). Units of measure: Results and implications from National Assessment. *Arithmetic Teacher*, 28 (6), 38-43.
- Hiebert, J., & Tonnessen, L. H. (1978). Development of the fraction concept in two physical contexts: An exploratory investigation. *Journal for Research in Mathematics Education*, 9, 374-378.

Book Chapters

- Hiebert, J., & Grouws, D. A. (2007). The effects of classroom mathematics teaching on students' learning. In F. K. Lester (Ed.), *Second handbook of research on mathematics teaching and learning* (pp. 371-404). Charlotte, NC: Information Age Publishing.
- Hiebert, J. (2003). What research says about the NCTM Standards. In J. Kilpatrick, W. G. Martin, & D. Schifter (Eds.), *A research companion to Principles and Standards for School Mathematics* (pp. 5-23). Reston, VA: National Council of Teachers of Mathematics.
- Hiebert, J. (2003). Signposts for teaching mathematics through problem solving. In F. K. Lester, Jr. (Ed.), *Teaching mathematics through problem solving: Prekindergarten – Grade 6* (pp. 53-61). Reston, VA: National Council of Teachers of Mathematics.
- Hiebert, J., & Wearne, D. (2003). Developing understanding through problem solving. In H. L. Schoen (Ed.), *Teaching mathematics through problem solving: Grades 6 – 12* (pp. 3-13). Reston, VA: National Council of Teachers of Mathematics.
- Hiebert, J., Kilpatrick, J., & Lindquist, M. M. (2001). Improving U.S. doctoral programs in mathematics education. In R. E. Reys & J. Kilpatrick (Eds.), *One field, many paths: U.S. doctoral programs in mathematics education* (pp. 153-159). Providence, RI: American Mathematical Society.

- Carpenter, T.P., Fennema, E., Fuson, K., Hiebert, J., Human, P., Murray, H., Olivier, A., Wearne, D. (1999). Learning basic number concepts and skills as problem solving. In E. Fennema & T.A. Romberg (Eds.), *Mathematics classrooms that promote understanding* (pp. 45-61). Mahwah, NJ: Erlbaum.
- Kawanaka, T., Stigler, J.W., & Hiebert, J. (1999). Studying mathematics classrooms in Germany, Japan, and the United States: Lessons from the TIMSS videotape study. In G. Kaiser, E. Luna, & I. Huntley (Eds.), *International comparisons in mathematics education* (pp.86-103). London: Falmer Press.
- Hiebert, J. (1998). Aiming research toward understanding: Lessons we can learn from children. In A. Sierpinska & J. Kilpatrick (Eds.), *Mathematics education as a research domain: A search for identity* (pp. 141-152). Dordrecht, The Netherlands: Kluwer.
- Hiebert, J. (1993). Benefits and costs of research that links teaching and learning mathematics. In T. P. Carpenter, E. Fennema, and T. A. Romberg (Eds.), *Rational numbers: An integration of research* (pp. 219-238). Hillsdale, NJ: Erlbaum.
- Hiebert, J. (1992). Mathematical, cognitive, and instructional analyses of decimal fractions. In G. Leinhardt, R. T. Putnam, & R. A. Hattrup (Eds.), *Analysis of arithmetic for mathematics teaching* (pp. 283-322). Hillsdale, NJ: Erlbaum.
- Hiebert, J., & Carpenter, T. P. (1992). Learning and teaching with understanding. In D. A. Grouws (Ed.), *Handbook of research on mathematics teaching and learning* (pp. 65-97). New York: Macmillan.
- Hiebert, J., & Wearne, D. (1991). Methodologies for studying learning to inform teaching. In E. Fennema, T. P. Carpenter, & S. J. Lamon (Eds.), *Integrating research on teaching and learning mathematics* (pp. 153-176). Albany, NY: SUNY Press.
- Hiebert, J. (1990). The role of routine procedures in the development of mathematical competence. In T. J. Cooney (Ed.), *Teaching and learning mathematics in the 1990's. 1990 Yearbook of the National Council of Teachers of Mathematics* (pp. 31-40). Reston, VA: National Council of Teachers of Mathematics.
- Hiebert, J., & Lindquist, M. M. (1990). Developing mathematical knowledge in the young child. In J. N. Payne (Ed.), *Mathematics for the young child* (pp. 17-36). Reston, VA: National Council of Teachers of Mathematics.
- Hiebert, J., & Behr, M. J. (1988). Introduction: Capturing the major themes. In J. Hiebert &

M. J. Behr (Eds.), *Research agenda in mathematics education: Number concepts and operations in the middle grades* (pp. 1-18). Reston, VA: National Council of Teachers of Mathematics.

Wearne, D., & Hiebert, J. (1988). Constructing and using meaning for mathematical symbols: The case of decimal fractions. In J. Hiebert & M. J. Behr (Eds.), *Research agenda in mathematics education: Number concepts and operations in the middle grades* (pp. 220-235). Reston, VA: National Council of Teachers of Mathematics.

Hiebert, J., & LeFevre, P. (1986). Conceptual and procedural knowledge in mathematics: An introductory analysis. In J. Hiebert (Ed.), *Conceptual and procedural knowledge: The case of mathematics* (pp. 1-27). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Hiebert, J., & Wearne, D. (1986). Procedures over concepts: The acquisition of decimal number knowledge. In J. Hiebert (Ed.), *Conceptual and procedural knowledge: The case of mathematics* (pp. 199-223). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Hiebert J. (1981). Children's thinking. In E. Fennema (Ed.), *Research in mathematics education: Implications for the 80's* (pp. 41-61). Alexandria, VA: Association for Supervision and Curriculum Development.

Book Reviews

Hiebert, J. (1992). Individual and situated cognition: An integrative perspective. [Review of *Culture and cognitive development: Studies in mathematics understanding*]. *Contemporary Psychology*, 37, 580-581.

Hiebert, J. (1989). Reforming the indicators of educational reform. [Review of *Improving indicators of the quality of science and mathematics education in grades K-12*]. *Contemporary Psychology*, 34, 657-658.

Hiebert, J. (1986). Can schools change this much? [Review of *Young children reinvent arithmetic: Implications of Piaget's theory*]. *Contemporary Psychology*, 31, 612-613.

Hiebert, J. (1984). Complementary perspectives [Review of *Acquisition of mathematics concepts and processes*, *Children's logical and mathematical cognition*, and *The development of mathematical thinking*]. *Journal for Research in Mathematics Education*, 15, 229-234.

Brief Articles, Essays, Expanded Abstracts, and Proceedings

- Hiebert, J., & Grouws, D. A. (2007). *Effective teaching for the development of skill and conceptual understanding of number: What is most effective?* Research Brief from NCTM. Reston, VA: National Council of Teachers of Mathematics.
- Hiebert, J., Gallimore, R., & Stigler, J. W. (2003, November 5). The new heroes of teaching: Opening classroom doors for the good of the profession. *Education Week*, pp. 56, 42.
- Stigler, J. W., & Hiebert, J. (2002). Improving teaching. In P. L. Kimmelman & D. J. Kroeze, *Achieving world class schools: Mastering school improvement using a genetic model* (pp. 293-294). Norwood, MA: Christopher-Gordon Publishers.
- Hiebert, J. (2000). What can we expect from research? *Mathematics Teacher*, 93, 168-169; *Mathematics Teaching in the Middle School*, 5, 413-415; *Teaching Children Mathematics*, 6, 436-437.
- Hiebert, J. (1994). Learning lessons from children and doing research in mathematics education. In *Background papers for the ICMI Study Conference "What is mathematics education and what are its results?"* (pp. 175-190). College Park, MD: University of Maryland.
- Wearne, D., & Hiebert, J. (1993). A comparison of conceptually based and textbook based instruction in grades 1-3. In J. R. Becker & B. J. Pence (Eds.), *Proceedings of the Fifteenth Annual Meeting of the Psychology of Mathematics Education - North America* (Vol. 1, pp. 268-274). San Jose, CA: San Jose State University.
- Hiebert, J., & Wearne, D. (1992). Emerging relationships between teaching and learning during the primary grades. In W. Geeslin & K. Graham (Eds.), *Proceedings of the Sixteenth International Conference of the Psychology of Mathematics Education Conference* (Vol. 1, pp. 273-280). Durham, NH: University of New Hampshire.
- Hiebert, J. (1990). Reflections on teaching place value and beginning multidigit arithmetic to first graders. In K. Fuson & T. P. Carpenter (Eds.), *Learning and teaching place value and multidigit addition and subtraction* (pp. 18-22). Madison: University of Wisconsin, Wisconsin Center for Education Research.
- Hiebert, J. (1989). Reflections after the conference on number sense. In J. T. Sowder & B. P. Schappelle (Eds.), *Establishing foundations for research on number sense and related topics: Report of a conference* (pp. 82-84). San Diego: San Diego State University, Center for Research in Mathematics and Science Education.
- Hiebert, J., & Wearne, D. (1988). A first look at the long term effects of conceptually-based instruction on decimals. In M. J. Behr, C. B. Lacampagne, & M. M. Wheeler (Eds.), *Proceedings of the Tenth Annual Meeting of the Psychology of Mathematics Education - North America* (pp. 371-378). Dekalb, IL: Northern Illinois University.
- Hiebert, J. (1987). Research report: Decimal fractions. *Arithmetic Teacher*, 34 (7), 22-23.

Hiebert, J., & Wearne, D. (1987). Cognitive effects of instruction designed to promote meaning for written mathematical symbols. In J. C. Bergeron, N. Herscovics, & C. Kieran (Eds.), *Proceedings of the Eleventh International Conference of the Psychology of Mathematics Education* (Vol.I, pp. 391-397). Montreal: University of Montreal.

Hiebert, J. (1985). [Review and critique of Baroody, A. J. (1984). More precisely defining and measuring the order-irrelevance principle. *Journal of Experimental Child Psychology*, 38, 33-41]. *Investigations in Mathematics Education*, 18 (3), 1-5.

Hiebert, J. (1980). The effect of cognitive development on first-grade children's ability to learn linear measurement concepts. *Journal for Research in Mathematics Education*, 11, 163-165.

RECENT PROFESSIONAL ACTIVITIES

Director, Mathematics portion of the 1999 Video Study, Third International Mathematics and Science Study (1998-2003).

Member, Mathematics Study Committee, National Research Council, National Academy of Sciences (1998-2002).

Member, Editorial Board, *Cognition and Instruction* (1993-2003).

Member, Editorial Board, *Elementary School Journal* (1989-).

Member, Editorial Board, *Mathematical Thinking and Learning* (1997-).