

CURRICULUM VITA
William Spencer Bush

ADDRESS (Office): University of Louisville
Department of Teaching and Learning
College of Education and Human Development
Louisville, Kentucky 40292
(502) 852-0590

EMAIL: bill.bush@louisville.edu

EDUCATION:

- Ed.D. Doctor of Education in Mathematics Education, University of Georgia, Athens, Georgia, August, 1982.
- M.A. Master of Arts in Education, University of Kentucky, Lexington, Kentucky, August, 1978.
- B.S. Bachelor of Science in Mathematics, University of Kentucky, Lexington, Kentucky, May, 1974.

Current Position:

Professor, Department of Teaching and Learning, Mathematics Education
Specialization
Director, Center for Research in Mathematics and Science Teacher Development

Teaching Experience:

July, 2001 to present, University of Louisville, Louisville, Kentucky. Professor of Mathematics Education with Tenure. Director of Center for Research in Mathematics and Science Teacher Development

August, 1990 to May, 2001, University of Kentucky, Lexington, Kentucky. Associate Professor of Mathematics Education with Tenure

August, 1985 to July, 1990, University of Kentucky, Lexington, Kentucky. Assistant Professor of Mathematics Education

September, 1982 to August, 1985, University of Houston-Victoria, Victoria, Texas. Assistant Professor of Mathematics Education

August, 1978 to August, 1982, University of Georgia, Athens, Georgia. Instructor in Mathematics Education, Graduate Assistant

September, 1976 to June, 1978, University of Kentucky, Lexington, Kentucky.
Mathematics Instructor

September, 1974 to June, 1978, Henry Clay High School, Lexington, Kentucky.
Mathematics Teacher

Instructional Activities:

Courses taught at the University of Kentucky

EDC 322 - Elementary Math/Science Practicum
EDC 332 - Practicum in Early Elementary Mathematics and Science
EDC 337 - Teaching Mathematics in the Early Elementary Grades
EDC 345 - Teaching Mathematics in Middle School
EDC 349 – Student Teaching in the Middle School
EDC 356 - Student Teaching in Secondary Mathematics
EDC 362 - Field Experiences in Secondary Education (Mathematics)
EDC 521 - Materials and Methods in Teaching Mathematics in the Secondary School
EDC 670 - Advanced Study in the Teaching of Elementary School Mathematics
EDC 777 - Teaching Mathematics Problem Solving in the Elementary and Secondary School
EDC 777 - Alternative Assessment in Mathematics Education
EDC 777 - Critical Issues in Secondary Mathematics Education
EDC 777 - Reading and Research in Curriculum and Instruction
EDC 777 - Seminar in Classroom Management and Discipline
EDU 645 - Foundations of Pedagogical Theory and Practice in the Secondary School

Courses taught at the University of Louisville

EDEM 622 – Learning and Assessing Mathematics (ACCLAIM)
EDTL 740 – Advanced Research in Mathematics Education (ACCLAIM)

Doctoral Committees:

Chair, Doctoral Committee, for:

Janet Miller 1991-99
David Gibson 1991-1996
Christopher Hail 1992-2000
Marci Davis, 1999-2001
Amanda Davis 2003-2005
Brian Boyd 2004-present
Brenda Lackey 2004-present
Vicki-Lynn Wilson 2004-present
Roland O’Daniel 2005-present
Johnny Belcher 2006-present

Paula Schlessinger 2006-present
Debbie Waggoner 2006-present

Member, Doctoral Committee, for:

Marcie Davis 2001-2006
Barbara Buckner 2004-present
Frank Edge, 2005-present
Jon Saderholm 2004-present
Glen McQuaid, 2005-present
Jane Jones, 2005-present
Victor Brown 2006-present
Courtenay Mayes 2006-present
Lisa Music 2006-present

ADMINISTRATION:

Director, Center for Research in Mathematics and Science Teacher Development,
University of Louisville, 2002-present.
Project Director and Co-PI, Appalachian Collaborative Center for Learning, Assessment,
and Instruction in Mathematics, 2001-present
Director, Kentucky Middle School Mathematics Academies, 1999-2003
Co-Principal Investigator, Lexington Area Systemic Education Reform in Mathematics
and Science, 1999-2000.
Special Assistant to the Chancellor, University of Kentucky, 1998-99.
Director, Kentucky Middle Grades Mathematics Teacher Network, August, 1992-August,
1997
Coordinating Council, Partnership for Reform Initiatives in Science and Mathematics
(PRISM), 1992-present
Director, Kentucky Mathematics Coalition, January, 1990-1995
Director, Kentucky K-4 Mathematics Specialist Program, May, 1990-April, 1993
Director, UH-Victoria Mathematics/Computer Science Recertification Program, 1983-
1985

RESEARCH AND SCHOLARLY WORK:

Research interests include mathematics teachers' conceptions and beliefs, affect, and
knowledge of mathematics, mathematics anxiety in teachers and students, mathematics
teacher education, teacher professional development, and rural influences on mathematics
teaching and learning.

Grants Awarded (Total: \$29,749,881)

Kentucky Council on Postsecondary Education. \$400,000. **Evaluation of GEAR UP KY II.** Received August, 2006. Submitted with Maggie McGatha, Jennifer Bay-Williams, Kathy Rudasel.

Kentucky Council on Postsecondary Education. \$142,000. **Improving Mathematics Teaching and Student Achievement in Mathematics.** Revised with Maggie McGatha.

Northern Kentucky University, \$36,000. Regional Facilitators for KCM. Received June, 2006.

Kentucky Educational Professional Standards Board. \$65,375. **The Mathematics Preparation of Kentucky's Middle School Teachers.** Received July 1, 2004. Submitted with Vivian Moody.

U. S. Department of Education. Funds for the Improvement of Postsecondary Education (Federal Apportionment). \$1,192,200. **Urban University Partnership for Mathematics in Mathematics and Science Teaching (UP²MAST).** Received, July 1, 2003. Submitted with Robert Ronau and Philip Schmidt.

Kentucky Department of Education. \$58,000. **Modeling Rational Numbers Teacher Academy.** Received May, 2003. Submitted with Amanda Davis.

U. S. Department of Education. Funds for the Improvement of Postsecondary Education (Federal Apportionment). \$1,500,000. **Urban University Partnership for Mathematics in Mathematics and Science Teaching (UP²MAST).** Received, July 1, 2002. Submitted with Robert Ronau and Philip Schmidt.

National Science Foundation. \$850,000. **Louisville Area Science and Mathematics Alliance for Recruitment and Teacher Education (LA-SMARTER).** Received, May 2002. Submitted with Robert Ronau.

Kentucky Council on Postsecondary Education. \$145,500. **Kentucky Middle School Mathematics Academies—Year 3.** Received, January, 2002.

National Science Foundation, \$9,995,831. **Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics (ACCLAIM).** Received, September 2001. Submitted with Vena Long, Jim Schultz, Thomas Klein, and Stephen Henderson.

National Science Foundation. \$300,000. **Lexington Collaborative for Revitalizing and Improving Middle Mathematics (LCRIMM).** Received, February 2001. Submitted with Lillie Crowley.

Kentucky Council on Postsecondary Education. \$141,772. **Kentucky Middle School Mathematics Academies—Year 2.** Received, November, 2000.

U. S. Department of Education. \$10,305,991. **Kentucky GEAR UP.** Received October, 2000. Submitted with James Applegate, Dwayne Robertson, and Harold Hardy.

Kentucky Council on Postsecondary Education. \$300,000. **Kentucky Middle School Mathematics Academies.** Received, November, 1999.

National Science Foundation, \$100,000. **Lexington Area Systemic Education Reform in Mathematics and Science (LASER-MS).** Submitted with David Taylor, Natalee Feese, and Ronald Atwood. Received May 1, 1999.

UK Faculty Extramural Team Grants, \$12,000. **UK Task Force on Mathematics, Science, and Technology.** Submitted with Dr. Donald Sands. Received May, 1998.

Exxon Education Foundation, \$50,150. **Mathematics Enhancement of *Different Ways of Knowing* Curriculum Modules.** Submitted with Dr. Linda Hargan of the Kentucky Collaborative for Elementary Learning. Received May, 1994.

Kentucky Council on Higher Education/Partnership for Reform Initiatives in Science and Mathematics, \$72,162. **Statewide Dissemination of Primary Instructional Units Integrating Mathematics, Science, and Technology.** Received November, 1993.

Kentucky Council on Higher Education/Partnership for Reform Initiatives in Science and Mathematics, \$83,349. **Incorporating Whole Mathematics into the Kentucky K-4 Mathematics Specialist Program.** Received November, 1992.

Exxon Education Foundation/Kentucky Department of Education/Partnership for Reform Initiatives in Science and Mathematics, \$90,000. **Extending the Kentucky K-4 Mathematics Specialist Program.** Received September, 1992.

National Science Foundation, \$2,818,533. **The Kentucky Middle Grades Mathematics Teacher Network (KMGMTN).** Received August, 1992.

Kentucky Department of Education, \$6,000. **The Kentucky Mathematics Coalition.** Received May, 1992.

Kentucky Council on Higher Education, \$39,192. **Sustaining the Kentucky K-4 Mathematics Specialist Program.** Received November, 1991.

Kentucky Department of Education, \$6,000. **The Kentucky Mathematics Coalition.** Received September, 1990.

National Science Foundation, \$1,004,040. **Training K-4 Mathematics Specialists in the Commonwealth of Kentucky.** Received May, 1990.

Mathematics Sciences Education Board, \$18,850. **The Kentucky Mathematics Coalition.** Received November, 1990.

University of Kentucky Research Fund, \$2,000. Conduct study on math anxiety in elementary school teachers. Received November, 1986.

University of Kentucky Major Equipment Fund, \$3,000. Purchase microcomputer equipment to conduct research on the computerized Kentucky mathematics Bulletin Board. Received December, 1986.

Institutional, University of Houston-Victoria, \$1,187. Travel to AERA in Chicago, April, 1985, and to NCTM in San Antonio, April 1985. Received November, 1984.

Institutional, University of Houston-Victoria, \$5,880. Evaluate, with Dr. Charles Lamb, UT-Austin, mathematics recertification program. Received March, 1984.

Institutional, University of Houston-Victoria, \$700. Travel to NCTM in Detroit, April, 1983. Received March, 1983.

PUBLICATIONS:

Books:

Glanfield, F., Bush, W. S., & Stenmark, J. S. (eds.) (2003). *Mathematics assessment: A practical handbook for grades K-2.* Reston, VA: National Council of Teachers of Mathematics.

Bush, W. S. (ed.) (2001). *Mathematics assessment: Cases and discussion questions for grades K-5.* Reston, VA: National Council of Teachers of Mathematics.

Stenmark, J. S., & Bush, W. S. (eds.) (2001). *Mathematics assessment: A practical handbook for grades 3-5.* Reston, VA: National Council of Teachers of Mathematics.

Bush, W. S. (ed.) (2000). *Mathematics assessment: Cases and discussion questions for grades 6-12.* Reston, VA: National Council of Teachers of Mathematics.

Bush, W. S., & Leinwand, S. (eds.) (2000). *Mathematics assessment: A practical handbook for grades 6-8.* Reston, VA: National Council of Teachers of Mathematics.

Bush, W. S., & Greer, A. S. (eds.) (1999). *Mathematics assessment: A practical handbook for grades 9-12.* Reston, VA: National Council of Teachers of Mathematics.

Refereed National Publications:

- Bush, W. S. (2005). Improving Research on Mathematics Learning and Teaching in Rural Contexts. *Journal for Research in Rural Education*, 20(5), 20-28.
- Goldberg, P. D., & Bush, W. S. (2003, Fall). Improving mathematics problem solving in third graders through instruction in metacognitive skills. *Focus on Learning Problems in Mathematics*, 25(4), 36-54.
- Thompson, C. S., and Bush, W. S. (2003). Improving middle school teachers' reasoning about proportional reasoning. *Teaching Mathematics in the Middle School*. 8(8), 398-403.
- Bush, W. S., Kulm, G., and Surati, D. (2000). Getting together over a good book: Lessons learned from a program that tried to prepare Kentucky teachers to select math textbooks. *Journal for Staff Development*, 21(2), 34-38.
- Bush, W. S. (1999). Not for sale: Why a bankroll alone cannot change teaching practice. *Journal of Staff Development*, 20(3), 61-64.
- Jones, D. J., & Bush W. S. (1996). Mathematical structure: Answering the why questions. *Mathematics Teacher*, 89(9), 716-722.
- Bush, W. S. (1993). Implementing the K-4 mathematics standards in Kentucky. *Arithmetic Teacher*, 41(3), 166-169.
- Bush, W. S., Moss, M. T., & Seiler, M. J. (1991). An alternative to traditional student teaching. *Mathematics Teacher*, 84(7), 533-537.
- Bush, W. S. (1991). Factors related to changes in elementary students' mathematics anxiety. *Focus on Learning Problems in Mathematics*, 13(2), 33-43.
- Bush, W. S., Lamb, C. E., & Alsina, I. (1990). Gaining certification to teach secondary mathematics: A study of three teachers from other disciplines. *Focus on Learning Problems in Mathematics*, 12(1), 41-60.
- Bush, W. S. (1989). Mathematics anxiety in upper elementary school teachers. *School Science and Mathematics*, 89, 499-509.
- Gilbert, R. K., & Bush, W. S. (1988). Familiarity, availability, and use of manipulative devices in mathematics at the primary level. *School Science and Mathematics*, 88, 459-469.
- Bush, W. S. (1987). Mathematics textbooks in teacher education. *School Science and Mathematics*, 87(7), 558-564.

- Bush, W. S., & Fiala, A. (1986). Problem stories: A new twist on problem posing. *Arithmetic Teacher*, 34(4), 6-9.
- Bush, W. S. (1986). Preservice teachers' sources of decisions in teaching secondary mathematics. *Journal for Research in Mathematics Education*, 17(1), 21-30.
- Bush, W. S., & Cobb, P. (1984). Using computers in the classroom: A problem for teacher educators. *Action in Teacher Education*, 5(4), 9-14.
- Bush, W. S., & Davis, E. J. (1982). Reflections on a secondary school mathematics teacher education program: Responses from a survey. *The Journal of Research and Development in Education*, 15(4), 53-62.

Refereed State Publications:

- Bush, W. S. (1998, Spring). Mathematical change: Kentucky's misunderstood core concept in mathematics. *Kentucky Journal for Teachers of Mathematics*, 2-10.
- Bush, W. S., Vice, S., & Gilbert, R. K. (1989). Teachers' use of manipulatives in primary mathematics in Kentucky. *The Kentucky Journal for Teachers of Mathematics*, 2(2), 5-8.

Book Chapters:

- Bush, W. S. (1994). The Kentucky K-4 Mathematics Specialist Program: A large-scale professional development program for teachers. In D. B. Aichele and A.F. Coxford (Eds.), *Professional development for teachers of mathematics--1994 Yearbook of the National Council of Teachers of Mathematics*. (pp. 246-254) Reston, Va.: National Council of Teachers of Mathematics.
- Bush, W. S., & Kincer, L. A. (1993). The teacher influence. In R. J. Jensen (Ed.), *Research ideas for the classroom: Early childhood mathematics*. (pp. 311-328) New York: Macmillan.

Invited Publications:

- Bush, W. S. (November, 1992). By way of introduction: Teachers are under pressure to produce "results." *Mathematics Teacher*, 85(8).
- Bush, W. S. (June, 1992). Focusing on change. *National Council of Supervisors of Mathematics Newsletter*, 21(4):13.
- Bush, W. S., & Prasse, J. (1992). K-4 Program creates teacher network. *Forging Frontiers*, 1(2): 15.

Reprints:

Bush, W. S., & Fiala, A. (1988). Problem stories: A new twist on problem posing. *Texas Reading Report, 11*(1), 13-15.

Bush, W.S., & Fiala, A. (1988). Problem stories: A new twist on problem posing. In S. I. Brown and M. I. Walter (Eds.), *Problem posing: Reflections and applications*. (pp. 167-173). Hillsdale, NJ: Lawrence Erlbaum Associates.

Conference Proceedings:

Bush, W. S. (2003). Research issues in teacher education. Monograph of the University of Kentucky/University of Louisville Collaborative Research Conference. Lexington: University of Kentucky

Bush, W.S. (1998). Changing classroom assessment practices. In G. W. Bright and J.M Joiner, *Classroom assessment in mathematics: Views from a National Science Foundation working conference*. (pp. 139-152). New York, University Press of America.

Bush W. S. (1996). *The Kentucky K-4 Mathematics Specialist Program*. In S. Friel & G. Bright (Eds.), *Reflecting on Our Work: NSF Teacher Enhancement in K-6 Mathematics*. (pp. 121-124). Chapel Hill: University of North Carolina

Bush, W. S. (1995). Building the capacity for the professional development of America's mathematics and science teachers. In Executive Office of the President of the U.S. (Ed.), *Proceedings of Making It Happen: First in the World in Science and Mathematics Education* (Volume 1). Washington, D.C.

Other Publications:

Long, V. M., Bush, W. S., & Theobald, P. (2003). "Place" value: The rural perspective. Published in Spotlight on Centers at the CLTNet website at <http://cltnet.org/cltnet/index.jsp>.

Bush, W. S. (ed.) (2000-02). *Kentucky Middle School Mathematics Academies Modules*. Lexington, KY: University of Kentucky.

Kulm, G., Surati, D., & Bush, W. S. (eds.) (1997). *KMGMTN Toolkit for Adopting Mathematics Curriculum Materials*. Lexington, KY: University of Kentucky.

Bush, W. S., Thompson, C. S., & Chenault, D. (eds.) (1995). *Mathematics enhancements by teachers implementing Different Ways of Knowing in Kentucky schools*. Louisville, KY: Kentucky Collaborative for Elementary Learning.

Bush, W. S., & Prasse, J. (eds.) (1994). *Seminar I of the Kentucky Middle Grades*

Mathematics Teacher Network. Lexington, KY: University of Kentucky.

Bush, W. S., & Prasse, J. (eds.) (1994). *Seminar II of the Kentucky Middle Grades Mathematics Teacher Network*. Lexington, KY: University of Kentucky.

Thompson, C. S. & Bush, W. S. (1993). *Whole Mathematics Workshop for K-4 Mathematics Specialists*. Lexington, KY: University of Kentucky.

Bush, W. S., Nichols, S., & Prasse, J. (eds.) (1992). *Data analysis lessons for units on communities, the environment, footsteps, and children around the world*. Lexington, KY: University of Kentucky.

Bush, W.S., Nichols, S., & Prasse, J. (Eds.) (1991). *Training Manual of the Kentucky K-4 Mathematics Specialist Program*. Lexington, KY: University of Kentucky.

Bush, W.S., Nichols, S., & Prasse, J. (Eds.) (1991). *Resource Materials of the Kentucky K-4 Mathematics Specialist Program*. Lexington, KY: University of Kentucky.

Nonprint Media:

Bush, W. S., Coleman, D. B. (Producers), & Farmer, R. (Director). (1989). *Mathematics for Our Children's Future* [videotape]. Lexington, KY: Kentucky Educational Television.

PRESENTATIONS/WORKSHOPS:

International (Refereed):

Bush, W. S., & Widmer, C. C. (1996, July) *The Kentucky Middle Grades Mathematics Teacher Network*. Presented at the Eighth International Congress on Mathematical Education, Seville, Spain.

Bush, W. S., Widmer, C. C., & Lane, B. (1992, August). *The Kentucky K-4 Mathematics Specialist Program: Large-scale professional development for teachers*. Presented at the Seventh International Congress on Mathematical Education in Quebec, Canada.

Bush, W. S. (1988, July). *Understanding, attitudes and beliefs: Neglected criteria in preparing secondary mathematics teachers*. Presented at the Sixth International Congress on Mathematics Education in Budapest, Hungary.

Bush, W. S., & Altamuro, V. J. (1988, July). *Testing teachers in the United States: Toward or away from professionalism?* Presented at the Sixth International Congress on Mathematics Education in Budapest, Hungary.

National (Invited):

- Bush, W. S. (2006, February). *Diagnostic Teacher Assessments in Mathematics and Science*. Presented at the Colloquium Series at the University of Maryland, College Park, MD.
- Bush, W. S. (2005, June). *Mathematics knowledge expected of elementary and middle school teachers*. Presented at Education Forum Policy Meeting of Achieve, Inc., Washington, DC.
- Bush, W. S. (2005, May). *Assessing middle school teachers' knowledge of mathematics*. Presented at the Project MERIT National Dissemination Conference. Charleston, WV.
- Bush, W. S. (2004, December). *Strategies for pushing mathematics achievement to the next level..* Presented at the annual meeting of America's Choice Schools, Washington, DC.
- Bush, W. S. (1995, July). *Building the Capacity for the Professional Development of America's Mathematics and Science Teachers*. Presented at the Making It Happen Conference sponsored by the Executive Office of the President of the U.S., Washington, DC.
- Bush, W. S., McGatha, M., Montgomery, L., Crowley, M. (1995, February). *A Network for Enhancing Middle Grades Mathematics Teachers Across Kentucky*. Presented at Joining Forces: Spreading Successful Strategies sponsored by the National Science Foundation and U.S. Department of Education, Washington, D. C.
- Bush, W. S. & Johnson, M. (1994, December). *Business Involvement in Science and Mathematics: Kentucky Case Study*. Presented at the Academy Industry Program of the National Academy of Sciences, Washington, D.C.
- Bush, W. S. (1994, November). *A State Model: The Case of Kentucky*. Presented at the annual meeting of the Publishers Conference sponsored by the National Council of Teachers of Mathematics, Chicago.
- Bush, W. S. (1992, May). *Making Midcourse Changes in Teacher Enhancement Projects*. Presented at the annual meeting of NSF teacher enhancement and preparation project directors, Washington, D.C.
- Bush, W. S. (1991, December). *Project MathReach*. Presented at the State Leader's Conference on Systemic Change, Washington, D.C.
- Bush, W. S. (1991, February). *Creating the Kentucky Mathematics Coalition*. Presented at the annual meeting of the State Mathematics Coalition Directors, Little Rock, Arkansas.

Bush, W. S. (1991, November). *Project MathReach*. Presented at the annual meeting of the State Mathematics Coalition Directors, Washington, D.C.

National (Refereed):

Tretter, T. R., Brown, S. L., Bush, W., Saderholm, J., Moore, B., & Wilson, V. (2007, March). Assessments of middle school teachers' science content knowledge. Paper presented at the National Science Teachers Association (NSTA) National Conference, St. Louis, MO.

Bush, W. S., Ronau, R., Moody, V., & McGatha, M. (2006, April). *What we know about middle school teachers' knowledge of mathematics*. Presented at the annual meeting of the National Council of Teachers of Mathematics, St. Louis.

Brown, E. T., Bush, W. S., Ronau, R., Karp, K., Thompson, C., & McGatha. (2006, January). *What Mathematics Do Middle School Teachers Know?* Presented at the annual meeting of the Association of Mathematics Teacher Educators, Tampa.

Bush, W. S., Ronau, R., Moody, V., & McGatha. (2005, April). *What we know about middle school teachers' knowledge of mathematics*. Presented at the annual meeting of the National Council of Teachers of Mathematics, St. Louis.

Bush, W. S., Karp, K., McGatha, M., Ronau, R., Thompson, C., & Brown, V. (2005, April). *Assessing middle school teachers' knowledge of mathematics*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Dallas.

Bush, W. S. (2005, April). *The reliability and validity of diagnostic assessments for middle school teachers*. Presented at the annual meeting of American Educational Research Association, Montreal.

Bush, W. S., McGatha, M., Brown, E. T., Hill, H., Sleep, L., & Romangano, L. (2005, April). *Assessing teachers' knowledge of mathematics*. Presented at the annual meeting of the NCTM Research Pre-session, Anaheim.

McGatha, M., & Bush, W. S. (2005, January). *Becoming a leader in mathematics: A study of leaders' beliefs, attitudes, and professional development practices*. Presented at the annual meeting of the Association of Mathematics Teacher Educators, Dallas.

Bush, W. S., Karp, K., Thompson, C. S., Ronau, R., & McGatha, M. B. (2004, April). *What mathematics do middle school teachers really need to know*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Philadelphia.

- Bush, W. S., Karp, K., McGatha, M., Ronau, R., & Thompson, C. (2004, January). *Diagnostic teacher assessments for middle grades mathematics teachers*. Presented at the annual meeting of the Association of Mathematics Teacher Educators, San Diego.
- Long, V. M., Bush, W. S., Conway, J., Davis, R., & Theobald, P. (2003, January). *Reaching rural America: Ignoring, building, and permeating traditional boundaries*. Presented at the annual meeting of the American Association of Colleges of Teacher Education, New Orleans.
- Bush, W. S., Long, V. M., Schultz, J., & Mitchell, K. (2003, July). *Building mathematics capacity in Appalachia: ACCLAIM*. Presented at the annual conference of the National Council of Teachers of Mathematics, San Antonio, Texas.
- Long, V. M., Bush, W. S., Klein, T., & Mitchell, K. (2003, February). *ACCLAIM: Mathematics and mathematics education in a rural context*. Presented at the annual meeting of the Association of Mathematics Teacher Educators, Atlanta.
- Bush, W. S., Romangano, L., & Dworkin, L. (2000, April). *Using teaching cases to conduct professional development in assessment*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Chicago.
- Bush, W. S. (1999, April). *Opening up your assessment practices*. Presented at the annual meeting of the National Council of Teachers of Mathematics, San Francisco.
- Bush, W. S., Romangano, L., Dworkin, L., and Glanfield, F. (1999, April). *Taking an Assessment Journey with the NCTM Assessment Addenda Series*. Presented at the annual meeting of the National Council of Teachers of Mathematics, San Francisco.
- Post, T. R., Kramer, K., Reyes, R., Rachlin, S., Lesh, R., & Bush, W. (1997, October). *Principals for Middle Grades Teacher Enhancement: A Participatory Session for Teacher Educators*. Presented at the annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Normal, Illinois.
- Kulm, G., & Bush, W. S. (1997, April). *Making Sure Your Mathematics Curriculum Meets Standards*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Minneapolis.
- Bush, W. S., Glanfield, F., Greer, A. (1997, April). *A Preview of the Assessment Addenda Series*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Minneapolis.
- Friel, S. N., Bright, G. W., & Bush, W. S. (1996, October). *What Are Effective*

Strategies for the Evaluation of the Impact of Long-term Teacher Enhancement Projects? Presented at the annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Panama City, Florida.

- Bush, W. S. (1996, April). *Quilting: A Natural Bridge between Culture and Mathematics*. Presented at the annual meeting of the National Council of Teachers of Mathematics, San Diego.
- Bush, W. S. (1996, April). *The NCTM Assessment Addenda Series*. Presented at the annual meeting of the National Council of Teachers of Mathematics, San Diego.
- Friel, S., Bright, G., Bush, W. S., and Corwin, R. (1995, April). *Large-Scale Professional Development for Teachers of Elementary School Mathematics: Research and Evaluation Issues*. Presented at the Research Pre-session of the annual meeting of the National Council of Teachers of Mathematics, Boston.
- Pankratz, R., Bush, W. S., Stayton, V., and Keels, R. (1995, February). *Kentucky's New Performance Standards and Teacher Certification System: A Driving Force for Reforming and Restructuring Teacher Education Programs*. Presented at the annual meeting of the American Association of Colleges for Teacher Education, Washington, D. C.
- Bush, W. S. (1994, April). *Establishing Linkages to Implement Mathematics Reform in Kentucky*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Indianapolis, Indiana.
- Bush, W. S., Dickey, E., & Hinders, D. (1993, April). *Ride the tide to change: Come fishing for the Mathematics Teacher*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Seattle.
- Jones, D. J., Bush, W. S., Corwin, R. B., Schultz, K., and Romberg, T. A. (1993, March). *Developmental according to whom? Using data to build developmental schemes for teachers*. Presented at the Research Pre-session of the annual meeting of the National Council of Teachers of Mathematics, Seattle.
- Bush, W. S., Baust, J., Gaskins, R., Jones, D., Liptak, K., Nichols, S., Shake, M., Simmons, E., & Weidemann, W. (1992, April). *Monitoring teacher growth: The Kentucky K-4 Mathematics Specialist Program*. Presented at the Research Pre-session of the annual meeting of the National Council of Teachers of Mathematics, Nashville, Tennessee.
- Johnson, J., Bush, W. S., Dickey, E. (1992, April). *Pickin' and fiddlin' with your lessons using the Mathematics Teacher*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Nashville, Tennessee.

- Johnson, J., Burrill, G., Bush, W. S., & Nichols, B. (1991, April). *Jazzing up your lesson with the Mathematics Teacher*. Presented at the annual meeting of the National Council of Teachers of Mathematics, New Orleans, Louisiana.
- Zollman, A. G., & Bush, W. S. (1990, October). *Reforming school mathematics: A statewide model*. Presented at the annual meeting of the School Science and Mathematics Association, Cincinnati, Ohio.
- Bush, W. S. (1988, December). *Will the real mathematics please stand up--Preservice teachers' conceptions of mathematics*. Presented at the annual meeting of the School Science and Mathematics Association, Austin, Texas.
- Bush, W. S., Lamb, C. E., Alsina, I. (1986, April). *Teachers seeking a second certificate in secondary mathematics: Conceptions, attitudes and understanding*. Presented at the annual meeting of the American Educational Research Association, Washington, D.C.
- Bush, W. S. (1986, April). *Putting it all together: Problem solving, mental arithmetic, drill/practice in every lesson*. Presented at the annual meeting of the National Council of Teachers of Mathematics, Washington, D.C.
- Bush, W. S. (1985, April). *Recertifying teachers from other subject areas in mathematics: Both success and failure*. Presented at the annual meeting of the National Council of Teachers of Mathematics, San Antonio.
- Bush, W. S. (1984, July). *Incorporating problem solving in elementary and secondary mathematics classes*. Presented at the first annual conference of the Institute for Logic and Cognitive Studies, Houston.
- Bush, W. S. (1984, April). *Making sense out of numbers--Activities for developing number sense*. Presented at the annual meeting of the National Council of Teachers of Mathematics, San Francisco.
- Bush, W. S. (1983, April). *Learning to teach mathematics: A study of five preservice secondary mathematics teachers*. Presented at the Research Pre-session of the annual meeting of the National Council of Teachers of Mathematics, Detroit.

Regional (Invited):

- Bush, W. S. (2003, November). *Place, perspective, and perception*. Presented at the 2003 ACCLAIM Research Symposium, Athens, OH.
- Bush, W. S. (2003, October) *Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics*. Presented at the Inverness Appalachian NSF Conference, Beckely, WV.

Bush, W. S. (2001, October). *Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics*. Presented at the annual meeting of the AEL Mathematics Science Consortium Directors, Lexington, KY.

Bush, W. S. (2002, August). *Overview of the Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics*. Presented at the first meeting of the Appalachian Association of Mathematics Teacher Educators, Lexington, KY.

Regional (Refereed):

Bush, W. S. (2005, November). *Learn—Reflect Reflection Session*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Denver.

Bush, W. S. (2005, November). *Hunters, gatherers, and farmers: Changing teachers' thinking about instruction and assessment*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Denver.

McGatha, M., and Bush, W. S. (2005, November). *Using NCTM's Classroom Assessment Services to Improve Mathematics Assessment (Grades 6-8)*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Denver.

Brown, E. T., and Bush, W. S. (2005, October). *Using NCTM's Classroom Assessment Services to Improve Mathematics Assessment (Grades 3-5)*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Birmingham.

McGatha, M., and Bush, W. S. (2005, October). *Using NCTM's Classroom Assessment Services to Improve Mathematics Assessment (Grades 6-8)*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Birmingham.

Bush, W. S., McGatha, M., and Brown, E. T. (2005, October). *Diagnostic mathematics assessments for middle school teachers*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Birmingham.

Moody, V., and Bush, W. S. (2005, October). *Using NCTM's Classroom Assessment Services to Improve Mathematics Assessment (Grades 9-12)*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Birmingham.

Bush, W. S. (2003, November). *Building mathematics capacity in rural areas*. Presented at the southern regional meeting of the National Council of Teachers of Mathematics, Charleston, South Carolina.

Bush, W. S. (2002, November). *Opening up your assessment practices*. Presented at the

regional meeting of the National Council of Teachers of Mathematics, Paducah, KY.

Bush, W. S., and Jones, D. (1998, October). *Quilting: A natural bridge between culture and mathematics*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Louisville.

Bush, W. S. (1993, July). *The Kentucky K-4 Mathematics Specialist Program*. Presented at the annual regional meeting of the Eisenhower Math/Science Consortium of the Appalachian Education Laboratory, Louisville, Kentucky.

Bush, W. S. (1993, November). *The Kentucky K-4 Mathematics Specialist Program*. Annual regional meeting of the National Science Teachers Association, Louisville, Kentucky.

Bush, W. S. (1992, October). *The Kentucky K-4 Mathematics Specialist Program*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Columbus, Ohio.

Dickey, E., Bush, W. S., King, B., & Tunis, H. (1991, November). *Publishing in the Mathematics Teacher: A simulation of the review process*. Presented at the regional meeting of the National Council of Teachers of Mathematics in Baltimore.

Bush, W. S. (1992, October). *The Kentucky K-4 Mathematics Specialist Program: A statewide study of teacher change*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Baltimore.

Bush, W. S. & Hunt, M. R. (1991, October). *Publishing and reviewing manuscripts for the Mathematics Teacher*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Louisville.

Bush, W. S. (1991, October). *The Kentucky K-4 Mathematics Specialist Program*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Louisville.

Bush, W. S. (1985, January). *Retraining crossover teachers in mathematics and computer science*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Louisville.

Bush, W. S. (1984, November). *Good software, bad software: How can I tell the difference?* Presented at the regional meeting of the National Council of Teachers of Mathematics, Biloxi.

Bush, W. S. (1984, March). *Making sense out of numbers--Activities for developing number sense*. Presented at the regional meeting of the National Council of

Teachers of Mathematics, Houston.

- Bush, W. S. (1983, October). *Let's take a closer look at mathematics teacher education*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Knoxville.
- Bush, W. S. (1982, November). *Hand-held calculators--Let's use 'em, not abuse 'em*. Presented at the regional meeting of the National Council of Teachers of Mathematics, New Orleans.
- Bush, W. S., & Cooney, T. J. (1982, March). *Solving mathematics problems and solving pedagogical problems: Searching for an analogy*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Atlanta.
- Bush, W. S. (1982, March). *Hand-held calculators--Let's use 'em, not abuse 'em*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Atlanta.
- Bush, W. S. (1981, September). *Computer science for all--Not just the elite!* Presented at the regional meeting of the National Council of Teachers of Mathematics, Atlanta.
- Bush, W. S. (1980, October). *Estimating and approximating: Basic skills in mathematics*. Presented at the regional meeting of the National Council of Teachers of Mathematics, Orlando.

State/Local (Invited):

- Bush, W. S. (2006, December). *Kentucky Mathematics Achievement Committee and NCTM Curriculum Focal Points*. Presented at the December meeting of the Interim Joint Committee on Education of the Kentucky General Assembly, Frankfort.
- Bush, W. S. (2006, November). *Kentucky Diagnostic Assessments for Algebra I, Geometry, and Algebra II*. Presented at the Kentucky High School Mathematics Summit, Bowling Green.
- Bush, W. S. (2006, October). *Kentucky Mathematics Achievement Committee*. Presented at the annual Kentucky Council on Postsecondary Education Teacher Quality Summit, Louisville.
- Bush, W. S. (2006, October). *Kentucky Committee for Mathematics Achievement*. Presented at a meeting of the Kentucky Board of Education, Lexington, KY.
- Bush, W. S., & Moody, V. R. (2006, June). *What Mathematics Middle School Teachers Need to Know*. Presented at the Teacher Quality Research Conference, Lexington.

- Bush, W. S. (2006, March). *Mathematics initiatives in Kentucky*. Presented at the monthly meeting of the Ohio Valley Educational Cooperative, Shelbyville.
- Bush, W. S. (2006, March). *House Bill 93 and the Committee for Mathematics Achievement*. Presented at the Math Achievement Workshop of the Association of Independent Colleges and Universities. Frankfort, KY.
- Bush, W. S. (2006, February). *Developing High School Mathematics Diagnostic Assessments*. Presented at the Network Lead Meeting, Kentucky Department of Education, Frankfort, KY.
- Bush, W. S. (2006, January). *The Mathematics Preparation of Kentucky's Middle School Teachers*. Presented at the 2 + 2 Conference on Mathematics and Science. Frankfort, KY.
- Bush, W. S. (2005, November). *Diagnostic assessments for Algebra I, Geometry, and Algebra II*. Presented at the Mathematics Summit sponsored by the Kentucky Department of Education. Bowling Green.
- Bush, W. S. and Moody, V. (2005, November). *Diagnostic assessments for Algebra I, Geometry, and Algebra II*. Presented at the annual meeting of the Kentucky Council of Teachers of Mathematics. Lexington.
- Bush, W. S. (2005, November). *Progress of the Committee for Mathematics Achievement established by House Bill 93*. Presented at the annual meeting of the Kentucky Council of Teachers of Mathematics.
- Bush, W. S., & McGatha, M. B. (2004, October). *Strategies for pushing mathematics achievement to the next level*. Presented at the annual meeting of the Kentucky Association of Assessment Coordinators, Louisville.
- Bush, W. S., Brown, E. T., Karp, K., McGatha, M., Moody, V., Ronau, R., & Thompson, C. (2004, August). *Center for Research on Mathematics and Science Teacher Development*. Presented at the joint meeting of the Education Committees of the Kentucky General Assembly, Louisville.
- Bush, W. S. (2004, June). *Purposeful mathematics teaching*. Presented at a meeting of the Association of Independent Kentucky Colleges and Universities, Midway, Kentucky.
- Bush, W. S. (2003, October). *Research issues in teacher preparation programs*. Presented at the University of Kentucky/University of Louisville Collaborative Research Conference, Lexington, Kentucky.
- Bush, W. S. (2002, October). *Strengthening support systems for teaching and learning*

- mathematics in Appalachia*. Presented as a Seminar in Mathematics at Auburn University, Auburn, AL.
- Bush, W. S. (2001, November). *Appalachian Collaborative Center for Learning, Assessment, and Instruction in Mathematics*. Presented at the annual meeting of the Kentucky Council of Teachers of Mathematics, Owensboro.
- Bush, W. S. (2001, April) *The Representation Standard—NCTM's New Standard*. Presented at the annual meeting of the Eastern Kentucky Council of Teachers of Mathematics, Prestonsburg.
- Bush, W. S. (2000, November). *Kentucky Middle School Mathematics Academies*. Presented at the annual meeting of the Kentucky Council of Teachers of Mathematics, Lexington.
- Bush, W. S. (1997, April). *Teaching is Difficult*. Presented at the annual Colloquium for Educators sponsored by the School of Education at Northern Kentucky University, Highland Heights, Kentucky.
- Bush, W. S. (1995, October). *Promoting Education Reform on Campus*. Presented at the Higher Education/Kentucky Department of Education Meeting, Louisville.
- Hartanowicz, P., Stayton, V., Bush, W. S., & VanMeter, E. (1995, April). *Performance Assessment*. Presented at the Annual Spring Conference of the Kentucky Association of Colleges of Teacher Education, Richmond.
- Bush, W. S. (1994, October). *Mathematics Assessment for the New Teacher Standards*. Presented at the NCATE Accreditation Conference sponsored by the Kentucky Department of Education, Louisville, Kentucky.
- Bush, W. S. (1994, October). *How to Participate in the Kentucky Middle Grades Mathematics Teacher Network*. Presented at the annual meeting of the Kentucky Council of Teachers of Mathematics, Union, Kentucky.
- Bush, W. S. (1994, January). *Alternative Assessment in the Middle Grades: Performance Tasks and Portfolios*. Presented at Middle School/Secondary Mathematics: Components for Change, Honolulu, Hawaii.
- Bush, W. S. (1993, March). *Statewide Reform Initiatives in Mathematics*. Presented at the Statewide PRISM Conclave: Science and Mathematics Undergraduate Component, Louisville.
- Bush, W. S. (1992, October). *The Kentucky K-4 Mathematics Specialist Program*. Presented to elementary principals attending the fall meeting of the Kentucky Council of Teachers of Mathematics, Louisville.
- Bush, W. S. (1992, October). *The Kentucky Middle Grades Mathematics Teacher*

Network. Presented at the fall meeting of the Kentucky Council of Teachers of Mathematics, Louisville.

Bush, W. S. (1992, May). *Teachers' conceptions of manipulatives, problem solving, and technology*. Presented at the New Directions for the Mathematics Preparation of Elementary and Middle Grades Teachers, Bowling Green.

Bush, W. S. (1992, April). *Mathematics reform in Kentucky*. Presented at two meetings of the Fifth District Mathematics/Science Alliance, London and Somerset.

Bush, W. S. (1992, March). *Mathematics reform efforts in Kentucky*. Presented at the Council of Teachers of Mathematics, Lexington.

Bush, W. S., Coleman, D. G., & Zollman, A. (1986, August). Five presentations on teaching problem solving, algebra, geometry, word problems, and using computers. Presented at the Conference on Teaching Mathematics in the Middle and Secondary Schools in Bardstown and Lexington.

Bush, W. S. (1984, October). *How to tell the difference in good software and bad software?* Presented at the Local Meeting of the Association of Texas Professional Educators in Goliad, Texas.

Bush, W. S. (1983, January; January and August). *Supervisory techniques for cooperating teachers*. Presented at the Cooperating Teacher/Student Teacher Workshop, UH-Victoria, Victoria, Texas.

Bush, W. S. (1981, October). *Estimating and approximating: Basic skills in mathematics*. Presented at the colloquium of University of Georgia Department of Mathematics Education in Athens, GA.

SERVICE:

National Service:

Consultant (2006). Consultant, (2006). *KATS Project*. Michigan State University.
Reviewer, (2006). *Learning from NAEP: Professional development materials for teachers of mathematics*. National Council of Teachers of Mathematics.
Reviewer, (2005) NCTM Focal Curriculum Points for Grades Pre-K through 8.
Organizer, (2004). NCTM Assessment Workshops in Cleveland and Indianapolis.
Member, Review Panel. (2000, March) Review panel for proposals for Program for Gender Equity in Mathematics, Science, Engineering, and Technology, National Science Foundation, Washington, D. C.
Fellow, The National Faculty, 1999-2000
Member, Review Panel. (1998, July). Review panel for proposals to the Women and Girls in Mathematics, Science, and Engineering Program, National Science

Foundation, Washington, D. C.

Book Reviewer, Agency for Instructional Technology, January, 1998-May, 1998.

Consultant, Curriculum Analysis Project, Project 2061 of the American Association for the Advancement of Science, December, 1997-July, 1998.

Referee, *American Educational Research Journal*, 1997-present.

Referee, *The Journal of Mathematics Teacher Education*, 1997-present.

Chair, Assessment Addenda Task Force, National Council of Teachers of Mathematics, 1995-98.

Member, Review Panel. (1996, April). Review panel for proposals submitted to the Division of Teacher Enhancement of the National Science Foundation, Washington, D. C.

Member, Review Panel. (1996, October). Review panel for proposals submitted to the Division of Teacher Enhancement of the National Science Foundation, Washington, D. C.

Reviewer. (1995, December). High school teacher mathematics tasks. National Professional Teaching Standard Board.

Steering Committee, Special Interest Group/Research in Mathematics Education, American Education Research Association, 1994-96.

Reviewer, Division of Teacher Enhancement of the National Science Foundation Review Panels, October, 1995.

Reviewer, Division of Teacher Enhancement of the National Science Foundation Review Panels, April, 1995.

Steering Committee, Special Interest Group/Research in Mathematics Education, American Education Research Association, 1994-present.

Discussant, Session entitled "Catalyst and constraints for teacher change: Implementing the Standards--An inquiry approach." Research Pre-session of the National Council of Teachers of Mathematics, Indianapolis, April, 1994.

Outside Evaluator, Tulsa University School of Education, October, 1992.

Reviewer, National Science Foundation Collaborative in Teacher Preparation proposals, September, 1992.

Reviewer, Presidential Awards for Excellence in Teaching Mathematics (elementary), Washington, D.C., June, 1991.

Member, Assessment Fair Committee, National Council of Teachers of Mathematics Regional Meeting in Louisville, KY, January, 1991-October, 1991.

Reviewer, National Science Foundation Teacher Enhancement proposals, April, 1991.

Reviewer, Charles E. Merrill Publishing Co., September, 1992, February, 1989, October, 1987, February, 1987, June, 1986.

Discussant, Session entitled "Constructs found in teacher change," Research Pre-session of the annual meeting of the National Council of Teachers of Mathematics, New Orleans, April, 1991.

Chair, Editorial Board, *Mathematics Teacher*, National Council of Teachers of Mathematics, 1992-93.

Editorial Board, *Mathematics Teacher*, National Council of Teachers of Mathematics, 1990-93.

Referee, *Journal of Teacher Education*, 1990-present.

Discussant, Session entitled "What does it mean to know mathematics: Views of

preservice elementary teachers," Research Pre-session of the annual meeting of the National Council of Teachers of Mathematics, Chicago, April, 1988.

Participant, Conference on The Teacher of Mathematics: Issues for Today and Tomorrow, October, 1987, University of California, Los Angeles.

Consultant, appointed by the President of the National Council of Teachers of Mathematics, to the Educational Testing for preparation of evaluation criteria for the professional level of teaching.

Participant/Reactor, Effective Mathematics Teaching Research Agenda Conference, Columbia, Missouri, March, 1987.

Panelist/Moderator, panel meeting to evaluate proposals on middle school mathematics programs for the National Science Foundation, Washington, D.C., June, 1986.

Member, Reader Advisory Panel, *The Arithmetic Teacher*, 1986-87.

Referee, *The Arithmetic Teacher*, 1986-present.

Organizer, Research Pre-session entitled "Research on Teaching: A Discussion of methodologies," National Council of Teachers of Mathematics Research Pre-session, San Antonio, April, 1985.

Critic, Critic Session entitled "Mathematics Teaching and Teacher characteristics," Annual Meeting of the American Educational Research Association, Chicago, March, 1985.

Assistant Acquisition Editor/Mathematics Education Early Childhood, American Educational Research Association Editor-at-Large Program, 1984-85, 1985-86.

Assistant Acquisition Editor/Mathematics Education Early Childhood, American Educational Research Association Editor-at-Large Program, 1984-85, 1985-86.

Referee, *Journal of Research in Mathematics Education*, 1983-present.

Referee, *Mathematics Teacher*, 1982-Present.

State Service:

Kentucky Team, End-of-Course Assessments for Algebra II, sponsored by Achieve, Inc. and the American Diploma Project, 2005-present

Chair, Committee for Mathematics Achievement, Kentucky General Assembly, 2005-present.

Facilitator (with Vivian Moody), Diagnostic Assessments for Algebra I, Geometry, and Algebra II, Kentucky Department of Education, 2004-05

Member, Kentucky Adult Education Committee on Mathematics and Literacy Standards, 2004.

Member, Mathematics Core Content Committee, Kentucky Department of Education, 2004-present.

Project Advisor, Kentucky GEAR UP, Council on Postsecondary Education, 2000-present.

Focus Group, Educational Professional Standards Board, May, 2000.

Member, P-16 Mathematics Alignment Team, P-16 Council, 2000-01.

Member, Task Force on Middle School Science and Mathematics, Kentucky Department of Education, 1998-99.

Consultant, Kentucky Educational Television, Professional Development Series on Mathematics for Middle School Teachers, 1998-1999.

Consultant, Prichard Committee for Academic Excellence, Fall 1998.

Member, Concept Team for Kentucky Department of Education Kentucky Leadership Academy, Fall, 1998.

Consultant, Kentucky Educational Television Middle School Professional Development Project, 1998-1999.

Consultant and Host, *Analyzing Mathematics Curriculum Materials*, KET Professional Development Series, 1997.

Teacher Education Folio Reviewer, Office of Teacher Education and Certification, Kentucky Department of Education, 1997-present.

Member, Partnership for Reform Initiatives in Science and Mathematics (PRISM) Coordinating Council, 1992-1997.

Consultant and Host, *P-5 Reasoning and Analysis*, KET Professional Development Series, 1996.

Consultant, Mathematics Core Content for Assessment, Division of Assessment and Accountability, Kentucky Department of Education, 1995

Member, Task Force on New Teacher Portfolio Requirements, Office of Teacher Education and Certification, Kentucky Department of Education, 1995

Consultant and Host, *Middle Grades Mathematics*, KET Professional Development Series, 1995.

Member, Professional Development Committee, Kentucky Department of Education, 1994-95.

Member, Mathematics Education Professional Development Project, Kentucky Department of Education, 1994.

Chair, Mathematics Task Force, Kentucky Department of Education, 1993-present.

Consultant, *Primary Mathematics*, KET Professional Development Series, 1994.

Consultant, *Core Concepts in Mathematics*, KET Professional Development Series, 1994.

Mathematics Content Advisory Committee, Kentucky Department of Education, October, 1991-June, 1992.

Organizer, "Preparing Kentuckians for the Future: A Summit on Mathematics and Science Education," Lexington, Kentucky, September, 1990.

Alternate, Mathematics Textbook Review Committee, Kentucky Department of Education, August, 1990.

Chair, Evaluation Subcommittee of the Mathematics Textbook Review Committee, Kentucky Department of Education, May, 1990.

Reviewer, Presidential Award for Excellence in Mathematics Teaching applications, April, 1989, 1990, 1991.

Team Member, Southern Association Evaluation of Jessamine Middle School, April, 1989.

Back-up Facilitator, Council on Higher Education conference entitled "A Look to the 21st Century: The Future of Mathematics and Science Education in Kentucky," Louisville, March, 1988.

Team Member, Southern Association Evaluation Team for Tates Creek Junior High School, Lexington, Kentucky, March, 1987.

Committee Member, Beginning Teacher Internship Program (served on 19 committees).

Contributor, Test items for the Algebra test of the Governor's Academic Cup Competition, February, 1986.

Chair, Committee on Educational Theory, Conference of the Crisis in Mathematics
Education in Austin, Texas, January, 1984.
Team Member, Southern Association Evaluation Team for Goliad Independent School
District, Goliad, Texas, October, 1982.

Service to Area Schools:

National Faculty Fellow, conducted workshop on statistics for middle school and high
school teachers in Kentucky Region 8 Service area.
Mentor to Ann Booth, ARSI State Partner, 2002-present.

Served as a consultant to:

Shelby County Schools, 2001-02, 2002-03, 2004
Lincoln County Schools, Curriculum Analysis, 1996-97
Bath County Schools, Owingsville Elementary, 1996
Shelby County Schools, Mathematics Institute, 1995-96.
Shelby County Schools, Mathematics Committee, August, 1994
Henry Clay High School Mentorship Program, 1993-94
Central Kentucky Educational Cooperative, Lexington (August, 1991-1992)
Bourbon County Schools, Paris, (July, 1991-January, 1992)
Ohio Valley Educational Cooperative, Louisville (September, 1990-May, 1991)
Oldham County Schools, Lagrange (September-December, 1989)
Franklin County Schools, Frankfort (September, 1989)
Lafayette High School, Lexington (August, 1989)
Shelby County School District, Shelbyville (June, 1989-May, 1990)
Clark County Schools, Winchester (May-October, 1989)
Southern Elementary School, Lexington (January-May, 1989)
Harrison County Schools, Cynthiana (October-May, 1989, February, 1991)
Shelby County School District, Shelbyville (August, 1988, October, 1991)
Nelson County School District, Bardstown (August 1988)
Simmons elementary School, Versailles (August, 1987)
Lincoln County School District, Stanford (August, 1987)
Perry County School District, Hazard (August, 1987)
Clark County School District, Winchester (May, 1986)
Bath County School District, Owingsville (January, 1986)
Washington County School District, Springfield (November, 1985)
Tidehaven Independent School District, El Maton, TX (March, 1984)
Palacios Independent School District, Palacios, TX (August, 1983)
Industrial Independent School District, Tivoli, TX (August, 1982)
Houston County School District, Perry, GA (May, 1981)

University Service:

Member, University Research Committee, 2006-present
 Member, Promotion and Tenure Committee, CEHD, 2004-06
 Scholarly Merit Reviewer, IRB, 2004-present
 Member, Doctoral Committee, CEHD, 2004-05
 Member, Middle/Secondary Program, 2002-present.
 Member, Elementary Program, 2002-present
 Member, Grawemeyer Selection Committee, 2003-2005
 Member, Personnel Committee, 2003-04
 Member, Human Subjects Task Force, 2002-present.
 Member, Grievance Committee, Department of Teaching and Learning, 2002-2003
 Chair, Grievance Committee, Department of Teaching and Learning, 2001-2002
 Reviewer, Research Committee Grants, November, 2000.
 Co-Chair, Inference General Studies Requirement Committee, 2000-01.
 Focus Group, Office of Sponsored Projects, 2000.
 Co-Chair, UK Taskforce on Mathematics, Science, and Technology Education, 1998-99.
 Member, Committee A (Curriculum) for President's Initiative on Undergraduate Education, Fall 1998.
 Member, Professional Development Schools Advisory Board, 1997-1998.
 Co-chair, Masters with Initial Certification Program Faculty, 1996-1999.
 Chair, Mathematics Education Faculty Search Committee, Department of Curriculum and Instruction, 1996.
 Member, KERA Institute Director Search Committee, College of Education, 1996.
 Member, College of Education Review Committee, University of Kentucky, 1994.
 Member, University Research Advisory Committee, University of Kentucky, 1993-1996.
 Member, Lexington Campus Subcommittee of the University Research Advisory Committee, University of Kentucky, 1993-96.
 Member, Task Force for the Design of an Outcome-Based Secondary Education Program, 1993.
 Chair, Educational Environment Subcommittee of the KERA Task Force, University of Kentucky, 1992-1994.
 Member, KERA Task Force, University of Kentucky, 1992-1994.
 Member, Performance-Based Assessment Committee, College of Education, Fall, 1991-1993.
 Member, Elementary Masters with Initial Certification Committee, Department of Curriculum and Instruction, Fall, 1991.
 Member, Secondary Teacher Education Program, Department of Curriculum and Instruction, Fall, 1991.
 Member, Masters with Initial Certification Teacher Education Program Faculty, Department of Curriculum and Instruction.
 Chair, Mathematics Education Position Search Committee, Department of Curriculum and Instruction, Fall, 1989.
 Member, Research Symposium Committee, Department of Curriculum and Instruction, Fall, 1989.
 Member, Middle School Position Search Committee, Department of Curriculum and Instruction, Spring, 1988.
 Member, Holmes Group Collaboration Committee, College of Education and Fayette

County Public Schools, Summer, 1987.
Member, Program Faculty Chairpersons Committee, College of Education, January, 1987-present.
Chair, Secondary Mathematics/Science Teacher Education Program Faculty, Department of Curriculum and Instruction, January, 1987-October, 1991.
Member, Secondary Mathematics/Science Teacher Education Program Faculty, Department of Curriculum and Instruction, January, 1987-present.
Member, Masters with Initial Certification Teacher Education Program Faculty, Department of Curriculum and Instruction, 1986-present.
Member, Faculty Search Committee, Department of Curriculum and Instruction, April-May, 1986.
Member, Middle School Teacher Education Program Faculty, Department of Curriculum and Instruction, 1986-87.

PROFESSIONAL ORGANIZATIONS:

National Council of Teachers of Mathematics
School Science and Mathematics Association
Association of Mathematics Teacher Educators
American Educational Research Association
North American Chapter of Psychology of Mathematics Education
Special Interest Group/Research in Mathematics Education--AERA
Kentucky Council of Teachers of Mathematics
Appalachian Association of Mathematics Teacher Educators