

## AMY ROTH McDUFFIE

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### EDUCATION

**University of Maryland.** College Park, Maryland.

Ph.D., Mathematics Education, May, 1998.

Dissertation: Factors that Influence College Mathematics Instructors in the Process of Implementing the Goals of Reform-Style Teaching.

**Johns Hopkins University.** Baltimore, Maryland.

M.S., Technology for Education, 1991.

Maryland Advanced Professional Certificates for Secondary Mathematics and Computer Science, 1989.

**Franklin and Marshall College.** Lancaster, Pennsylvania.

B.A., Mathematics, 1987.

Pennsylvania Certification for Secondary Mathematics Education, 1987.

### PROFESSIONAL EXPERIENCE

**Assistant Professor**, tenure track appointment, at Washington State University Tri-Cities, 2000 - present.

*Graduate Faculty:* January, 2002 - present

*Courses Taught:* T & L 352 and T & L 564, Methods of Teaching Elementary Mathematics (for undergraduate and graduate students, respectively); T & L 561, Research in Elementary Mathematics Education; Math 330, Methods of Teaching Secondary Mathematics; T & L 301, Learning Theory; Ed Psy 503, Advanced Educational Psychology; T & L 523, National Board Certification for Professional Teaching Standards Candidate Support Course.

**Assistant Professor**, one year appointment, at Washington State University Tri-Cities, 1999 - 2000.

*Courses Taught:* T & L 352 and T & L 564, Methods of Teaching Elementary Mathematics (for undergraduate and graduate students, respectively); T & L 301, Learning Theory.

*Supervisor* for student teachers in elementary school field placements.

**Adjunct Faculty Instructor** at Washington State University Tri-Cities, 1998 - 1999.

*Course Taught:* T & L 564, Methods of Teaching Elementary Mathematics.

*Supervisor* for student teachers in elementary school field placements.

**Graduate Research Assistant** at University of Maryland, 1994 - 1998.

Assisted Co-Directors of Research (Dr. J. Randy McGinnis, University of Maryland and Dr. Tad Watanabe, Towson University) for Maryland Collaborative for Teacher Preparation (MCTP), a National Science Foundation funded project, in conducting research on teacher candidates and faculty involved with MCTP at 6 Maryland colleges and universities. Assisted in planning and executing the MCTP Mentor Teacher Workshops (Summer, 1995 and Summer, 1997). The two-week, residential workshops (with follow-up meetings during the school year) provided in-service training to elementary and middle school teachers who serve as field-based mentors to MCTP teacher candidates.

**Supervisor of Student Teachers** at University of Maryland, 1997-1998.

Supervised student teachers in middle school field placements.

**Intern** at University of Maryland, Fall 1997.

*Course Taught:* EDCI 352, Curriculum and Instruction in Elementary Education: Mathematics. Collaborated with Dr. Anna Graeber in planning and teaching.

**Graduate Teaching Assistant** at University of Maryland, Fall 1995.

*Course:* MATH 110, Elementary Mathematical Models. Experimental course developed as part of the Maryland Collaborative for Teacher Preparation (MCTP).

**Assistant Headmaster** at St. Timothy's School, 1992 - 1994.

Acted as Head in the Head's absence; chaired Administrative Committee, which oversaw the implementation of all school policies and objectives relating to students and faculty; served on Admissions Committee; chaired Faculty Head Search Committee (1992).

**Assistant Academic Dean** at St. Timothy's School, 1989 - 1992.

Interviewed and evaluated prospective faculty; assisted academic dean with course selection and scheduling; established computerized record keeping for registrar; coordinated tutoring services for students; supervised faculty proctors for evening study hall; organized commencement exercises.

**Teacher and Computer Coordinator** at St. Timothy's School (grades 9 - 12), Stevenson, Maryland, 1987 - 1994.

*Courses included:* A. P. Calculus, Pre-Calculus, Algebra II, Geometry, and Pascal. Established and developed a school-wide computer program; supervised the purchase of all hardware and software; maintained all computer equipment; taught faculty and students computer skills; supervised student computer tutors.

**Director of Residence** at St. Timothy's School, 1991 to 1994.

Supervised six faculty residents and ninety boarding students in two dormitories; Served as the Head of Dormitory, 1989 to 1991. Served as a faculty dormitory resident, 1987 - 1994.

**Teacher** at St. Paul's School Summer Program (grades 7 - 12), Brooklandville, Maryland, Summer 1989 and Summer, 1990.

*Courses included:* Algebra I and II, Preparation for Scholastic Aptitude Test - Mathematics, and Seventh and Eighth Grade Remedial Mathematics.

**ADVISING**

**Major Professor/Chair** for a Ph.D. candidate in the Department of Teaching and Learning, Pullman Campus, 2005 - present. Doctoral candidate: Jacqueline Coomes. Working Dissertation Title: *Communication and Sociomathematical Norms in College Pre-calculus Classes: A Cross-Case Study of the Effects on Student Learning*.

**Committee Member** for Ph.D. candidates in Department of Teaching and Learning, Pullman Campus, 2002 - present. Research focus: professional development and/or mathematics education. Students advised: 4.

**Advisor/Chair** for Master's in Education and Master's in Teaching students on their classroom-based action research projects, 2000 - present. Students advised: 24.

**Committee Member** for Master's in Education and Master's in Teaching students in the Department of Teaching and Learning, 2000 – present. Students advised: 147.

**REFEREED JOURNAL ARTICLES: NATIONAL AND INTERNATIONAL**

*An asterisk (\*) next to a name indicates a graduate or undergraduate student with whom I collaborated on the listed publication.*

Roth McDuffie, A., & Mather, M.\* (in press). Reification of curricular materials as part of the process of developing problem-based practices in mathematics education. *Teachers and Teaching: Theory and Practice*.

McGinnis, J. R., Roth McDuffie, A., & Graeber, A. (in press). Perceptions of making connections between science and mathematics in a science methods course. *Journal of Elementary Science Education*.

Akerson, V., Roth McDuffie, A., & Morrison, J. (in press). Performance assessment tasks as a stimulus for collaboration among preservice and inservice teachers. *Practical Experience and Education Research Matter* (A joint publication from the National Science Teacher Association and the National Association for Research in Science Teaching).

Akerson, V.L., Morrison, J. A., & Roth McDuffie, A. (2005). One course is not enough: preservice elementary teachers' retention of improved views of nature of science. *Journal of Research in Science Teaching*, November, online. Expected in hardcopy in 2006 issue.

McGinnis, J.R., Watanabe, T., & Roth McDuffie, A. (2005). University mathematics and science faculty modeling their understanding of reform based instruction in a teacher preparation program: Voice of faculty and teacher candidates. *International Journal of Science and Mathematics*, 3, 407-428.

Morrison, J.A., Roth McDuffie, A., & Akerson, V.L. (2005). Preservice teachers' development and implementation of science performance assessment tasks. *International Journal of Science and Mathematics Education*, 3, 379-406.

Roth McDuffie, A. (2004). Mathematics teaching as a deliberate practice: An investigation of elementary preservice teachers' reflective thinking during student teaching. *Journal of Mathematics Teacher Education*, 7 (1), 33 – 61.

- Roth McDuffie, A., & Graeber, A. O. (2003). Institutional norms and policies that influence college mathematics professors in the process of changing to reform-based practices. *School Science and Mathematics, 103* (7), 331 - 344.
- Roth McDuffie, A., & Young, T. (2003). Promoting discourse through children's literature. *Teaching Children Mathematics, 9* (7), 385 - 389.
- Roth McDuffie, A., Akerson, V., & Morrison, J. (2003). Designing and implementing meaningful field-based experiences for mathematics methods courses: A framework and program description. *The Mathematics Educator, 13* (1), 22-32.
- Roth McDuffie, A., & Slavit, D. (2003). Utilizing online discussions to support reflection and challenge beliefs in elementary mathematics methods courses. *Contemporary Issues in Technology and Teacher Education [Online Serial], 2* (4). Available: <http://www.Citejournal.org/vol2/iss4/mathematics/article1.cfm>.
- Roth McDuffie, A. (2001). Flying through graphs: An exploration in graph theory. *Mathematics Teacher, 94* (8), 680 - 689. Published in the Focus Issue on Connections in Mathematics.
- Roth McDuffie, A., McGinnis, J.R., & Graeber, A.O. (2000). Perceptions of reform-based teaching and learning in a college mathematics class. *Journal of Mathematics Teacher Education, 3* (3), 225 - 250.

#### **MANUSCRIPTS UNDER REVIEW WITH REFEREED JOURNALS OR EDITED BOOKS**

- Roth McDuffie, A. & Mather, M. (proposal accepted 2005, full chapter in progress). The influence of curriculum-based professional development on middle school teachers' mathematical content knowledge. In J. Remillard, G. Lloyd, & B. Herbel-Eisenmann (Eds.), *Teachers' use of mathematics curriculum materials: Research perspective on relationships between teachers and curriculum*.
- Morrison, J., Roth McDuffie, A., & Akerson, V. (in review). Collaborative efforts to situate elementary teachers' preservice learning. *Journal of Elementary Science Education*.
- Slavit, D., Sakitani, S., & Roth McDuffie, A. (in review). Preservice teachers' mathematically-related beliefs and understandings in the U.S. and Japan. *International Journal for Mathematics Teaching and Learning*.

#### **REFEREED BOOK AND MONOGRAPH CHAPTERS**

- Akerson, V., & Roth McDuffie, A. (2005). The teacher as researcher. In K. Appleton (Ed.), *Elementary science teacher education: Contemporary issues and practices* (pp. 259-274). Hillsdale, NJ: Lawrence Erlbaum.
- Roth McDuffie, A., Mather, M.\* & Reynolds, K.\* (2004). Professional Development for teacher and teacher educator through sustained collaboration [Monograph]. In T. Watanabe & D. Thompson (Eds.) *The work of mathematics teacher educators: Exchanging ideas for effective practice*. San Diego, CA: Association of Mathematics Teacher Educators. [This monograph

was edited and peer reviewed with a 25% acceptance rate. My co-authors were my students who worked as research assistants on this research project.]

## REFEREED CONFERENCE PROCEEDINGS

An asterisk (\*) next to a name indicates a graduate or undergraduate student with whom I collaborated on the listed publication.

- Roth McDuffie, A. (2004, October). A Microanalysis of planning and implementing an introductory lesson on linear functions. In D. McDougall & J. A. Ross (Eds.) *Proceedings of the Twenty-Sixth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Toronto, Canada (pp. 310-311).
- Baker, A.\* & Roth McDuffie, A. (2001, October). Equivalence: Concept building in a fifth grade classroom. In R. Speiser, C. Maher, & C. Walter (Eds.) *Proceedings of the Twenty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Snowbird, UT (pp. 389-390): ERIC Clearinghouse.
- Jardine, T.\* & Roth McDuffie, A. (2001, October). Cooperative learning in a fifth grade English as a second language mathematics class. In R. Speiser, C. Maher, & C. Walter (Eds.) *Proceedings of the Twenty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Snowbird, UT (pp. 675-676): ERIC Clearinghouse.
- Nguyen, L.\* & Roth McDuffie, A. (2001, October). Problem solving in mathematics: Barriers to problem-centered learning. In R. Speiser, C. Maher, & C. Walter (Eds.) *Proceedings of the Twenty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Snowbird, UT (pp. 571-572): ERIC Clearinghouse.
- Akerson, V., Roth McDuffie, A., & Morrison, J. (2001). The bridges research project: Pairing preservice and inservice teachers for professional development in science, math, and literacy using performance assessment tasks as contexts. In P. Rubba, J. Rye, W. Di Biase, & B. Crawford (Eds.). *Proceedings of the 2001 International Annual Meeting of the Association for the Education of Teachers in Science*, Costa Mesa, CA (pp. 929 –954): Association for the Educators of Teachers in Science. (ERIC Document Reproduction Service No. ED 453083).
- McGinnis, J.R., Roth McDuffie, A., & Parker, C. (1999, January). Making connections between science and mathematics in a science methods course: Assertions and Reflections of the Participants in an Action Research Study. In P. Rubba, J. Rye & P. Keig (Ed.), *Proceedings of the 1999 Association for the Educators of Teachers in Science annual meeting* (pp. 801 – 838). Greenville, NC: Association for the Educators of Teachers in Science. (ERIC Document Reproduction Service No. ED431626).

## OTHER PUBLICATIONS

- Morrison, J. & Roth McDuffie, A. (2005). Authentic inquiry investigations: Using real data across science and math methods course. *Washington Science Teachers' Journal*, 45 (4), 4 – 6.
- Roth McDuffie, A. (2005). Theory and practice: Mathematical knowledge for teaching. *Connections: Association of Mathematics Teacher Educators Newsletter*, 14 (2), 9-10. [Invited contributor to the Theory and Practice Column.]

**REFEREED PRESENTATIONS**

*An asterisk (\*) next to a name indicates a graduate or undergraduate student with whom I collaborated on the listed presentation. Double asterisks (\*\*) next to a name indicates a local school teacher with whom I collaborated.*

**National and International**

- Roth McDuffie, A. & Morrison, J. (2006, January). Preservice teachers' understandings of data representation: Connecting mathematics and science methods courses to enhance learning. Presentation at the Association of Mathematics Teacher Educators Annual Conference, Tampa Bay, FL.
- Morrison, J. & Roth McDuffie, A. (2006, January). Preservice teachers' inquiry science projects: Learning about data. Presentation at the Association of Science Teacher Educators Annual Conference, Portland, OR.
- Roth McDuffie, A. (2005, January). Using lesson study in developing teachers' knowledge of students' mathematics. Presentation at the Association of Mathematics Teacher Educators Annual Conference, Dallas, TX.
- Roth McDuffie, A., (2004, October). A Microanalysis of planning and implementing an introductory lesson on linear functions. Paper presented at the Twenty-Sixth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Toronto, Canada.
- Roth McDuffie, A., Hedengren, K.\*, & Mather, M.\* (2004, April). Reification of curricular materials as part of the process of developing standards-based practices. Paper presented at the American Educational Research Association Annual Meeting, San Diego, CA.
- Akerson, V., Morrison, J., & Roth McDuffie, A. (2004, January). Preservice elementary teachers' retention of improved views of nature of science after participating in an explicit-reflective science methods course. Paper presented at the International Meeting of the Association for the Education of Teachers of Science, Nashville, TN.
- Akerson, V., Morrison, J., & Roth McDuffie, A. (2003, April). Preservice elementary teachers' retention of appropriate nature of science conceptions. Paper presented at the American Educational Research Association Annual Meeting, Chicago, IL.
- Morrison, J., Roth McDuffie, A., & Akerson, V. (2003, April). Preservice teachers' development and implementation of science performance assessment tasks. Paper presented at the American Educational Research Association Annual Meeting, Chicago, IL.
- Roth McDuffie, A. (2003, January). Professional development for teacher and teacher educator through sustained collaboration and focus on assessment practices. Paper presented at the Association of Mathematics Teacher Educators Annual Conference, Atlanta, GA.
- Roth McDuffie, A., Akerson, V., & Morrison, J. (2002, April). Preservice teachers designing and using performance assessment in schools as part of their math methods course. Paper presented as an Association of Mathematics Teacher Educators sponsored session at the National Council of Teachers of Mathematics Annual Meeting (National), Las Vegas, NV.

- Slavit, D., Sakitani, S., & Roth McDuffie, A. (2002, April). Mathematics teacher preparation in the U.S. and Japan: Connections between beliefs and understandings. Paper presented at the American Educational Research Association Annual Meeting, New Orleans, LA.
- Morrison, J., Roth McDuffie, A., & Akerson, V. (2002, January). A focus for collaboration: Developing and implementing science and mathematics performance assessment tasks. Paper presented at the International Annual Meeting of the Association for the Education of Teachers in Science, Charlotte, NC.
- Akerson, V., Roth McDuffie, A., & Morrison, J. (2002, January). Performance assessment in science methods. Poster presented at the International Annual Meeting of the Association for the Education of Teachers in Science, Charlotte, NC.
- Nguyen, L.\* & Roth McDuffie, A. (2001, October). Problem solving in mathematics: Barriers to problem-centered learning. Poster presented at the North American Chapter of the International Group for the Psychology of Mathematics Education, Snowbird, UT.
- Baker, A.\* & Roth McDuffie, A. (2001, October). Equivalence: Concept building in a fifth grade classroom. Poster presented at the North American Chapter of the International Group for the Psychology of Mathematics Education, Snowbird, UT.
- Jardine, T.\* & Roth McDuffie, A. (2001, October). Cooperative learning in a fifth grade English as a second language mathematics class. Poster presented at the North American Chapter of the International Group for the Psychology of Mathematics Education, Snowbird, UT.
- Roth McDuffie, A. (2001, April). Fostering the process of becoming a deliberate practitioner: An investigation of preservice teachers during student teaching. Paper presented for presentation at the American Educational Research Association annual meeting, Seattle, WA. (ERIC Document Reproduction Service No. ED 346082).
- Roth McDuffie, A., Droppo, T.\*\* & Fulton, T.\*\*(2001, April). Designing and using performance assessment tasks in the middle grades. Paper presented at the National Council of Teachers of Mathematics Annual Meeting (National), Orlando, FL.
- Roth McDuffie, A., Akerson, V., & Morrison, J. (2001, January). Designing and implementing meaningful field-based experiences for mathematics methods courses: A program description. Paper presented at the Association of Mathematics Teacher Educators Annual Conference, Costa Mesa, CA.
- Akerson, V., Roth McDuffie, A., & Morrison, J. (2001, January). The bridges research project: Pairing preservice and inservice teachers for professional development in science, math, and literacy using performance assessment tasks as contexts. Paper presented at the International Annual Meeting of the Association for the Education of Teachers in Science, Costa Mesa, CA.
- Roth McDuffie, A. (1999, April). Cultural factors that influence college professors in the process of implementing reform-based instruction. Paper presented at the National Council of Teachers of Mathematics research pre-session of the annual meeting, San Francisco, CA.

- McGinnis, J.R., Roth McDuffie, A. & Parker, C. (1999, March) An investigation in preparing teacher candidates to make connections between science and mathematics. Paper presented at the National Association for Research in Science Teaching annual meeting, Boston, MA. (ERIC Document Reproduction Service No. ED429830).
- Roth McDuffie, A. (1998, April). College mathematics professors in the process of redefining their roles in the classroom. Paper presented at the National Council of Teachers of Mathematics annual meeting, Washington DC.
- McGinnis, J.R., Kramer, S., Roth McDuffie, A., & Watanabe, T., (1998, April). Charting the attitude and belief journeys of teacher candidates in a reform-based mathematics and science teacher preparation program. Paper presented at the American Educational Research Association annual meeting, San Diego, CA. (ERIC Document Reproduction Service No. ED421350).
- McGinnis, J.R., Watanabe, T., Kramer, S., & Roth McDuffie, A. (1998, April). The assessment of faculty and teacher candidate perceptions within the Maryland Collaborative for Teacher Preparation. Paper presented at the American Educational Research Association annual meeting, San Diego, CA.
- McGinnis, J.R., Kramer, S., Roth McDuffie, A., & Watanabe, T., (1998, April). Charting the attitude and belief journeys of teacher candidates in a reform-based mathematics and science teacher preparation program. Paper presented at the American Educational Research Association annual meeting, San Diego, CA.
- Watanabe, T., McGinnis, J.R., & Roth McDuffie, A. (1997, March). University faculty modeling good instruction in mathematics and science courses for prospective middle grades teachers: Voices from the MCTP. Paper presented at the American Educational Research Association annual meeting, Chicago, IL. (ERIC Document Reproduction Service No. ED406896).
- McGinnis, J.R., Watanabe, T., Roth McDuffie, A., Kramer, S., & Shama, G. (1997, January). The Maryland Collaborative for Teacher Preparation: Making sense of the enactment of reform in the preparation of specialist teachers of mathematics and science. Paper presented at the Association for the Education of Teachers in Science annual meeting, Cincinnati, OH. (ERIC Document Reproduction Service No. ED402208).
- Roth McDuffie, A. & McGinnis, J.R. (1996, April). Modeling reform-style teaching in a college mathematics class from the perspectives of professor and students. Paper presented at the American Educational Research Association annual meeting, New York, NY. (ERIC Document Reproduction Service No. ED394432).
- McGinnis, J.R., Shama, G., Roth McDuffie, A., Huntley, M.A., King, K. & Watanabe, T. (1996, March). Researching the preparation of specialized mathematics and science upper elementary/middle level teachers: The second year report. Paper presented at the annual meeting of the National Science Teachers Association, St. Louis, MO. (ERIC Document Reproduction Service No. ED395792).
- McGinnis, J.R., Roth McDuffie, A., Huntley, M.A., King, K., Watanabe, T., Rossi, G., Knight, G., & Langdon, J. (1995, April). The Maryland Collaborative for Teacher Preparation year-

one report: Collaborating with mathematics and science college professors to construct specialized upper elementary/middle school teacher preparation programs. Paper presented at the annual meeting of the National Association for Researchers in Science Teaching, San Francisco, CA.

### **Regional**

Morrison, J., Roth McDuffie, A., & Anderson, M. (2004, November). Involving preservice teachers in authentic inquiry investigations: Using real data across science, math, and technology methods courses. Paper presented at the National Science Teachers Associations Regional Conference, Seattle, WA.

Roth McDuffie, A., Droppo, T.\*\* & Fulton, T.\*\* (2001, October). Process standards and content and test preparation: How do we do it all? Paper presented at the Northwest Mathematics Conference, Bellevue, WA.

Roth McDuffie, A., & Fulton, T.\*\* (2001, February). Developing and using performance assessment tasks in the middle grades. Paper presented at the National Council of Teachers of Mathematics Western Regional Meeting, Yakima, WA.

Roth McDuffie, A., Hedengren, K.\*, Rada, D.\*, & Zocher, J.\* (2000, October). Using performance assessment to connect mathematics and writing in the middle grades. Paper presented at the Washington Organization for Reading Development Annual Conference, Richland, WA.

King, K.D., & Roth McDuffie, A. (1996, October). Dilemmas facing instructors in a reform-minded mathematics classroom: Two perspectives. Paper presented at the National Council of Teachers of Mathematics Eastern Regional Meeting, Baltimore, MD.

### **INVITED PRESENTATIONS AND WORKSHOPS**

Roth McDuffie, A. (2006, February). Crazy Cakes: A lesson on fractions, geometry, measurement, and communication. Workshop for Richland School District Fourth Grade Teachers, Richland, WA.

Roth McDuffie, A., Eve, N.\*\*, Dauble, N.\*\*, & Knight, A.\*\* (2005, November). Lesson Study: A Panel Discussion of a Local Lesson Study Team. Presentation to faculty of Badger Mountain Elementary School, Richland, WA.

Roth McDuffie, A. (2005, October). Teaching and learning mathematics: A focus on geometry, measurement, and communication. Workshop for Tapteal Elementary School, Richland, WA.

Roth McDuffie, A. (2005, September). Lesson study as a model of professional development: forming lesson study groups: An exploration through video vignettes. Presentation to faculty of Badger Mountain Elementary School, Richland, WA.

Roth McDuffie, A. (2005, September). Teaching and learning geometry at the elementary level. Workshop for Edwin Markham Elementary School, Pasco, WA.

- Roth McDuffie, A. (2005, August). Teaching Mathematics for Students Learning at the Elementary Level. Workshop for Kiona-Benton School District Elementary Teachers, Benton City, WA.
- Roth McDuffie, A. (2005, August). Teaching mathematics for students' learning: An administrator's perspective. Workshop for Richland School District Elementary and Middle School Principals, Richland, WA.
- Roth McDuffie, A. & Eve, N.\*\* (2005, May). An introduction to lesson study: Teacher-led professional development. Presentation to faculty of Edwin Markham Elementary School, Pasco, WA.
- Roth McDuffie, A. (2005, March). Marrying problem solving with number in teaching and learning mathematics. Staff development seminar for faculty of Tapteal Elementary School, West Richland, WA.
- Roth McDuffie, A. (2005, March). Lesson study as a form of professional development. Presentation to Phi Delta Kappa, Chapter 1063, Kennewick, WA.
- Roth McDuffie, A. (2005, February). Teaching and learning from a constructivist perspective vs. traditional approaches. Presentation to Richland School District teachers as part of their New Teachers Seminar, Richland, WA.
- Roth McDuffie, A. (2004, November). An introduction to lesson study for teachers interested in forming lesson study groups. Presentation to faculty of Badger Mountain Elementary School, Richland, WA.
- Roth McDuffie, A. (2004, October). An introduction to lesson study for teachers interested in forming lesson study groups. Presentation to faculty of Tapteal Elementary School, West Richland, WA.
- Roth McDuffie, A. (2004, October). An introduction to lesson study for teachers interested in forming lesson study groups. Presentation to faculty of Chief Joseph Middle School, Richland, WA.
- Roth McDuffie, A., (2004, October). New instructional materials in mathematics: Issues for administrators and leaders. Presentation at the *Considering New Instructional Materials in Mathematics Seminar*, Kennewick, WA.
- Roth McDuffie, A., (2004, August). Teaching and learning number and operation: K-5. Facilitated 3-hour sessions each day for the week-long *Elementary Mathematics Institute*, Pasco, WA.
- Roth McDuffie, A. (2004, August). Best Practices in Secondary Mathematics Teaching and Learning. Facilitated a 6-hour workshop for secondary teachers from Sumner School District, Sumner, WA.
- Roth McDuffie, A., & Eve, N.\*\* (2004, February). Current issues in mathematics education and the *Investigations in Number, Data, and Space* curriculum (2004, February). A video-taped discussion and the video was shown to parents at Family Math Night at Tapteal Elementary School, Richland, WA.

- Roth McDuffie, A. (2002, December). An introduction to the process of seeking National Board Professional Teacher Certification. Presentation to graduate students enrolled in the Professional Education Seminar (T&L 541) at Washington State University Tri-Cities, Richland, WA.
- Roth McDuffie, A. (2002, October). Why is Reading Important in Mathematics? Keynote presentation for the Careers in Education Conference for high school students in regional school districts, Richland, WA
- Roth McDuffie, A. & Morrison, J. (2002, March). Designing and using meaningful field-based experiences in mathematics and science methods courses. Presentation to the Professional Education Advisory Board to Washington State University, Richland, WA.
- Reinkens, K., Akerson, V., & Roth McDuffie, A. (2000, April). Simple machines & hydraulics: A real-world math and science connection. Presentation for Washington State University Tri-Cities Student Research Symposium, Richland, WA.
- Roth McDuffie, A. (1999, October). Conducting teacher research in your classroom. Presentation for Mathematics Engineering Science Achievement (MESA) Middle School Teachers' Workshop, October, 1999, Richland, WA.

## **SERVICE & PARTNERSHIPS**

### **National Level**

#### **Referee/Reviewer for Journals and Conference Proposals**

*Journal for Research in Mathematics Education*, 2005 - present.

*Journal of Mathematics Teacher Education*, 2005 - present.

*School Science and Mathematics*, 2000 - present.

*Teaching Children Mathematics*, 1999 - present.

*Mathematics Teacher*, 1999 - present.

*Contemporary Issues in Technology and Teacher Education*, 2003 to 2005.

*Teachers' Use of Mathematics Curriculum Materials: Research Perspectives on Relationships Between Teachers and Curriculum*, 2005. Reviewer for book chapter proposals for edited volume (Editors: J. Remillard, B. Herbel-Eisenmann, & G. Lloyd).

*Annual Meeting of the Association of Mathematics Teacher Educators*, Proposal Reviewer, Fall 2005.

*Annual Meeting of the American Educational Research Association*, Proposal Reviewer, Summer 2003, Division K: Section 1: Teaching Practices, Knowledge, and Education in Mathematics and Science.  
 Summer 2002, Division K: Section 1: Teaching Practices, Knowledge, and Education in Mathematics and Science.

Summer 2001, Division C: Section 2: Mathematics Education.

*Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Proposal Reviewer, March 2002, March 2004, March 2005.

*Urban Education*, March, 2004. Invited reviewer for article on mathematics education.

*Asia-Pacific Journal of Teacher Education and Development*, 5 (2), 2002. Invited reviewer for special issue, Field Experiences in Teacher Education.

### **Committee/Task Force Member for Professional Organizations**

National Council of Teachers of Mathematics, Educational Materials Committee, 2006 – present.

Association of Mathematics Teacher Educators Case Study Task Force, 2004 – present.

Association of Mathematics Teacher Educators 2006 Conference Program Committee, 2005 – 2006.

Association of Mathematics Teacher Educators Electronic Communications Committee, 2001 – 2004.

Association of Mathematics Teacher Educators Technology Task Force, 2000 – 2004.

### **Panel Chair/Member/Reviewer for National Science Foundation Grant Proposals**

Panel Member for the National Science Foundation, Panel for the Teacher Professional Development Continuum proposals. November 2005. Reviewed grant proposals to provide funding recommendations.

Reviewer for the National Science Foundation, Professional Development Continuum proposals. January 2004. Reviewed a grant proposal and provided funding recommendations.

Panel Chair for the National Science Foundation, Panel for the Professional Development Continuum proposals. November 2003. Facilitated panel discussions and reviewed grant proposals to provide funding recommendations.

Panel Chair for the National Science Foundation, Panel for Elementary and Secondary Education Instructional Materials Development. October 2003. Facilitated panel discussions and reviewed grant proposals with panel members to provide funding recommendations.

Reviewer for the National Science Foundation, Panel for Dissemination and Implementation of Instructional Materials Projects. January 2003. Reviewed grant proposals and provided funding recommendations.

Panel Member for the National Science Foundation, Panel for Elementary and Secondary Education Instructional Materials Development. October 2002.

Reviewed grant proposals and met with other panel members to provide funding recommendations.

Reviewer for the National Science Foundation, Elementary Education Instructional Materials Development. January 2002. Reviewed grant proposals and provided funding recommendations.

Panel Member for the National Science Foundation, Panel for Secondary Education Instructional Materials Development. October 2001. Reviewed grant proposals and met with panel members to provide funding recommendations.

### **Invited Participant for Professional Meetings/Institutes**

*The Center for the Study of Mathematics Curricula Annual Conference*, February 15 – 18, 2006. The center is funded through a National Science Foundation Grant. Attended a pre-session meeting for chapter authors for the forthcoming book, *Teachers Use of Mathematics Curriculum Materials: Research Perspectives on Relationships between Teachers and Curriculum*, and the CSMC conference. Invited participants received travel and accommodations stipends.

*Developing Teachers' Mathematical Knowledge for Teaching Summer Institute*, June 5-12, 2004. Institute was provided by the Center for Proficiency in Teaching Mathematics and funded through a National Science Foundation grant to the Center. Invited participants received travel and accommodations stipends.

*National Council of Teachers of Mathematics Research Catalyst Conference* (co-sponsored by the National Science Foundation), September 2003. Conference Theme: "Studying the Impact of the Standards of the National Council of Teachers of Mathematics." Member of the working group on Teacher Quality and Professional Development. Invited participants received travel and accommodations stipends.

### **Advisor to National Level Projects**

Advisory Board Member and Research Advisor to the Mathematics Education Collaborative's project, *Learning to Work with the Public in the Context of Local Systemic Change* (a National Science Foundation funded project aimed at educating parents and community about reform in mathematics education), 2002 – 2004.

### **Service to University, College, and Department**

#### **Committees at Washington State University**

Washington State University Faculty Senate Sub-Committee (Multi-Campus), 2005 – present. Serve on the WSU T-C sub-committee representing WSU T-C faculty in addressing Faculty Senate issues and decisions.

Washington State University Teacher Education Committee (Multi-Campus), 2005 – present.

Washington State University Foundation Faculty Advisory Committee (Multi-Campus), 2003 - 2005.

- Washington State University Space Allocation Committee (Tri-Cities Campus), 2004 – present. Examined uses of classroom and office space and provided recommendations to campus chancellor.
- College of Education Graduate Studies Committee (Multi-Campus), 2003 - 2005.
- College of Education Faculty Search Committee Chair for the position of Director of the College of Education at WSU T-C (Multi-Campus), 2005-2006.
- College of Education Faculty Search Committee for a position in educational research for the Educational Psychology Department (Tri-Cities Campus), 2003 - 2004.
- College of Education Dean's Faculty Advisory Committee (Multi-Campus), 2002 - 2003.
- College of Education Ad Hoc Planning Committee for the Tenure-Eligible Faculty Retreat (Multi-Campus), 2002.
- Department of Teaching and Learning Academic Student Affairs Council (Tri-Cities Campus), August 2000 - present.
- Department of Teaching and Learning Student Admissions Committee (Tri-Cities Campus), 2000 - present.
- Department of Teaching and Learning Secondary Education Committee (Tri-Cities Campus), 2005 – present.
- Committee to Establish an Endorsement in Secondary Mathematics Teaching at WSU-TC, 2001 – 2004. Chaired committee and developed a partnership with WSU-TC's Department of Sciences, Columbia Basin College, and the Pacific Northwest National Laboratory to find faculty, design mathematics content courses for teachers, and offer this endorsement (not previously offered at WSU-TC).
- Department of Teaching and Learning Faculty Search Committee for a position in mathematics education (Pullman Campus Position, Multi-Campus Committee), 2000 – 2001, 2001-2002, 2004-2005, & 2005-2006.
- College of Education Technology Committee (Multi-Campus), 2001-2005.
- Department of Teaching and Learning Professional Certification Committee (Multi-Campus), 2001-2002.
- Department of Teaching and Learning Assessment Committee (Multi-Campus), Summer 2001.
- College of Education Strategic Planning Committee (Tri-Cities Campus), 2000-2001.
- Washington State University Tri-Cities Faculty Committee to Plan the Student Research Symposium , Spring 2000, & Spring 2001.
- Washington State University Tri-Cities Scholarship Committee, June 2000.
- College of Education Scholarship Committee (Multi-Campus), March 2000.

## Other Service to Washington State University

Coordinator of the Curriculum Library Collection in the Washington State University Tri-Cities campus library. Instituted and continue to develop the collection by working with our director of information services and education faculty. Fall 2000 to present.

Representative for Washington State University for several marketing, media, and outreach opportunities including: College of Education faculty representative on a panel for the Higher Education Committee (June 3, 2004); WSU Tri-Cities faculty representative for new marketing materials (Spring, 2004); a local T.V news show (KNDU) showing my class on the first day of the semester (August 23, 2004); focus on faculty article in the November 2, 2002 WSU Football Program; a feature story on becoming a teacher in news cast of local affiliate for ABC news (September 10, 2002); a feature story on first day of classes at WSU Tri-Cities in news cast of two local affiliates of major networks (August 26, 2002); a radio interview on National Board Certification with the Washington Initiative for a local radio station (November 6, 2001); a story about programs and changes at WSU Tri-Cities in local newspaper, the *Tri-City Herald* (February 17, 2001).

## Service to and Partnerships with K-12 Schools, K-12 Agencies, and Community Colleges

**University Partner** in collaboration with Edwin Markham Elementary School teachers and Tapteal Elementary School teachers as part of the grant *Partnerships in Inquiry: Washington State Higher Education Professional Development Partnership Grant Program*, 2005 – present. This project is funded for \$189,999 by Higher Education Coordinating Board (HECB) through U.S. Department of Education's Improving Teacher Quality Program. Collaborated with the project Principal Investigator, Ed Helmstetter, in writing the proposal and serve as the university partner and facilitator for the Tri-Cities' grant activities that include school-based professional development with lesson study approaches. Activities include: Planning and implementing a 3-day workshop to introduce lesson study as a model of professional development (August, 2005); and serving as a university advisor for monthly with grade level teams to co-plan units, observe teaching and learning, and analyze and reflect on lessons (September, 2005 to present).

**University Partner** in collaboration with middle school mathematic teachers at Chief Joseph Middle School, Richland, Washington, 2002-2005. Supported teachers in their professional development toward research-based practices using lesson study approaches. During the year, we co-planned units, video taped teaching and learning, and viewed and analyzed videos. During 2004-2005, activities were supported through a Leadership Network Grant from the Office of the Superintendent for Public Instruction of Washington.

**Consultant** for Sumner School District, Sumner, WA, July, 2005. Supported District efforts to create professional communities for mathematics teaching and learning and to facilitate the development of teacher leaders in the District.

**University Partner** in collaboration with elementary school mathematic teachers at Tapteal Elementary School, Richland, Washington, 2004-2005 academic year. Supported teachers in their professional development toward reform-based practices using a lesson study model. During the year, I met monthly with grade level teams to co-plan units, observe teaching and learning, and analyze and reflect on lessons. Activities were supported through a Leadership Network Grant from the Office of the Superintendent for Public Instruction of Washington.

**Planning Committee Member** for the *Considering New Instructional Materials in Mathematics Seminar*, October 5-6, 2004, Kennewick, WA. Seminar was offered to school districts state-wide to provide information about adopting research-based instructional materials. Collaborated with Educational Service District 123, Columbia Basin College, Northwest Regional Education Laboratory, Pacific Northwest National Laboratories, Office of the Superintendent of Public Instruction, and Washington State Mathematics Council to plan and conduct the seminar.

**Planning Committee Member** for the *Elementary Mathematics Institute*, August 9-13, 2004, Pasco, WA. Co-planned the summer institute in partnership with the Educational Service District 123 and area school districts. Planned and facilitated institute sessions. Recruited four former graduate students to serve as institute co-facilitators.

**Consultant** to Richland School District (2004, May). Worked with elementary teachers and district administrators in aligning district's instructional materials with WA State Grade Level Expectations for mathematics.

**Co-Facilitator** for the Richland School District Middle School Teachers Mathematics Study Group, 2003-2004 and 2002-2003 academic years. Group met monthly to discuss assigned readings, view classroom video case studies, and reflect on teaching practices. Richland, Washington.

**University Facilitator** for the Washington Initiative for National Board Certification, 2002-2003 & 2001-2002 academic years. Directed two National Board Certified teachers (co-facilitators) and supported a cohort of teachers seeking National Board Certification. The Washington Initiative was a grant-funded partnership between the Office of Superintendent for Public Instruction of Washington State, Washington State University, and the University of Washington.

**Facilitator** for the Mathematics Working Group of the Columbia Basin College – WSU Tri-Cities Partnership Meeting, June 2003. A CO-TEACH sponsored event focused on examining and coordinating teacher preparation programs served by both institutions.

**University partner** in a collaboration with a middle school mathematics teacher at McLaughlin Middle School, Pasco, Washington, 2001 – 2002 academic year. Supported a teacher in her professional development toward reform-based assessment practices and her work teaching mathematics to students who were English Language Learners. I observed her classes, met with her to plan and later reflect on units and lessons, and co-taught in her classroom, approximately 3 to 5 days each month of the school year.

**Volunteer** at Badger Mountain Elementary School, Richland, WA.

2005-2006, Served as an advisor to the Fourth Grade Team of teachers in planning mathematics lessons and units (monthly). Co-taught mathematics lessons supporting Fourth Grade teachers (weekly).

2003 – 2005, Member of the Learning Improvement Team (LIT) and the Math Sub-Committee of the LIT (met twice monthly to review measures of learning and progress and set goals for teaching and learning for the school).

2004 – 2005, Provided small group instruction in mathematics to third-grade students who were struggling in mathematics (weekly). Co-taught mathematics lessons supporting a Kindergarten teacher (weekly).

2003 – 2004, Provided small group instruction in mathematics to second-grade students, and co-taught mathematics lessons supporting a second-grade teacher (weekly).

2002 – 2003, Provided supplemental instruction in mathematics to first-grade students with learning disabilities (weekly).

2001 – 2002, Worked with Kindergarteners on mathematics activities (weekly).

**Consultant** on a project evaluation project for the Mathematics Engineering Science Achievement (MESA) organization of the Yakima Valley and Tri-Cities, Summer, 2002. Designed a study to evaluate MESA's Summer Mathematics Camp, a camp for middle school students who come from underrepresented backgrounds in mathematics, science, and engineering fields.

**Member** of a search committee for the Mathematics Engineering Science Achievement (MESA) organization of the Yakima Valley and Tri-Cities, September 2001. Assisted in reviewing and interviewing candidates for their Middle School Coordinator position.

**Member** of a partnership between Washington State University Tri-Cities and the Educational Service District 123 (ESD), 1999 – 2001. Designed and implemented a program where in-service and pre-service teachers collaborated to design performance assessment tasks consistent with State goals. As part of this partnership, the ESD received a Goals 2000 Preservice Innovation Grant from the U.S. Department of Education for 2000-2001 school year.

**Director** of summer workshop: *Designing and Using Performance Assessment for Mathematics Instruction*, June 19 – 28, 2001. Invited by the Educational Service District 123 to design and serve as the primary facilitator of this 35 hour workshop for inservice teachers. The workshop was funded by the ESD through a Goals 2000 grant.

## GRANTS AND AWARDS

### Grants and Awards Funded

Roth McDuffie, A. (2006). Support for Mathematics and Science Methods Course. Ken and Marleen Alhadeff Teachers of Teachers Award. Funding requested: \$2,166; funding received: \$2,166.

Roth McDuffie, A. (2005). *Instructional Materials for Mathematics Methods Courses*. Ken and Marleen Alhadeff Teachers of Teachers Award. Funding requested: \$648.25; funding received: \$648.25.

- Roth McDuffie, A. (2004). *A Longitudinal Study of Middle School Mathematics Teachers' Professional Development*. Washington State University College of Education Faculty Research Funds. Funding requested: \$4,972; funding received: \$4,972.
- Roth McDuffie, A. (2004). *Travel Award to Attend the Twenty-Sixth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Toronto, Canada*. Washington State University College of Education Faculty Development Funds. Funding requested: \$1,200; funding received: \$1,200.
- Frenzel, A., & Roth McDuffie, A. (2004). *Leadership Network Grant for Lesson Study*. Office of the Superintendent of Public Instruction. Co-authored grant submitted by Richland School District. Funding requested: \$5,000; funding received: \$5,000.
- Roth McDuffie, A. (2004). *Instructional Materials for Mathematics Methods Courses*. Ken and Marleen Alhadeff Teachers of Teachers Award. Funding requested: \$588.65; funding received: \$550.00.
- Roth McDuffie, A. (2003). *A Longitudinal Study of Middle School Mathematics Teachers' Professional Development*. Washington State University College of Education Faculty Research Funds. Funding requested: \$10,000; funding received: \$10,000.
- Roth McDuffie, A., & Rykiel, E. (2003). *Mathematics Education for High School Teachers* (seed money to start a new program in secondary mathematics education). Washington State University Tri-Cities. Funding requested: \$10,651; Funding received: \$8,000.
- Roth McDuffie, A. (2003). *Pre-Service Teacher Educator Short Course for Middle and High School Mathematics*. I applied and was accepted to host a short course on graphing calculators and computer algebra systems as part of my Secondary Mathematics Methods course. A grant from Texas Instruments to The Ohio State University funded a guest instructor's (Stuart Moskowitz) honorarium and expenses.
- Roth McDuffie, A. (2002). *Instructional Materials for Mathematics Methods Courses*. Ken and Marleen Alhadeff Teachers of Teachers Award. Funding requested \$930.00; funding received \$500.00.
- Roth McDuffie, A. (2001). *Investigating the Efficacy of Performance Assessment Training for Teachers: New Faculty Seed Grant Program*. Washington State University. Funding requested \$7,553; funding received \$5,000.
- Roth McDuffie, A. (2001). *Preparing Tomorrow's Teachers to Use Technology: Faculty Mini-Grant*. Washington State University. Funding requested: \$2,300; funding received: \$2,300.
- Kirby, M., & Roth McDuffie, A. (2000). *Goals 2000 Preservice Innovation Grant*, U.S. Department of Education for 2000-2001 school year. Co-authored grant submitted by the Educational Service District 123. Funding requested: \$80,000. Funding received: \$80,000.

### **Other Grant Proposals Submitted**

- Maring, G., Johnson, T., Davis, D., & Roth McDuffie, A. (2004). *Cyber Augmented Learning Communities: Middle School mathematics Teacher Development*. National Science Foundation, Teacher Professional Continuum Program. Funding Requested: \$2,500,000; Not funded.



- Roth McDuffie, A., & Morrison, J. (2002). *Comprehensive Math and Science Partnership in Washington State*. A National Science Foundation Proposal submitted in partnership with the Washington State Office for the Superintendent of Public Instruction, regional Educational Service Districts, School Districts State-Wide, and other State Universities. WSU Tri-Cities funding requested: \$125,000; Comprehensive program funding requested: \$35,000,000; Not funded.
- Storm, S., Morrison, J., & Roth McDuffie, A. (2001). *Teachers Leading Teachers: Mentorships for Science and Mathematics Teachers at All Levels*. National Science Foundation, Teacher Enhancement Program. Funding Requested: \$632,801; Preproposal Accepted; Not funded.
- Roth McDuffie, A., & Kirby, M. (2000). *Performing math in the middle grades: An institute to develop performance assessment strategies for math teachers in the middle grades*. Eisenhower Grant. Washington State Superintendent of Public Instruction. Funding requested: \$44,111; Proposal recommended for funding, but not funded.
- Roth McDuffie, A., Akerson, V., Kirby, M., & Young, T. (2000). *The bridges research project: The effects of a professional development collaboration on teaching and learning of mathematics, science, and literacy*. Field-Initiated Studies Grant. U.S. Department of Education. Funding requested \$622,406; Not funded.
- Akerson, V., Roth McDuffie, A., Kirby, M., & Young, T. (2000). *The bridges project: A professional development collaboration to improve the teaching and learning of mathematics, science, and literacy*. The Comprehensive Fund for the Improvement of Postsecondary Education. U.S. Department of Education. Funding requested: \$257,243; Not funded.

## HONORS

- College of Education Faculty Excellence Award*. Washington State University. (May 2003). Awarded by the Faculty of the College of Education in recognition of excellence in teaching.
- CO-TEACH Excellence in Teacher Preparation Award*. Washington State University. (May 2003). Awarded by the Deans of the Colleges of Education, Agriculture, Liberal Arts, and Science in recognition of collaboration with the colleges of WSU, community colleges, businesses, and school districts.

## PROFESSIONAL ORGANIZATIONS

American Educational Research Association  
 American Educational Research Association, Special Interest Group, Research in Mathematics Education, and Division K.  
 Association for Supervision and Curriculum Development  
 Association of Mathematics Teacher Educators  
 National Council of Teachers of Mathematics  
 Psychology of Mathematics Education, North America  
 School Science and Mathematics Association  
 Washington State Mathematics Council