

**Curriculum Vitae
Jeffrey A. Frykholm**

School of Education
University of Colorado
Boulder, CO 80309-0249
jeff.frykholm@colorado.edu

ACADEMIC BACKGROUND

DEGREES

Ph.D.
University of Wisconsin, Madison, Wisconsin
Department of Curriculum and Instruction
August, 1996

M.S.
Whitworth College, Spokane, Washington
Department of Education
August, 1992

B.A.
Mathematics
Whitworth College, Spokane, Washington
May, 1989

CERTIFICATION

Washington State Continuing Teaching Certification (Mathematics; Computer science): 1993 - present

PROFESSIONAL EXPERIENCE

2005-present Associate Professor
School of Education
University of Colorado at Boulder

2006 Fulbright Scholar
Visiting Professor of Education
Universidad de Los Andes
Santiago, Chile
Fulbright Foundation, International Fellow

1999-2005 Assistant Professor
School of Education
University of Colorado at Boulder

1998-99 Assistant Professor

School of Education
Pacific University

- 1996-1998 Assistant Professor
Department of Teaching and Learning
College of Human Resources and Education
Virginia Polytechnic Institute and State University
- 1989-93 Mathematics Teacher
John R. Rogers High School
Spokane, Washington

PROFESSIONAL HONORS AND AWARDS

- 2005-06 Fulbright Scholar, The Fulbright Scholar Program sponsored by the *Council for International Exchange of Scholars*.
Visiting Scholar, *Universidad de Los Andes*, Santiago, Chile
- 1999-2001 National Academy of Education/Spencer Postdoctoral Fellow
- 1998-99 Hewlett Foundation Fellow
- 1997 Finalist and Honorable Mention: Outstanding Dissertation Award
American Educational Research Association, Division K
- 1992 *Renaissance* Outstanding Teacher Award: Rogers High School

SCHOLARLY PUBLICATIONS

BOOKS

Frykholm, J.A., Besa, A. (in press). Aprendiendo a Pensar Matemáticamente con la Recta Numérica. Cloudbreak Publishing: Boulder, CO.

Frykholm, J.A. (2009). Learning to Think Mathematically with the Number Line. Cloudbreak Publishing: Boulder, CO.

Frykholm, J.A. (2009). Inside Math: The Number Line. Cambium Learning: Natick, MA.

Frykholm, J.A. (2009). Inside Math: The Ratio Table. Cambium Learning: Natick, MA.

Frykholm, J. A. (2009). Inside Math: Knowing Numbers. Cambium Learning: Natick, MA.

Frykholm, J. A. (2009). Inside Math: Multiplication and Division. Cambium Learning: Natick, MA.

Frykholm, J. A. (2009). Inside Math: Developing Fraction Sense. Cambium Learning: Natick, MA.

Frykholm, J. A. (2009). Inside Math: Fraction Operations. Cambium Learning: Natick, MA.

Frykholm, J. A. (2009). Inside Math: Decimals. Cambium Learning: Natick, MA.

Frykholm, J. A. (2009). Inside Math: Fractions, Decimals, and Percents. Cambium Learning: Natick, MA.

Frykholm, J.A. (2009). Inside Math: Assessments and Scoring Rubrics. Cambium Learning, Natick, MA.

Frykholm, J.A. (2009). Inside Math: Teacher Edition, Rational Numbers. Cambium Learning, Natick, MA.

Frykholm, J.A. (2009). Inside Math: Teacher Edition, Whole Numbers. Cambium Learning, Natick, MA.

Frykholm, J.A. (2008). Learning to Think Mathematically with the Rekenrek. Cloudbreak Publishing: Boulder, CO.

Frykholm, J.A., Besa, A. (2008). Aprendiendo a Pensar Matemáticamente con el Rekenrek. Cloudbreak Publishing: Boulder, CO.

Frykholm, J.A., Glasson, G.E., Vierling, L. (2005). Earth Systems Connections: An integrated mathematics, science, and technology curriculum for K-6. NASA: Washington, DC.

Pugalee, D.K., **Frykholm, J.A.**, Johnson, A., Malloy, C., Preston, R., & Slovin, H. (2002). Navigating through Geometry in grades 6-8. National Council of Teachers of Mathematics: Reston, VA.

JOURNAL ARTICLES AND BOOK CHAPTERS

Frykholm, J.A. (in progress). Developing mathematical understanding with the rekenrek. (This paper examines the role of the rekenrek manipulative in fostering early number sense, including the development of cardinality and subitizing in young children up to age 9. I will present this paper in Mexico in March, 2010, at the *International Conference for Research in Mathematics and Science Education*).

Frykholm, J.A. (in progress). Math Wednesday: An Innovative use of the practicum experience for preservice elementary teacher education. (This paper examines an innovative model for the practicum experience in elementary teacher preparation.)

Frykholm, J.A. (in progress). *Skills, Decisions, Dispositions, and Vision: A Framework for Developing Perspectives about Educational Equity in Elementary Mathematics Teacher Preparation.* (This paper articulates a framework I have developed in the context of my elementary mathematics methods course to help preservice teachers cultivate healthy perspectives and practices around equitable mathematics education practices.)

Koellner, K., Pittman, M., & **Frykholm, J.A.** (2008). Talking generally or generally talking: Conversations in an algebra classroom. Manuscript submitted to *Mathematics Teaching in the Middle School*.

Frykholm, J.A. (2008). Using K-12, reform-based curricula to enhance mathematics teacher preparation. In M. Meyer and C. Landgrall (Eds.), *A Decade of Middle School Mathematics Curriculum Implementation: Lessons Learned.* Columbia, MO: The Show-Me Center.

Koellner, K., Jacobs, J., Borko, H., Schneider, C., Pittman, M., Eiteljorg, E., Bunning, K., & **Frykholm, J.A.** (2007). The Problem-Solving Cycle: A model to support the development of teachers' professional knowledge. *Mathematical Thinking and Learning*, Vol. 9, (3), 273-303.

Glasson, G.E., **Frykholm, J.A.**, Mhango, N., & Phiri, A. (2006). Understanding the Earth Systems of Malawi: Ecological Sustainability, Culture, and Place-based Education. *Science Education*, Vol. 90, (4), 660-680.

Frykholm, J.A., Vierling, L., & Glasson, G.E. (2006). Learning Mathematics and Earth System Science...Via Satellite. *Journal of Geoscience Education*, Vol. 54(3), 262-271.

Frykholm, J.A. (2005). Integrating mathematics and science... Via satellite. In D. Berlin and A. White (Eds.), *Collaboration for the improvement of science and mathematics education: A global effort.* Columbus, OH: International Consortium of Research in Mathematics and Science Education.

Frykholm, J.A., Vierling, L., & Glasson, G. (2005). Integrating mathematics and science--via satellite. In D. Berlin and A. White (Eds.), *Collaboration for the improvement of science and mathematics education: A global effort.* Columbus, OH: International Consortium of Research in Mathematics and Science Education.

Frykholm, J.A., & Glasson, G.E. (2005). Connecting mathematics and science instruction: Pedagogical content knowledge for teachers. *School Science and Mathematics*, Vol. 105(3), 127-141.

Frykholm, J.A. (2005). Broadening definitions of mentoring: Teacher learning within the context of community. *New England Mathematics Journal*, Vol. 37,(2), 10-20.

Frykholm, J.A. (2005). Innovative Curricula: Catalysts for Reform in Mathematics Teacher Education. *Action in Teacher Education*, Vol. 26 (4).

Borko, H., **Frykholm, J.A.**, Pittman, M., Eiteljorg, E., Nelson, M, Jacobs, J., Koellner-Clark, K., & Schneider, C. (2005). Preparing Teachers to Foster Algebraic Thinking. Zentralblatt für Didaktik der Mathematik: International Reviews on Mathematics Education, Vol. 37 (1), 43-52.

Frykholm, J. A. (2004). Teachers' tolerance for discomfort: Implications for curriculum reform in mathematics education. Journal of Curriculum and Supervision, Vol. 19 (2), 125-149.

Wainwright, C., & **Frykholm, J.** (2002). Implementation of a reform mathematics curricula. The Oregon Mathematics Teacher, Vol. 6, 26-40.

Frykholm, J.A. & Meyer, M.R. (2002). Integrated instruction: Is it Science? Is it Mathematics? Mathematics Teaching in the Middle School, Vol. 7 (9), 502-508.

Frykholm, J.A. (2001). Eenie, Meenie, Minie, Moe... Building on intuitive notions of chance. Teaching Children Mathematics, Vol. 8 (2), pp. 112-118.

Frykholm, J.A., & Pittman, M. (2001). Don't ask me! I'm just the teacher! Mathematics Teaching in the Middle School, Vol.7 (4), pp. 218-221.

Pugalee, D. K., **Frykholm, J.A.**, and Shaka, F. (2001). Diversity, technology, and policy: Key considerations in the development of teacher leadership. In K. Nesbit, J. Wallace, D.K Pugalee, A. Miller & W. J. DiBiase (Eds.). Developing teacher leaders in science and mathematics: The role of professional development. Columbus, OH: ERIC Center for Mathematics, Science and Environmental Education.

Lloyd, G.M., & **Frykholm, J.A.** (2000). On the Development of "Book Smarts" in Mathematics: Prospective Elementary Teachers' Experiences with Innovative Curriculum Materials. Issues in the Undergraduate Mathematics Preparation of School Teachers: The Journal, Vol. 2. (online)

Frykholm, J.A. (2000). Elementary mathematics: The missing piece in secondary teacher preparation? FOCUS on Learning Problems in Mathematics, Vol. 22, No. 1, 27-44.

Brendefur, J., & **Frykholm, J.** (2000). Promoting mathematical communication in the classroom: Two preservice teachers' conceptions and practices. Journal of Mathematics Teacher Education, Vol. 3, No.2, 125-153. (This manuscript was equally co-authored).

Lloyd, G.M., & **Frykholm, J.A.** (2000). How innovative middle school mathematics materials can change prospective elementary teachers' conceptions. Education, Vol. 120, No. 3, 575-580.

Frykholm, J.A. (1999). Assessment in mathematics teacher education: Introducing preservice teachers to assessment reform. The Teacher Educator, Vol. 34, No. 4, 244-258.

Frykholm, J.A. (1999). The Impact of Reform: Challenges for mathematics teacher preparation. Journal of Mathematics Teacher Education. Vol, 2, No 1, 79-105.

Frykholm, J.A., & Meyer, M.R. (1999). Preparing teachers in an age of reform. In M. Scherer (Ed.), A better beginning: Supporting and mentoring new teachers. Association for Supervision and Curriculum Development: Alexandria, VA.

Frykholm, J.A. (1998). Beyond supervision: Learning to teach mathematics in community. Teaching and Teacher Education, Vol. 14, No. 3, 305-322.

Frykholm, J.A. (1997). A stacked deck: Addressing issues of equity with pre-service teachers. Equity and Excellence in Education, Vol. 30, No. 2, 50-58.

Frykholm, J.A. (1996). Pre-service teachers in mathematics: Struggling with the *Standards*. Teaching and Teacher Education, Vol. 12, No1, 665-682.

PRESENTATIONS: 2008 - 2010

Frykholm, J.A. (2010). K-3 Mathematics: Developing Early Number Sense with the Rekenrek. Paper presented at the International Consortium for Research in Mathematics and Science Education, XIII Consultation, Manzanillo, Mexico.

Frykholm, J.A. (2009). Progressive Formalization: Models for the Teaching and Learning of Mathematics. Invited address, University of North Carolina Greensboro.

Frykholm, J.A. (2009). Enseñanza de las Fracciones: Desarrollando el concepto de Fraccion. y la sustracción. Seminar presentation at the Universidad de Los Andes, Santiago, Chile.

Frykholm, J.A. (2009). Enseñando Probabilidad y Estadística. Seminar presentation at the Universidad de Los Andes, Santiago, Chile.

Frykholm, J.A. (2009). La Importancia de la Geometría en los Primeros Cursos. Seminar presentation at the Universidad de Los Andes, Santiago, Chile.

Frykholm, J.A. (2009). Enseñando Probabilidad y Estadística. Seminar presentation at the Universidad de Los Andes, Santiago, Chile.

Frykholm, J.A. (2009). Thinking Mathematically with the Rekenrek. Presentation, Meridian School District, Boise, ID.

Frykholm, J.A. (2009). Perspectives on the Teaching and Learning of Mathematics. Presentation, Jefferson County Public Schools.

Frykholm, J.A. (2009). Inside Mathematics: An Invitation to Innovation in Mathematics Teaching and Learning. Presentation, Denver Public Schools.

Frykholm, J.A. (2009). Models for the Teaching and Learning of K-3 Mathematics. The Rocky Mountain Institute of 2009. Keystone, CO.

Frykholm, J.A. (2009). Models for the Teaching and Learning of K-5 Mathematics. Air Academy School District #20.

Frykholm, J.A. (2009). Models for the Teaching and Learning of K-5 Mathematics. Eagle Mountain Saginaw ISD, Fort Worth, TX.

Frykholm, J.A. (2009). Progressive Formalization and the use of models for the Teaching and Learning of K-5 Mathematics. Invited presentation, Eastern Sun Academy, Boulder, CO.

Frykholm, J.A. (2008). Desarrollando tempranamente la adición y la sustracción. Seminar presentation at the Universidad de Los Andes, Santiago, Chile.

Frykholm, J.A. (2008). Enseñando Matemáticas... En y Para una Epoca de Cambios. Seminar presentation at the Universidad de Los Andes, Santiago, Chile.

Frykholm, J.A. (2008). Mathematical Tools for Learning: The Ratio Table. Presentation at the Galveston Island Institute: Closing the Achievement Gap. Galveston, TX.

Frykholm, J.A. (2008). Mathematical Tools for Learning: The Number Line. Presentation at the Galveston Island Institute: Closing the Achievement Gap. Galveston, TX.

Frykholm, J.A. (2008). Mathematical Tools for Learning: The Ratio Table. Presentation at the Mountain States Institute: Closing the Achievement Gap. Snowshoe, West Virginia.

Frykholm, J.A. (2008). Mathematical Tools for Learning: The Number Line. Presentation at the Mountain States Institute: Closing the Achievement Gap. Snowshoe, West Virginia.

Frykholm, J.A. (2008). Inside Math: Beyond the Teachers' Edition. Presentation to the School Board of the Scotland County School District, Scotland County, NC.

ARTICLES IN REFEREED CONFERENCE PROCEEDINGS

Glasson, G., **Frykholm, J.**, and Vierling, L., (2003). Using Traditional Ecological Knowledge to Develop an Earth System Science Elementary Curriculum. Proceedings of the National Association for Research in Science Teaching, Philadelphia, PA.

Vierling, L., **Frykholm, J.**, & Glasson, G. (2002). The Earth Systems Science elementary curriculum: A world of contexts for teaching and learning remote sensing. Proceedings of the International Geoscience and Remote Sensing Symposium, Toronto, Canada.

Frykholm, J.A. (2000). A Pedagogy of Discomfort? Implications, Issues, and Questions Surrounding the Implementation of Reform-based, Mathematics Curricula. In M. Grace and K. Smith (Eds.), Proceedings of the International Consortium for Research in Science and Mathematics Education (ICRSME VIII), University of Southampton.

Frykholm, J.A., Glasson, G., & Vierling, L. (2000). Earth Systems Connections: An Integrated K-4 Science, Mathematics, and Technology Curriculum. In M. Grace and K. Smith (Eds.), Proceedings of the International Consortium for Research in Science and Mathematics Education (ICRSME VIII), University of Southampton.

OTHER PUBLISHED MANUSCRIPTS

Vierling, L., **Frykholm, J.A.**, and Glasson, G. (2003). Earth Systems Connections: A World of Contexts for Teaching and Learning Mathematics and Science. A curriculum overview submitted to the NASA Earth Science Enterprise.

Frykholm, J.A. (2002). Professional Development – Teacher Enhancement for Achievement in Mathematics Standards (PD-TEAMS III). A technical report submitted to the Dwight D. Eisenhower Professional Development Program.

Shepard, L.A., Peressini, D.D., **Frykholm, J.A.**, Grant, D.R., Betebenner, D., Briggs, W., Juraschek, W., Romagnano, L., & Loats, J. (2002). An Analysis of the Content and Difficulty of the CSAP 10th-Grade Mathematics Test. A report to the Denver Area School Superintendents' Council (DASSC).

Frykholm, J.A. (2001). Professional Development – Teacher Enhancement for Achievement in Mathematics Standards (PD-TEAMS II). A technical report submitted to the Dwight D. Eisenhower Professional Development Program.

Frykholm, J.A. (2000). Professional Development – Teacher Enhancement for Achievement in Mathematics Standards (PD-TEAMS I). A technical report submitted to the Dwight D. Eisenhower Professional Development Program.

Tate, W.F., & **Frykholm, J.A.** (1995). The nature and extent of mathematics reform at a select group of Historically Black Colleges and Universities. A technical report submitted to the National Science Foundation.

FELLOWSHIPS

Council for the International Exchange of Scholars: Fulbright Fellowship, Universidad de Los Andes, Santiago, Chile (2006).

National Academy of Education/Spencer Postdoctoral Fellowship (\$45,000). Exploring barriers to mathematics education reform: Teachers' tolerance for discomfort, (1991-2001).

Hewlett Foundation Fellow (\$18,000). Collaborative Grant for Pedagogical Reform, (1999).

RECENT GRANTS

Project Investigator: ¡Golaso! The Boulder County Goals for Life Project. Funded by the Office of Outreach, Division of Continuing Education and Professional Studies, University of Colorado (\$5,000).

Co-Project Investigator, Studying the Transition from Arithmetic to Algebraic Reasoning (STAAR). Funded by IERI, \$5.8 million dollars (2001-2006).

Project Investigator, Earth Systems Connections: An integrated K-4 Science, Mathematics and Technology Curriculum. Funded by NASA's Earth Science Education Enterprise Education Program, \$487,100 (1999-2004).

RESEARCH PRESENTATIONS

I have presented my scholarly and practitioner oriented work on more than 75 occasions at both national and international conferences. Among others, I have presented papers at national and regional meetings for the following organizations:

The Fulbright Commission of Chile
National Council of Teachers of Mathematics (NCTM)
National Science Teachers Association (NSTA)
National Association for Research in Science Teaching (NARST)
American Educational Research Association (AERA)
Association for Mathematics Teacher Education (AMTE)
International Consortium for Research in Science and Mathematics Education
Research Pre-session of NCTM

K-12 PROFESSIONAL DEVELOPMENT OUTREACH

I have presented over 50 professional development workshops/seminars with schools and with teachers from the following school districts.

Boulder Valley School District (Colorado)
Denver Public Schools (Colorado)
St. Vrain Public Schools (Colorado)
Adams 12 Public Schools (Colorado)
Jefferson County Public Schools (Colorado)
Brighton School District (Colorado)
Pueblo School District (Colorado)
Colorado Springs District 11 (Colorado)

Harrison School District (Colorado)
Forest Grove School District (Oregon)
Hillsboro Public Schools (Oregon)
Beaverton Public Schools (Oregon)
Montgomery County Public Schools (Virginia)
Pulaski County Public Schools (Virginia)
Rapid City School District (South Dakota)
Madison Public Schools (Wisconsin)
New Berlin Public Schools (Wisconsin)
Milwaukee Public Schools (Wisconsin)
St. Cloud Public Schools (Minnesota)

Internationally, I have worked in schools and/or teachers in Malawi, Haiti, Costa Rica, Trinidad, and Chile. During my Fulbright Fellowship in Santiago, Chile, I taught professional development courses for teachers from the following schools and settings:

English Summer Town (Santiago, Chile)
Santiago Municipality Schools (Santiago, Chile)
Santiago College (Santiago, Chile)
The Grange School (Santiago, Chile)