

- Trent University, Canada
- 2004-2005 **Lecturer**, School of Education and Professional Learning,
Trent University, Canada
- 2003-2004 **Limited Term Appointment**, School of Education and Professional
Learning, Trent University, Canada
- 2001-2003 **Intermediate Teacher**, Kawartha Pine Ridge DSB
James Strath Public School
- 1999-2001 **Research Assistant**, OISE of UofT, Trent Valley Center
Contract basis, Peterborough, Ontario
- 1995-1998 **Consultant**, Assessment, Mathematics, and Research (JK-OAC)
Kawartha Pine Ridge District School Board, Ontario
- 1993-1995 **Junior Teacher**, Peterborough County Bd. of Education
North Cavan Public School
- 1991-1993 **Program Resource Teacher**, Language, Math & Special Needs
(JK-8) Peterborough County Board of School Board, Ontario
- 1988-1989 **Primary Teacher**, Peel District School Board
Springfield, French Immersion

ACCADEMIC HONOURS AND AWARDS

- 2011 Visiting Scholar, Institute of Education, University of London, March
- 2011 Nominated for AERA Relating Research to Practice Award, American
Educational Research Association (International)
- 2010 Nominated for Symons Teaching Award, Trent University
- 2010 Nominated for Educational Leadership and Innovation Award, Trent
University
- 2009 Nominated for OCUFA Teaching Award, Province of Ontario
- 2009 Nominated for Symons Teaching Award, Trent University
- 2009 Nominated for School of Education Teaching Award, Trent University
- 2008 Recipient of Merit Award for Research and Teaching, Trent University
- 2008 SSHRC Research Grant Recipient (4 year study)
- 2008 Nominated for Symons Teaching Award, Trent University
- 2007 Nominated for Qualitative Thesis of the Year Award for 2006, American
Educational Research Association (International)
- 2006 Nominated for Symons Teaching Award, Trent University
- 2006 Nominated for Thesis of the Year Award, University of Toronto
- 2005 Recipient of the Academic Innovation Fund, Trent University
- 2005 Nominated for Symons Teaching Award, Trent University

2004	Nominated for Symons Teaching Award, Trent University
2003-2005	Doctoral Funding (\$18,000 per annum), University of Toronto
1988	Prix du Département d'Études Françaises, Collège Glendon
1988	Prix du Consulat Général de France, Collège Glendon
1988	English Departmental Prize, Glendon College, York University
1988	Faculty of Education Overall Prize, York University

RESEARCH PROGRAM

Teacher efficacy, models of professional learning and related student achievement in mathematics

PUBLICATIONS:

Articles in refereed Journals

Bruce, C., Esmonde, I., Ross, J., & Gookie, L., Beatty, R. (2010). The effects of sustained classroom-embedded teacher professional learning on teacher efficacy and related student achievement. *Teaching and Teacher Education*, 26(8), 1598-1608.

Bruce, C. & Ross, J. (2009). *Conditions for effective use of interactive on-line learning objects: The case of a fractions computer-based learning sequence*. Electronic Journal of Mathematics and Technology [online serial] 3(1). Available <http://www.radford.edu/ejmt>

Ross, J. & Bruce, C. (2009). Student achievement effects of technology supported remediation of understanding of fractions. *International Journal of Mathematics Education in Science and Technology*.

Ross, J. Sibbald, T. & Bruce, C. (2009). Using a technology-based learning tool to differentiate instruction: Factors influencing student assignment to multi-media learning objects in mathematics. *Journal of Computer Assisted Learning* 25, 562-573.

Bruce, C. D. & Ross, J. A. (2008). A model for increasing reform implementation and teacher efficacy: Teacher peer coaching in grade 3 and 6 mathematics. *Canadian Journal of Education*, 31(2), 346-370.

Ross, J.A., Ford, J. & Bruce, C. (2008). Needs assessment for the development of learning objects. *Alberta Journal of Educational Research* 53(4).

Ross, J.A., & Bruce, C. (2007). Professional development effects on teacher efficacy: Results of a randomized experiment. *Journal of Educational Research*, 101(1), 50-60.

- Bruce, C. (2007). Questions arising about emergence, data collection and its interaction with analysis in a grounded theory study. *International Journal of Qualitative Methods*, 6(1). Available: http://www.ualberta.ca/~iiqm/backissues/6_1/bruce.pdf
- Bruce, C. (2007). Student interaction in the math classroom: Stealing ideas or building understanding? *Research into Practice: Ontario Association of Deans of Education. Research Monograph # 1 (premier edition)*, 1-4.
- Ross, J.A., & Bruce, C. (2007). Teacher self-assessment: A mechanism for facilitating professional growth. *Teaching and Teacher Education* 23(2), 146-159.
- Ross, J. A., Bruce, C., & Hogaboam-Gray, A. (2006). The impact of a professional development program on student achievement in grade 6 mathematics. *Journal of Mathematics Teacher Education*, 9, 551-577.
- Ross, J.A., Hogaboam-Gray, A., McDougall, D., & Bruce, C. (2002). The contribution of technology to the implementation of mathematics education reform: Case studies of grade 1-3 teachers. *Journal of Educational Computing Research*, 26(1), 123-140.

Articles accepted in refereed journals

- Bruce, C. & Flynn, T. (accepted). Which is greater: One half or two fourths? An examination of how two Grade 1 students negotiate meaning, (Canadian Journal for Studies in Science, Mathematics and Technology Education)
- Ross, J., Scott, G. & Bruce, C. (accepted). The gender confidence gap in junior high school mathematics: Gender differences in student belief-achievement relationships. (School Science and Mathematics)
- Ross, J., Bruce, C., & Sibbald, T. (accepted). Sequencing Computer-Assisted Learning of Transformations of Trigonometric Functions. *Teaching Mathematics and Its Applications*, Oxford Press.

Articles Submitted

- Bruce, C., Flynn, T., & Peterson, S. (accepted with revisions). Examining the impact of participant roles on collaborative action research: a cross-case analysis, (*Educational Action Research*)
- Bruce, C. & Flynn, T., (submitted November 2010) Using Design Research to Test and Enrich a Lesson Study Model: A close examination of the complexities and outcomes of the lesson study cycle. *Journal of Learning Sciences*.

Bruce, C., Moher, L., & Flynn, T. (submitted March 2011) Reasoning Algebraically with Young Children. *Teaching Children Mathematics focus issue on early Algebra* (NCTM)

Professional Journals

Theoretical Framework Referenced in professional journal

Bruce, C. & Ladky, M. & Flynn, T., (2010). Lesson Study theoretical framework. In Professionally Speaking. Can be accessed at:
http://professionallyspeaking.oct.ca/publications/professionally_speaking/march_2010/features/lesson_study/

Bruce, C. & Ross, J. (2010). Collaborative Inquiry and Learning in Mathematics: Year 1 research review, *Inspire Series: Professional On-line Publication of the Literacy and Numeracy Secretariat*.

Articles in development

Ross, J. & Bruce, C. (in review, rejected; requires major revisions). Quantitative inquiry into collaborative action research: Measuring teacher benefits. (*Evaluation and Program Planning*, withdrawn in September from *Professional Development in Education*)

Bruce, C. (in preparation for April 1 deadline, 2011). The Uses and Effects of Interactive Whiteboard Technology in Mathematics Classrooms. Target: *What works: Research into practice monograph*

Books in Development

Beatty, R. & Bruce, C. (prospectus accepted, letter of intent completed, text in Development June 2010; projected completion data of October 2011). *Patterning and Algebra: Connecting Multiple Representations of Linear Relationships*. Toronto: Nelson Publications, Canada.

Bruce, C. in collaboration with ETFO. (4 chapters submitted). *Collaborative Action Research: Teachers Learning Together: A professional guidebook*. (commissioned writing)

Chapters in Refereed Books

Bruce, C. & Ladky, M. (2011). What's going on backstage? Revealing the work of lesson study. In Hart, L., Alston, A., & Murata, A. (Eds.), *Learning Together: Lesson-study research and practice in mathematics education*. Springer Press.

Beatty, R. & Bruce, C. (2011). Assessing a research/professional development model in patterning and algebra. In Bednarz, N., Fiorentini, D. & Huang, R. (Eds.), *International Approaches to Professional Development for Mathematics Teachers*. University of Ottawa Press.

Bruce, C. (2003). Multiage Author Groups: One way to untangle the revision knot. In S. Peterson (Ed.), *Untangling Some Knots in K-8 Writing* (pp. 27-39). Newark, DE: International Reading Association.

Chapters Submitted

Bruce, C., Theis, L & Lessard, G. (submitted September, 2010). Teaching mathematics to special needs students: Who is at risk?, In P. Lilledaj (Ed.), *Canadian Mathematics Educators Study Group Annual Conference Proceedings*.

Bruce, C. (submitted October 2010). The relationship between collaborative action research and leadership. In Collaborative Action Research: Effects of teacher-directed research in Ontario schools. *Elementary Teachers' Federation of Ontario Press*: Toronto.

Refereed Articles in Peer Reviewed Conference Proceedings

Beatty, R. & Bruce, C. (2008). Assessing a research/pd model in patterning and algebra. *Proceedings of the 11th International Congress on Mathematical Education*, Monterrey, Mexico.

Bruce, C. & Ross, J.A. (2007). Tools to support low achievers: A mixed methods study of students learning fractions. In Lamberg, T. (Ed.) *Proceedings of the twenty-ninth Psychology of Mathematics Association-North America*. (October)

Bruce, C. & Ross, J.A. (2006). Teacher peer coaching in grade 3-6 mathematics. In Alatorre, S., Cortina, J.L., Saiz, M., Mendez, A. (Eds.) *Proceedings of the twenty-eighth Psychology of Mathematics Association-North America*.

Bruce, C. (2005). Teacher candidate efficacy in mathematics: Factors that facilitate increased efficacy. In Lloyd, G.A., Wilson, S., Wilkins, J.L.M. & Behm, S.L. (Eds.) *Proceedings of the twenty-seventh Psychology of Mathematics Association-North America*.

Ross, J.A. & Bruce, C. (2005). Teachers' beliefs in their instructional capacity. In Lloyd, G.A., Wilson, S., Wilkins, J.L.M. & Behm, S.L. (Eds.) *Proceedings of the twenty-seventh Psychology of Mathematics Association-North America*.

Bruce, C. (2004). Building confidence in teaching mathematics: Experiences of pre-service teachers that hinder and enable confidence. In McDougall, D. & Ross, J.A. (Eds.) *Proceedings of the twenty-sixth Psychology of Mathematics Association-North America*.

Ross, J. A., McDougall, D., Bruce, C., Ben Jaafar, S., & Lee, J. (2004). A multi-dimensional approach to mathematics in-service. In McDougall, D. & Ross, J.A. (Eds.) *Proceedings of the twenty-sixth Psychology of Mathematics Association-North America*.

Invitational Addresses

Bruce, C. (March, 2011). SIG Research presentation on Technology-based Mathematics Learning, Institute of Education, University of London, UK.

Bruce, C. (December, 2010). Mathematics Educational Research in Ontario, Association of Educational Researchers of Ontario. Keynote Speaker, Toronto, ON.

Bruce, C. (October, 2010). Ontario Research Panel on Mathematics Professional Learning. Ministry of Education, Toronto, ON. (1 of 8 Ontario researchers selected)

Bruce, C. (May, 2010). Expert Panel Member. The Learning Consortium, University of Toronto, Toronto, ON. (1 of 3 Canadian researchers selected)

Bruce, C. (May, 2010). Keynote Address. MISA. Collaborative Research Partnerships. (evening keynote to kick off provincial education research conference), Kingston, ON.

Bruce, C. (February, 2010). Keynote Address, Ontario Education Research Symposium. Classroom-embedded inquiry. *Ministry of Education of Ontario*. (Full day keynote presentation with Dr. Ben Levin from the University of Toronto), Toronto, ON.

Additional Invited Research Presentations at OERS: Bruce, C. (February, 2010)

- Bruce, C. & Ross, J., Quantitative and Qualitative Results of the Teachers Learning Together Project: Mathematics
- Ross, J. & Bruce, C., Student and Teacher Benefits of District Level Professional Learning
- Bruce, C. & Ross, J., Research on Reshaping Notions of Professional Development within Large-Scale Elementary School Reform

Bruce, C. (November, 2009). Teachers Learning Together: Lessons learned about collaborative action research in mathematics. *Elementary Teachers' Federation of Ontario*, Provincial Research Symposium, Toronto, ON.

- Bruce, C. & Mackenzie, J. (March and June, 2009). Keynote: Co-planning and Co-teaching in Mathematics. *Simcoe Muskoka Catholic District School Board*, Barrie: ON.
- Bruce, C. & Beatty, R. (January, 2009). Keynote Speaker: Building Research and Teaching Partnerships. *Ontario Mathematics Coordinators Association*. Ingersoll, ON.
- Bruce, C. (January, 2009). Invited Fellowship Lecture. Effective Uses of Interactive Whiteboards in Mathematics Teaching and Learning. *Queen's University*, Kingston, ON.
- Bruce, C. (November, 2008). Bridging Research and Practice through Collaborative Projects. Research presentation, *Fields Math Institute*, University of Toronto.
- Bruce, C. & Ross, J. (February, 2008). Math and Literacy: Growing Accessible, Interactive, Networked Supports (GAINS) Regional Pilot – A research study on fractions learning objects. *Ontario Education Research Panel – Ontario Research Symposium*, Toronto.
- Dawson, R., Bruce, C., Kingston, T. & McFarland, N. (February, 2008). Teachers Learning Together: A Collaborative Action Research Endeavour. *Ontario Education Research Panel – Ontario Research Symposium*, Toronto.
- Bruce, C. (January, 2008). Lesson study as a form of teacher professional development in mathematics teaching with SMARTBoards. Research presentation, *Fields Math Institute*, University of Toronto.
- Bruce, C. & Beatty, R. (2007). Coaching for student success in Mathematics. Webcast: *Ontario Secretariat for Literacy and Numeracy*, available at: <http://www.curriculum.org/secretariat/june28.html>
- Bruce, C. (2006). Efficacy shifts of teacher candidates learning to teach mathematics. In Liljedahl, P. (Ed). *Proceedings of the Canadian Mathematics Educators Study Group, 2006*.

Refereed Conference Papers and Presentations

- Bruce, C. (2011). Bridging Research-Practice Gaps through Collaborative Action Research: Understanding Early Algebra Concepts, British Society for Research opmt Learning Mathematics, Institute of Education, University of London, UK.
- Bruce, C. & Flynn, T. (2011). Bridging Research-Practice Gaps through Collaborative Action Research: Understanding Early Algebra Concepts. *British Society for*

- Research into Mathematics Learning: One Day Conference*, Institute of Education: University of London, England.
- Bruce, C., McPherson, R., & Sobatti, M. (2011). Significant teaching and learning moments using interactive whiteboards in mathematics. *Geogebra Conference*, Toronto, ON.
- Bruce, C. & Flynn, T. (2011). Digital Video Data Collection and Analysis Procedures that Engage Practitioners in Meaningful Research. *American Education Research Association*, New Orleans, Louisiana.
- Ross, J. & Bruce, C. (2011). The gender confidence gap in junior high school mathematics: Gender differences in student belief-achievement relationships. *American Education Research Association*, New Orleans, Louisiana.
- Bruce, C. & Ross, J. (2011). Developing Instructional Capacity through Research Partnerships. *American Education Research Association*, New Orleans, Louisiana.
- Bruce, C., Flynn, T & Moher, L. (2011). Collaborative Action Research as an Effective Model for Professional Development in Mathematics: Exploring Early Algebra Concepts. Fields Mathematics Institute Annual Research Day, University of Toronto.
- Bruce, C. (2010). Symposium Chair: Design research as a framework for examining effects of Lesson Study: Uncovering contributions across case studies. (4 papers in total) *American Education Research Association*, Denver, CA. Papers include:
- Bruce, C. & Ladky, M. -Using design research to test and enrich a Lesson Study model: A close examination of the complexities of the lesson study cycle
 - Flynn, T. & Bruce, C. - Examining the dynamic nature of one school's engagement with Lesson Study: The value of a design research approach for uncovering the dependent variables
- Discussants: Alan Collins & Catherine Lewis
- Bruce, C., Ross, J., Emengou, B., Ali, S. (2010). Results of the external review for an Ontario Mathematics professional development program (CIL-M). *Canadian Society of Studies in Education*, Montreal, QU.
- Ross, J. & Bruce, C. (2010). Teacher benefits of collaborative action research: Results of a quantitative inquiry. American Evaluation Association: Evaluation 2010, Texas.
- Bruce, C., Ladky, M., & Flynn, T. (2009). Interactive whiteboard use in math classrooms: Grounding theory in practice. *National Council for Teachers of Mathematics*, Research pre-session. Washington, DC.

- Dawson, R., Bennett, J. & Bruce, C. (2009). Teachers learning together: Action research to promote professional growth in elementary teachers. *American Educational Research Association, Annual Conference, San Diego, CA.*
- Bruce, C. (2009). Chair of Symposium: Crossing borders: Examining the nature and effects of Japanese Lesson Study in Canadian school contexts. *Canadian Society of Studies in Education, Ottawa, ON.* Papers include:
- Ladky, M., Bruce, C. & Flynn, T. (2009). Uncovering the backstage work of teachers in a close examination of the Lesson Study cycle. Ottawa, ON.
 - Flynn, T., Hedges, H. & Bruce, C. (2009) The ripple effect of mathematics Lesson Study – one school story. Ottawa, ON.
- Ross, J. & Bruce, C. (2009). Student achievement effects of technology-supported remediation of understanding of fractions. *Canadian Society of Studies in Education, Ottawa, ON.*
- Bruce, C. & Ross, J. (2009). The conditions for effective use of online learning objects – a close look at a computer-based fractions sequence. *Canadian Society of Studies in Education, Ottawa, ON.*
- Sibbald, T., Ross, J. & Bruce, C. (2009). Characteristics of students assigned to technology: Within-teacher analysis. *Canadian Society of Studies in Education, Ottawa, ON.*
- Bruce, C. & Beatty, R. (2008). Effects of a research/professional development model on teacher learning. *National Council of Teachers of Mathematics, Research Pre-session, Salt Lake City, Utah.*
- Beatty, R. & Bruce, C. (2008). Evaluating a research/professional development model through student outcomes. *American Educational Research Association, Annual Conference, New York.*
- Bruce, C. (April, 2007). Enhancing the dynamics of focus group interviews: Images and stories of aspiring math teachers. *American Educational Research Association, Annual Conference, Chicago.*
- Bruce, C. (April, 2007). Efficacy shifts of preservice teachers learning to teach mathematics. *American Educational Research Association, Annual Conference, Chicago.*
- Ross, J.A. & Bruce, C. (April, 2007). Effects of professional development on teacher efficacy: Results of a randomized field trial. *American Educational Research Association, Annual Conference, Chicago.*

Bruce, C. (2006). Constructivist grounded theory: Questions arising about data collection and its interaction with analysis. *American Educational Research Association, Annual Conference*, San Francisco.

Ross, J.A., & Bruce, C. (2006) Student achievement effects of teacher professional development in grade 6 mathematics: A randomized field trial, *American Educational Research Association, Annual Conference*, San Francisco.

Bruce, C., & Ross, J.A. (2005). Teacher self assessment: A mechanism for facilitating professional growth. *American Educational Research Association, Annual Conference*, Montreal.

Bruce, C. (2004). Themes from the inside: Tensions and negotiations of power in building a community of practice as a new school of education. Paper presented at the *Canadian Society for the Study of Education, Annual Conference*, Winnipeg.

Technical Reports

Bruce, C., Ross, J. & Flynn, T. (2010). Report on Collaborative Action Research Provincial Project: Year 3. Submitted to the Elementary Teachers' Federation of Ontario. Toronto.

Bruce, C. & Ross, J. (2010). Report for External Review of the Collaborative Inquiry and Learning-Mathematics Project: Year 2. Submitted to the Literacy and Numeracy Secretariat. Toronto.

Bruce, C. & Ross, J. (2010). Report on the field tests of CLIPS: Trigonometry and Algebra. Submitted to the Ministry of Education, Ontario, Toronto.

Bruce, C. & Flynn, T. (2010). Collaborative Action Research in Mathematics: A three-year partnership project with the Elementary Teachers' Federation of Ontario. Submitted to the Elementary Teachers' Federation of Ontario, Toronto.

Bruce, C. & Ross, J. (2009). Report for External Review of the Collaborative Inquiry and Learning-Mathematics Project. Submitted to the Literacy and Numeracy Secretariat. Toronto.

Bruce, C. & Flynn, T. (2009). Collaborative Action Research in Mathematics: A partnership project with the Elementary Teachers' Federation of Ontario. Submitted to the Elementary Teachers' Federation of Ontario, Toronto.

Bruce, C. & Mackenzie, J. (2008). Collaborative Action Research: A model for teacher professional development. Submitted to the Elementary Teachers' Federation of Ontario. Toronto.

- Bruce, C., Ladky, M., Ross, J.A., Mackenzie, J. & Flynn, T. (2008). Building Capacity in Technology Use through Research in Lesson Study - A Partnership Project with KPRDSB, Trent University, the University of Toronto, and the Ontario Ministry of Education. Submitted to the Ministry of Education.
- Bruce, C., Ross, J.A., Flynn, T. & Scoffin, S. (2008). Building Teacher Capacity and Improving Student Achievement through Differentiated Instruction: A Partnership Project with PVNCCDSNB, Trent University, the University of Toronto, and the Ontario Ministry of Education. Submitted to the Ministry of Education.
- Ross, J.A., Bruce, C., Scoffin, S. & Sibbald, T. (2008). Connecting practice and research: CLIPS project final report to the Ontario Ministry of Education, Peterborough, ON: Trent U/OISE of UT
- Bruce, C. Ross, J.A. & Scoffin, S. (2007). Tools to support low achievers: A mixed methods study of students learning fractions. Interim Report of Ontario Ministry of Education & Training Research Grant, Peterborough, ON: Trent U/OISE of UT
- Bruce, C., Ross, J.A. & Scoffin, S. (2006). Effects of peer coaching and professional development in mathematics literacy: One school story, Kawartha Pine Ridge District School Board. Peterborough, ON: Trent University.
- Ross, J.A., Bruce, C., Scoffin, S. (2005, November). *Peer coaching in grade 3-6 mathematics: effects on teacher practice and teacher efficacy. Year 2*. Final Report of Ontario Ministry of Education & Training Transfer Grant. Peterborough, ON: OISE/UT Trent Valley.
- Ross, J.A., Hogaboam-Gray, A., & Bruce, C. (2004, December). Student achievement effects of professional development for grade 6 mathematics teachers in the Kawartha Pine Ridge District School Board. Peterborough, ON: OISE/UT Trent Valley.

Other Published Documents

- Bruce, C., Leak, S. & Mackenzie, J. (2003, Fall). *Water, water everywhere & Boards and wheels; Mathematics assessment units*. (Kawartha Pine Ridge District School Board, Peterborough, Ontario)
- Bruce, C. & Mackenzie, J. (2002). Online Course Manual: Assessment, Evaluation and Reporting: Additional Qualifications Course. Elementary Teacher's Federation of Ontario. Toronto, Canada.
- Bruce, C. & Mackenzie, J. (2001). Assessment, Evaluation and Reporting: Additional Qualifications Course. ETFO. Toronto, ON.

Non-refereed Conferences

Bruce, C. (2011). Effects of CLIPS on student learning of challenging mathematics concepts. Ontario Association of Mathematics Educators, University of Windsor, Ontario Canada.

Bruce, C. (2004). *Identity shaping in a new professional teaching program*. Paper presented at Trent University Identities Conference, Peterborough, Canada.

DIGITAL KNOWLEDGE MOBILIZATION:

i. Digital Research Papers: Housed at: www.tmerc.ca/digitalpapers/

A series of interactive research papers, that include video excerpts, transcripts, theoretical diagrams of research activity, findings, and full research reports.

ii. Website Development: www.tmerc.ca

A comprehensive website to disseminate research information on a variety of mathematics education topics including Effective uses of Interactive Whiteboards.

RESEARCH PROJECTS AND RELATED FUNDING:

Current Applications

- Knowledge Creation and Mobilization in Mathematics Education Research: The use of digital video analysis and dynamic digital research papers to foster and share best practices

(SSHRC Innovation Development Grant, 2-year funding)

- Knowledge Creation and Mobilization in Mathematics Education Research: The use of digital video analysis to foster and share best practices

(KNAER parallel funding)

- Building Individual and Collective Capacity through Collaborative Action Research: Teacher-Researcher Networking to Investigate Kindergarten-Grade 3 Instructional Trajectories in Mathematics

(KNAER funding)

- Effective Integration of Online Learning Objects with Classroom Instruction: Best practices for supporting struggling learners through differentiated instruction with technological support

(KNAER funding)

Current Funding

2008-2012

- The development of preservice and in-service teacher efficacy: A model of professional support for sustained mathematics reform implementation: A mixed methods study (SSHRC funding)

2008-2011

- Collaborative Inquiry and Learning in Mathematics: External review (Mixed methods study in Ontario District School Boards; Literacy and Numeracy Secretariat Ontario funding, Principal investigator)

2009-2011

- CLIPS and GAPS The Effectiveness of Algebra and Trigonometry Online Learning Objects on Student Achievement and Affect (Mixed methods study with four district school boards; Lead for qualitative research component: Bruce (\$130,125.00); Joint project with Trent U, UofT, and the Ministry of Education funding: Bruce: Principal Investigator)

2008-2011

- Teachers Learning Together: Collaborative Action Research in Mathematics (Mixed methods study in Ontario District School Boards; Elementary Teachers Federation of Ontario funding, Principal investigator)

2008-2009

- Math GAINS research initiatives and partnerships (Mixed methods study in Ontario District School Boards; Ministry of Education funding: Bruce & Ross, Co-investigator)

2007-2008

- Building Teacher Capacity and Improving Student Achievement in Grades 7-9 Mathematics (PVNCCDSB funding: Bruce, \$30,000; Ministry of Education funding, Lead investigator)

2007-2008

- Building Capacity in Technology Use Through Research in Lesson Study (Ministry of Education funding, Lead investigator)

2007-2008

- Teacher driven action research: Teachers learning together (Mixed methods study in Ontario District School Boards; Elementary Teachers Federation of Ontario funding: Bruce, Lead investigator)

2006-2008

- The Use of CLIPS and Content Specific Professional Development: Impacts on student achievement: (Mixed methods study in Kawartha Pine Ridge District School Board; Lead for qualitative research component: Bruce (\$10,000); Joint project with Trent U, UofT, KPRDSB, Ministry of Education funding: J. Ross; Bruce: Co-Investigator)

2006-2007

- Algebra teacher professional development project: Impacts on teacher efficacy and student achievement: (Mixed methods study in Niagara District School Board (Joint project with Trent U, UofT, DSBN: Canadian Council for Learning funding: J. Moss, Bruce: Co-Investigator)

2006

- The development of preservice and in-service teacher efficacy: A model of professional support for sustained mathematics reform implementation: Mixed methods study (SSHRC funding: application, recommended for funding: placed on alternate list: No funding received)

2005-2006

- Collective and Teacher Efficacy Study in Mathematics: Qualitative study in one elementary school (Joint project funded by KPRDSB, Trent U, UofT)

2003-2006

- Preservice Teacher Efficacy Study in Mathematics Qualitative study of teacher candidate confidence teaching Mathematics (Funded through UofT guaranteed funding, Internal SSHRC Grant Trent University)

2005

- Trent University Academic Innovation Fund: Assignment Collaboration For Cross course assignment development, implementation and evaluation in the University setting (Trent University: Bruce & F. White)

2003-2005

- Narrative Inquiry of teacher candidates and negotiation of identity during the start up of the new School of Education and Professional Learning (Bruce, self funded)

2003-2005

- OISE/UT and KPRDSB joint research project in Mathematics: Grades 3 and 6 (Individual funding: J. Ross)

2002-2003

- Case studies in Peer Coaching; Researcher Self-Assessment and Critical Friend strategies for Professional Growth in Mathematics; Intermediate & Secondary (Ministry of Education Transfer Grant funding - Group: J. Ross & D. McDougall)

2001-2003

- School Based Action Research team member; Chair and lead researcher on Reading Reasoning including video documentation (Ministry of Education independent project funding)

1998- 2000

- Case Studies in Mathematics Teaching; 3 cases of Primary teachers
(Ministry of Education Transfer Grant funding - Group: J. Ross & L. Hannay)

RESEARCH RELATED SERVICE:

Research Mentorship:

Full time Research Assistant: Tara Flynn, 2008-present
Full time Research Assistant: Rich McPherson, 2009-present
Part time Research Assistant: Genevieve Lessard, 2010-2011

Doctoral Thesis Committee Member:

University of Toronto, Candidate: Diane Typelo, 2010-2011

External Reviewer for SSHRC

Standard Research Grants, 2011

External Reviewer for Masters Theses:

Nipissing University, Andrew Morrison, 2011
Nipissing University, Candidate: Jeffrey Cole, 2010
Nipissing University, Candidate: Shelley Yearley, 2009

Reviewer for Journals:

Canadian Journal of Mathematics, Science and Technology Education, 2010 & 2011
Alberta Journal of Educational Research, 2010
American Education Research Journal, 2009
Journal for Mathematics Education in Science and Technology, 2009
Teaching and Teacher Education, 2006-present
International Journal of Qualitative Methods, 2007-present
What Works: Research into Practice, 2008

Reviewer for Research Conference Paper Proposals:

American Educational Researchers Association, New York, 2007
American Educational Researchers Association, Chicago, 2006
American Educational Researchers Association, San Francisco, 2005

Psychology of Mathematics Educators – North America, 2009
Psychology of Mathematics Educators – North America, 2007
Psychology of Mathematics Educators – North America, 2006
Psychology of Mathematics Educators –North America, 2005
Psychology of Mathematics Educators –North America, 2004

National Council for Teachers of Mathematics Research Pre-session, Washington, 2008
National Council for Teachers of Mathematics Research Pre-session, Utah, 2007

Invited Discussant:

Psychology of Mathematics Educators – North America, 2007

Psychology of Mathematics Educators – North America, 2006

Invited Discussant for Senior Administration of PVNCCDSB on Mathematics Research, 2007

External Advisor:

Provincial Steering Committee for Mathematics Education 2010-2011

Kawartha Pine Ridge Research Advisory Committee 2007-present

Math GAINS Ontario Research Steering Committee 2007-present

External Reviewer:

District-level Research and Assessment Initiative 2009
Kawartha Pine Ridge District School Board
Mathematics K-8

Education Practitioner Conference Presentations:

CLIPS Online Learning Opportunities 2011
Ontario Association of Mathematics Educators
Windsor, ON

Examining Lesson Study through Artifacts 2008
Ministry of Education: GAINS conference
Toronto, ON

LIVE Lesson Study Broadcast 2008
Ministry of Education: GAINS conference
Toronto, ON

Making Effective Decisions: Linking Instructional Strategies to Student Demonstrated Understanding 2008
Ministry of Education: GAINS conference
Toronto, ON

Teacher-driven Action Research: Results 2007
Elementary Teachers' Federation of Ontario
Mississauga, ON

Tackling Probability: Grades 4-8 2007
Professional Event
Trent University, ON

Co-planning: A Focus on Student-Directed Learning 2007
Professional Event
Trent University, ON

<i>Threading Through Algebra: Grades 1-12</i> Preservice Math Program University of Western Ontario, ON	2006
<i>Data Driven Decision Making</i> Principal's Course Queen's University, ON	2006
<i>Mathematical Discourse</i> Ontario Association of Mathematics Educators York University, ON	2005
<i>Building a Mathematics Community</i> Ontario Association of Mathematics Educators University of Waterloo, ON	2004
<i>Mathematics Communication</i> 4 part series related to teaching efficacy Kawartha Pine Ridge DSB, Peterborough, ON	2003-04
<i>Reflective Practice: A personal professional stance</i> Partners in Practice Trent University, ON	2003
<i>Assessment Practices in 7-12 Mathematics</i> Special Presentation OISE of the University of Toronto, ON	2003
<i>Action Research in the School Setting</i> Ontario Educational Research Conference Toronto, ON	2003
<i>Mathematics Communication in the Intermediate Grades</i> ETFO Intermediate Literacy Series Clarke, ON	2003

Memberships (current):

- American Educational Research Association
- Psychology of Mathematics Education – North America
- Canadian Society for the Study of Education
- Canadian Mathematics Educators Study Group
- National Council of Teachers of Mathematics
- Fields Mathematics Institute, University of Toronto

TEACHING

B. ED. TEACHING: Trent University

Primary Junior Mathematics methods course 2003-present
EDUC 4561H

Responsibilities:

- Coordinator, Designer, and Lecturer: 9 sections, 5 instructors

Creating a Positive Learning Environment foundations course 2003-2005, 2010-11
EDUC 4121H, 4221H (elementary)

Responsibilities:

- Coordinator, Co-designer, and Lecturer: 8 sections, 5 instructors

Issues in Planning, Assessment and Evaluation 2007-present
EDUC 4223H (secondary)

Responsibilities:

- Coordinator, designer, and Lecturer: 4 sections, 3 instructors

B.Ed. Practicum Supervision: Trent University

Practicum course (elementary) 2003-2005, 2009-10

Responsibilities:

- Co-designer; Faculty Advisor; supporting 13 students in a cohort with intensive advising throughout the program

Readers-at-Risk (secondary) 2003-2004

Responsibilities:

Faculty Advisor; supporting 16 students in a cohort with intensive advising

- Supervision throughout the reading tutorship of special needs students and coursework

OTHER Post Secondary Course Development:

Primary Junior Mathematics Additional Qualifications Course 2007

Responsibilities:

- Co-designer of course; both face-to-face and online modules
- Initial accreditation materials

Assessment and Evaluation Additional Qualifications Course 2001-2004
Elementary Teachers' Federation of Ontario

Responsibilities:

- Co-designer of course; both face-to-face and online modules
- Initial Ontario training team member

- Course instructor (4 modules online and 4 face-to-face modules) with Bluewater District School Board

University Course Development:

Course framework coordinator (team of 21), Trent University 2003

Responsibilities:

- Co-designer of the course framework template for all courses in the Bachelor of Education program at the School of Education and Professional Learning
- Coordinator of 7 course framework writers for individual courses
 - P/J and I/S Mathematics
 - P/J and I/S Creating a Positive Learning Environment
 - P/J Health and Physical Education
 - P/J Science and Technology
 - History, Educational Law, and Professional Conduct

Course development, Trent University 2003-2005

- EDUC 4561H Primary Junior Mathematics methods course (lead developer)
- EDUC 4121H Creating a Positive Learning Environment course (co-developer)
- EDUC 4351J Practicum course (co-developer)

Course development, Trent University 2005-2006

- EDUC 4561H Primary Junior Mathematics methods course (lead developer)
- EDUC 4351J Practicum course (regular consultation)

Online course module development, Trent University 2003-present

Primary/Junior Mathematics Methods course EDUC 4561H

Responsibilities:

- Designer of the online learning modules with funding support from Ministry of Education grant (D. Berrill: \$160,000) (18 hours of online learning/course)

Creating a Positive Learning Environment course EDUC 4121H 2004

Responsibilities:

- Co-designer of the online learning modules with funding support from Ministry of Education grant (D. Berrill: \$160,000) (18 hours of online learning/course)

SERVICE

Trent Wide Committee Work:

Undergraduate Program Review Committee 2010-2011

COAP 2008-2010

School of Education and Professional Learning:

Program Committee (Faculty Council)

Member 2003-present
Chair 2005-2007

Personnel Committee

Member (for over 25 successful candidates)
(Including 3 successful tenure track hires) 2004-present

Bachelor of Education Committee

Member 2003-2005, 2008-2011
Chair 2009-2011
Undergraduate Program Review Subcommittee Chair 2009-2011

Graduate Program Committee

Member 2004-present

Director Search Committee

Member 2006-2008

Primary Junior Curriculum Faculty Committee

Chair 2004-2006

Timetable Committee

Chair 2003-2006
2004-2006

Strategic Planning Committee

Member 2003-2006

Practicum Advisory Steering Committee

Member 2004-2005

RELATED ACADEMIC AND PROFESSIONAL CONTRIBUTIONS

Trent University:

- **Presenter and Guest Lecturer** for large group sessions (includes Lesson planning, Large scale and classroom based assessment practices, Reading reasoning methods for readers at-risk, Teacher identity formation, Co-planning, Range of math topics) (ongoing)
- **Lead and Coordinator of ‘Reading Day’** for the admissions of applicants to the School of Education and Professional Learning (2006 and 2008)

- **Lead Trainer of ‘Reading Day’** for the admissions of applicants to the School of Education and Professional Learning (2007)
- **Developer** of assessment tools used by faculty for all candidates (includes portfolio rubric in conjunction with Dr. Berrill, Readers-at-Risk Tutor Binder rubric in conjunction with Jennifer Sampson) (2002-2006)
- Actively seeking connections to faculty in other programs through **sharing of research** and Teaching Conversations (Instructional Development Centre) (ongoing). Presentation on Cross-course assignments and marking based on Academic Innovation Fund project (October 2006).
- **Purchase Consultant** for Bata Library materials at start up of program, Trent University (2002-2003)
 - Mathematics manipulatives kits and related support materials
 - Fiction and non-fiction books for P/J candidates

Jamaican Self-Help:

- **Research Consultant** for three year JSH project in 3 Jamaican schools (2009-2011)
 - Mixed methods study design
 - Training of research assistants
 - Report writing for JSH on findings from the study
 - Visits to Kingston for data collection and community outreach

Kawartha Pine Ridge DSB and PVNCC DSB:

Research support to the district school board including:

- **Lead for Lesson Study:** Team of 4 schools and administrators working with Trent University, University of Toronto, and KPRDSB for a research project / Expanding to a second year for 2008-09
- **Lead for PRIME Training initiative:** Two year project of PRIME training to build capacity in the DSB teachers of mathematics, working with Trent University, University of Toronto, and PVNCCDSB to conduct mixed methods research
- **Lead for Researcher Observation Training:** Team of 5 observers for Grade 3 mathematics peer evaluation project (2004-2005)
- **Lead for Proxy Assessment Writing** Team for OISE/UT and KPRDSB joint research initiative; Grade 6 focus (2003-2004)

- **Lead for Moderated Scoring Team** (team of 36) for OISE/UT, Trent University, and KPRDSB (2004)

- **Coordinator** for District wide development of:
 - Integrated Assessments for Grades 4 and 7
 - Mathematics Assessments for Grades 3, 5, 6, and 8
 - Annual plans for Improvement for the district
 - Portfolio Interview Model used for positions of added responsibility