Marie-Claire Shanahan

Associate Professor, Science Education
Werklund School of Education, University of Calgary
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EDUCATION

2007 Doctor of Philosophy, Science Education
Dissertation: *Playing the role of a science student: Exploring factors and patterns in science student identity formation*
University of Toronto (OISE/UT)

2003 Master of Arts, Science Education
Thesis: *Creative activities and their influence on identity formation in science*
University of Toronto (OISE/UT)

2000 Bachelor of Education
Physics and Mathematics Education (Intermediate/Senior)
Queen's University at Kingston, Ontario

1999 Bachelor of Science (Mechanical Engineering)
Honours thesis: *Oriented polymers and applications to bicycle helmet design*
Queen's University at Kingston, Ontario

ACADEMIC APPOINTMENTS

2015-ongoing Associate Professor, Science Education,
Werklund School of Education, University of Calgary

2013-2015 Research Chair in Science Education and Public Engagement, Associate Professor
Werklund School of Education, University of Calgary

2013-ongoing Adjunct Associate Professor
Department of Secondary Education, University of Alberta

2012-2013 Associate Professor, Science Education
Department of Secondary Education, University of Alberta

2011-2012 Associate Professor, Science Education
Department of Elementary Education, University of Alberta

2007- 2011 Assistant Professor, Science Education
Department of Elementary Education, University of Alberta

ADDITONAL TRAINING AND FELLOWSHIPS

2008 AERA-Hechinger Course on Public Communication
Hechinger Institute on Education and the Media

AWARDS

2012 Finalist for the American Association for the Advancement of Science Early Career Award for Public Engagement with Science

2010 International Committee Early Career Scholar
National Association for Research in Science Teaching

2007 Outstanding Graduate Research Award
American Educational Research Association - Science, Teaching and Learning Special Interest Group

RESEARCH FUNDING

2015 Project title: Promoting More Authentic Views of Science and Scientific Identity through Creativity
Funded by: The Advance Microbiology Laboratory of the Michael Smith Laboratory, University of British Columbia
$10,000

2013 Project title: ISSET Outreach and Space Academy
Funded by: Natural Science and Engineering Research Council – PromoScience, $39,900

2012-2013 Project title: Examining strategies to increase pre-service teachers' openness to online media
Funded by: Department of Secondary Education, Teacher Education Research Grants, $21,584

2011-2012 Project title: Future Science Leaders: Challenging identities through online and in-person interactions with peers and mentors (Principal Investigator)
Funded by: Faculty of Education Support for the Advancement of Scholarship, $6,000

2009-2013 Project title: Creating science through discourse: Exploring the use of language to establish the social structure of the science classroom (Principal Investigator)
Funded by: Social Sciences and Humanities Research Council, $105,305

2009-2010 Project title: Reading scientific text: Exploring readers' encountered difficulties and enacted strategies (Principal Investigator)
Funded by: Natural Sciences and Engineering Research Council - Centre for Research in Youth, Science, Teaching and Learning (CRYSTAL-Alberta), $24,760

2008-2009 Project title: Teaching and Learning Scientific Language though Hybrid Adapted Primary Literature (Principal Investigator)
Funded by: Natural Sciences and Engineering Research Council - Centre for Research in Youth, Science, Teaching and Learning (CRYSTAL-Alberta), $22,064

2008 Project title: Reading for evidence: Creating and pilot testing text resources for Grade 6 students (Principal Investigator)
Funded by: Natural Sciences and Engineering Research Council - Centre for Research in Youth, Science, Teaching and Learning (CRYSTAL-Alberta), $5,550

2007-2009 Project title: Becoming experts: Exploring elementary preservice teachers' identity development as science specialists (Principal Investigator)
Funded by: Faculty of Education Support of the Advancement of Scholarship, $3,000

2007-2008 Project title: Using visualizations to understand the particulate model of matter: Conceptions of Grade 5 children (Co-Investigator with Brenda Gustafson)
Funded by: Natural Sciences and Engineering Research Council - Centre for Research in Youth, Science, Teaching and Learning (CRYSTAL-Alberta), $7,800

PUBLICATIONS

Refereed Contributions – Academic Journals

Shanahan, M.-C. & Burke, L. E. C.-A. (In Press). Studying role and identity co-constructions in science classrooms through student and teacher pronoun use. *SAGE Research Methods Cases.*

Shanahan, M.-C., Burke, L. E. C.-A., & Francis, K. (In Press). Using a boundary object perspective to reconsider the meaning of STEM in a Canadian context. *Canadian Journal of Science, Mathematics and Technology Education.*

Vergis, E., Wimmer, R.**, & Shanahan, M.-C.** (2014). The role of concepts of evidence in the teaching of science. *Alberta Science Education Journal.*

Delos Santos, J., & **Shanahan, M.-C.** (2012). Using online comments to explore public reaction to the oil sands monitoring plan announcement: An argumentation analysis. *Journal of Activist Science Education, 4*(1), 1-42.

Shanahan, M.-C. (2011). Science blogs as boundary layers: Creating and understanding new interactions through science blogging. *Journalism: Theory, Practice and Criticism, 12,* 903–919.

Shanahan, M.-C., & Nieswandt, M. (2011). Science student role: Evidence of social structural norms specific to high school science. *Journal of Research in Science Teaching, 48,* 367–395.

Shanahan, M.-C., Pedretti, E., DeCoito, I., & Baker, L. (2011). Exploring the responses of underrepresented students in science to an elementary outreach program. *School Science and Mathematics, 111,* 131-142.

Gustafson, B. J., & **Shanahan, M.-C.** (2010). Children thinking about models: Analyzing a globe. *Alberta Journal of Educational Research, 56,* 436-458.

Gustafson, B. J., **Shanahan, M.-C.**, & Gentilini, S. (2010). Elementary children's shifting views of models and the nature of matter. *Canadian Journal of Science Mathematics and Technology Education, 10*, 103-122.

Hazari, Z., Sadler, P. M., Sonnert, G., & **Shanahan, M.-C.** (2010). Connecting high school physics experiences, outcome expectations, physics identity, and physics career choice: A gender study. *Journal of Research in Science Teaching, 47,* 978–1003.

Shanahan, M.-C. (2010). Changing the meaning of peer-to-peer?: Exploring online comment spaces as sites of negotiated expertise. *Journal of Science Communication*, *9*(1), 1-13.

Shanahan, M.-C. (2009). Identity in science learning: Exploring the attention given to agency and structure in studies of identity. *Studies in Science Education, 45,* 43-64.

Shanahan, M.-C., de los Santos, J., & Morrow, R. (2009). Hybrid adapted primary literature: A strategy to support students in reading about scientific inquiry. *Alberta Science Education Journal, 40,* 20-26.

Shanahan, M.-C., & Nieswandt, M. (2009). Creative activities and their influence on identity interactions in science: Three case studies. *Journal of Elementary Science Education, 21*(3), 63-79.
Selected by the Association for Science Teacher Education and the National Science Teachers Association (NSTA) Research Committee as one of nine articles highlighted in the 2010 NSTA Recommended Summer Reading list.

Nieswandt, M., & **Shanahan, M.-C.** (2008). "I just want the credit!": Perceived instrumentality as the main characteristic of boys' motivation. *Research in Science Education, 38,* 3-29.

Gustafson, B.J., & **Shanahan, M.-C.** (2007). Supporting inquiry in elementary classrooms: The role of scientific argument. *Alberta Science Education Journal, 38,* 11-16.

Refereed Contributions – Authored Books

Gustafson, B., Pegg, J., & **Shanahan, M.-C.** (2013). *Science for elementary school teachers: Concepts, explanations, and activities.* Victoria, BC: Ripon Publishing.

Refereed Contributions – Book Chapters

Shanahan, M.-C. (2016). When science changes: The impact of widespread digital communications on reaching science education goals. In D. Corrigan, C. Buntting, J. Dillon, A. Jones, R. Gunstone, (Eds.) *The Future in Learning Science: What's in it for the learner?* Berlin: Springer.

Shanahan, M.-C. (2016). Blogging as a resource and site for science education. C. Wilcox, J. G. Goldman & B. Brookshire (Eds.) *The Complete Guide to Science Blogging.* Yale University Press.

Shanahan, M.-C. (2012). Reading for evidence in hybrid adapted primary literature. In S. P. Norris (Ed.) *Reading for evidence and interpreting visualizations in mathematics and science education* (pp. 41-63). Rotterdam, The Netherlands: Sense Publishers

Gustafson, B.J., & **Shanahan, M.-C.** (2011). Curriculum development in Canada. In J. Kirylo & A. Nauman (Eds.), *Curriculum Development: Perspectives from Around the World* (pp. 74-89). Association for Childhood Education- ACEI.

Shanahan, M.-C. (2009). Activity Theory. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.) *Encyclopedia of case study research* (pp. 5-8). Thousand Oaks, CA: Sage.

Shanahan, M.-C. (2009). Cross-sectional design. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.) *Encyclopedia of case study research* (pp. 267-268). Thousand Oaks, CA: Sage.

Other Scholarly Contributions – Book Reviews and Journal Responses

Shanahan, M.-C. (2014). Referee Report For: Connecting undergraduate science education with the needs of today's graduates [v1; ref status: indexed, http://f1000r.es/4pl] *F1000Research* 2014, 3(279). doi: 10.5256/f1000research.6105.r6827

Shanahan, M.-C. (2012). [Review of the book *A short history of physics in the American century*]. *Science Education*, *96*(6), 1134-1135.

Shanahan, M.-C. (2011). Nature study as an object lesson for science education [Review of the book *Teacher children science: Hands-on nature study in North America 1890-1930*]. *Science as Culture, 20*, 535-540.

Shanahan, M.-C. (2008). [Review of the book *Science, Learning, Identity: Sociocultural and cultural-historical perspectives*.] *The Alberta Journal of Educational Research, 54*(3), pp. 359-362.

Other Refereed Contributions: Papers Presented at Scholarly Meetings

Shanahan, M.-C. & Burke, L. E. C.-A. (2015, June). Elementary students talk: Identifying with the role of a good science student. Paper presented at the Canadian Society for the Study of Education, Ottawa, ON.

Pegg, J., & **Shanahan, M.-C.** (2015, April). Expertise and Boundary Objects in Teacher-Scientist Partnerships: A Comparative Case Analysis. Paper presented at the National Association for Research in Science Teaching, Chicago, IL.

Shanahan, M.-C. & Lachapelle, C. (2015, April). Characterizing Quality Research in Engineering Education. Panel presentation for Engineering Education Research Group of the National Association for Research in Science Teaching. Chicago, IL.

Shanahan, M.-C. & Burke, L. E. C.-A. (2015, April). Embedded Meanings in Pronoun Use: Defining Science Student Identities. Paper presented at the American Educational Research Association, Chicago, IL.

Brinkworth, J.F., & **Shanahan, M.-C.** (2015, March). Surviving the Sexodus Project: How STEM Women Approach Career Challenges. Presentation at the American Association of Anatomists, Boston, MA.

Burke, L. E. C.-A., Francis, K., & **Shanahan M.-C.** (2014, July). A horizon of possibilities: A definition of STEM education. Paper presented at the STEM 2014 Conference, Vancouver, BC

Shanahan, M.-C., & Nieswandt, M. (2013, April). Extending the analysis of student role identities across geographical and subject area boundaries. Paper presented at the National Association for Resarch in Science Teaching, Rio Grande, Puerto Rico.

de la Giroday, M., **Shanahan, M.-C.**, Strauss, S., Didow, A., Annan, R., & Stillwell, M. (2012, November). Thinking Big: Science Culture and Policy in Canada. Presentation at the Canadian Science Policy Conference, Calgary, Alberta.

Pegg, J., & **Shanahan, M.-C.** (2012, April). Expertise in scientist-teacher partnerships. Paper presented at the American Educational Research Association, Vancouver, BC.

Shanahan, M.-C. (2011, September). Exploring the influence of student-teacher interactions on role understandings. Paper presented at the meeting of the European Science Education Research Association, Lyon, France.

Bechtel, R., & **Shanahan, M.-C.** (2011, June). Unravelling the complexities of adapting scientific texts. Paper presented at the meeting of the Canadian Society for the Study of Education, Fredericton, NB.

Shanahan, M.-C., Bechtel, R., & Henkelman, G. (2011, June). Exploring the science student role in a discrepant environment. Paper presented at the meeting of the Canadian Society for the Study of Education, Fredericton, NB.

Shanahan, M.-C. (2011, April). Exploring the challenges of institutional mandating of expertise recognition. Paper presented at Extending expertise?: Experts and Amateurs in Communication and Culture conference, Ottawa, ON.

Shanahan, M.-C., Bechtel, R., & Henkelman, G. (2011, April). The science student role: Exploring its creation and enactment through discourse. Paper presented at the meeting of the National Association for Research in Science Teaching, Orlando, FL.

Shanahan, M.-C. (2010, August). Expertise and intertextuality in online comment spaces. Paper presented at the meeting of the Society for Social Studies of Science, Tokyo, Japan.

Shanahan, M.-C. (2010, May). Scientization in writing: A key to gaining credibility for those with personal expertise? Paper presented at the meeting of the Canadian Association for Studies in Discourse and Writing, Montreal, QC.

Shanahan, M.-C., Bechtel, R., & Henkelman, G. (2010, May). Reproducing the science student role: Representation and enactment in student discourse. Paper presented at the meeting of the Canadian Society for the Study of Education, Montreal, QC.

Sonnert, G., Hazari, Z., Sadler, P.M., & **Shanahan, M.-C.** (2010, May). High school physics experiences, physics identity, and gender. Paper presented at the National Center for Women & Information Technology Summit on Women and IT, Portland, OR.

Shanahan, M.-C. (2010, March). Exploring ideas of representation by epistemological language and scientific meta-language in hybrid adapted primary literature. Poster presented at the meeting of the National Association for Research in Science Teaching, Philadelphia, PA.

Shanahan, M.-C., & Bechtel, R.E. (2010, March). "We are taking their brilliant minds": Exploring the use of linguistic devices to mark expertise in a scientist-teacher collaboration. Paper presented at the meeting of the National Association for Research in Science Teaching, Philadelphia, PA.

Shanahan, M.-C., de los Santos, J., Morrow, R. (2009, May). Hybrid adapted primary literature as a language-based strategy for teaching about science and scientists. Paper presented at the meeting of the Canadian Society for the Study of Education, Ottawa, ON.

Bechtel, R.E., & **Shanahan, M.-C.** (2009, May). The use of language to construct expertise in a collaborative group of scientists and science teachers. Paper presented at the meeting of the Canadian Society for the Study of Education, Ottawa, ON.

Shanahan, M.-C., de los Santos, J., Morrow, R. (2009, April). Learning about science and scientists through hybrid adapted primary literature. Paper presented at the meeting of the American Educational Research Association, San Diego, CA.

Shanahan, M.-C., & Gustafson, B. J. (2008, October). Becoming experts: Exploring elementary preservice teachers' identity development as science specialists. Paper presented at the meeting of the International Society for the Scholarship of Teaching and Learning, Edmonton, AB.

Shanahan, M.-C., Morrow, R., Zolinsky, D., Hlusack, J. (2008, September). Reading for evidence: Creating and pilot testing text resources for Grade 6 science. Paper presented at the Centre for Research in Youth Science Teaching and Learning National Conference. Sherbrooke, QC.

Pedretti, E., DeCoito, I. **Shanahan, M.-C**., Baker, L. (2008, June). Embedding Professional Development in the Elementary Science Classroom through an Outreach Program. Paper presented at the meeting of the Canadian Society for the Study of Education, Vancouver, BC.

Shanahan, M.-C. (2008, June). What does it mean to be a science person?: Exploring the meaning and impact of identity development in science. Paper presented at the meeting of the Canadian Society for the Study of Education, Vancouver, BC.

Shanahan, M.-C., & Pedretti, E. (2008, March). Making a case for continued funding of science outreach programs through exploring the affective responses of underrepresented students. Paper presented at the meeting of the American Educational Research Association, New York, NY.

Gustafson, B. J., & **Shanahan, M.-C.** (2008, March). Initial pathways to teaching elementary children about scientific models. Paper presented at the meeting of the American Educational Research Association, New York, NY.

Shanahan, M.-C., & Nieswandt, M. (2007, April). A science student is expected to be smart: Modelling students' understanding of the expectations of the science student role. Paper presented at the meeting of the American Educational Research Association, Chicago, IL.

Pedretti, E., Baker, L., De Coito, I. & **Shanahan, M.-C.** (2007, April). A large scale study of *Scientists in School* outreach program: Enhancing Student Learning and Teacher Professional Development in Science and Technology. Paper presented at the meeting of the American Educational Research Association, Chicago, IL.

Shanahan, M.-C., Pedretti, E., Baker, L., & De Coito, I. (2007, April). Improving underrepresented students' affective response to science through a hands-on outreach program. Paper presented at the meeting of the National Association for Research in Science Teaching, New Orleans, LA.

Shanahan, M.-C., & Nieswandt, M. (2006, April). Exploring the Reflection of Preservice Teachers' Beliefs About the Nature of Science on Their Teaching Priorities. Paper presented at the meeting of the American Educational Research Association, San Francisco, CA.

Shanahan, M.-C. (2006, April). Self-regulatory techniques and understanding: A case study of success. Paper presented at the meeting of the National Association for Research in Science Teaching, San Francisco, CA.

Nieswandt, M., **Shanahan, M.-C.**, & Sharkawy, A. (2006, April). Argumentation as a means of challenging secondary preservice science teachers' epistemological beliefs. Paper presented at the meeting of the American Educational Research Association, San Francisco, CA.

Nieswandt, M., & **Shanahan, M.-C.** (2005, April). "I just want the credit!": Perceived instrumentality as the main characteristic of boys' motivation. Paper presented at the meeting of the American Educational Research Association, Montréal, QC.

Shanahan, M.-C. (2005, May). Exploring teachers' beliefs and tacit knowledge about girls' learning. Paper presented at the meeting of the Canadian Society for the Study of Education, London, ON.

Gagné, M.-C. (2004, June). Creative activities and their influence on identity interactions in science. Paper presented at the meeting of the Jean Piaget Society, Toronto, ON.

Gagné, M.-C. (2004, April). Exploring the effects of creative activities in science: A cross-gender study. Paper presented at the meeting of the National Association of Research in Science Teaching, Vancouver, BC.

Gagné, M.-C. (2003, August). Creative activities as a way of helping more individuals feel comfortable with their identity as science students. Paper presented at the meeting of the European Science Education Research Association, August 19-23, Noordwijkerhout, Netherlands.

Invited Presentations and Keynote Addresses

Shanahan, M.-C. (2014, March). Looking beyond grades and abilities for why students choose to take or choose to leave science in high school and university**.** University of Calgary Faculty of Science, Science Education Lecture Series.

Shanahan, M.-C. (2013, May). Science online: Blogging, social media. Invited session for the University of Toronto Science Leadership Program.

Shanahan, M.-C. (2013, April). Role identity and choosing science: What are the consistencies and discrepancies across age, region and subject area? Invited colloquium Department of Engineering and Science Education, Clemson University.

Shanahan, M.-C. (2012, June). Studying identity: Gaining perspective from multiple methods. Invited talk for the Scandinavian Science Identity Seminar, University of Copenhagen.

Shanahan, M.-C., & Anderson, C. (2012, June). Taking online outreach beyond conveying facts. Invited session at BrainSTEM: Perimeter Institute of Theoretical Physics expert workshop on digital science outreach.

Shanahan, M.-C. (2012, June). Research-powered outreach. Invited session at BrainSTEM: Perimeter Institute of Theoretical Physics expert workshop on digital science outreach.

Shanahan, M.-C. (2012, June). Examining identity, gender and persistence in high school and undergraduate physics. Invited lecture at the Congress of the Canadian Association of Physicists, sponsored by the Committee to Encourage Women in Physics.

Shanahan, M.-C. (2012, June). Gender and physics: Current research on classroom and teacher influences. Workshop presentation at the Congress of the Canadian Association of Physicists, High School Physics Teachers' Day.

Shanahan, M.-C. (2011, November). Identity, gender and persistence in science. TRIUMF, Canada's national particle and nuclear physics research laboratory, Vancouver, BC (Invited colloquium).

Shanahan, M.-C. (2011, September). Identity: Why is it important to think about how women and girls see themselves in science and engineering**.** Live webinar hosted and presented for the Women in Engineering Pro-Active Network (WEPAN). (Invited session)

Shanahan, M.-C. (2010, September). Creating science through discourse. Edmonton Child Study Centre research colloquium, Edmonton, AB (Invited colloquium)

Shanahan, M.-C. (2010, March). Using reading to support and encourage student inquiry in science. Canadian Centre for Research on Literacy. (Invited seminar)

Shanahan, M.-C. (2010, January) What does research in scientific language have to offer to teachers? Edmonton Catholic Schools, Regional Science Teachers Conference. (Invited session)

Shanahan, M.-C. (2009, May) Science and science students in the 21st century. Alberta Teachers' Association, Chemistry and Biology Regional Conference. (Keynote address)

Professional Publications

Shanahan, M.-C. & Hazari, Z. (2011). Author responses: Can we declare victory for women in their participation in science? *American Physical Society News, 20*(8), 8.

Shanahan, M.-C. & Hazari, Z. (2011). Can we declare victory for women in their participation in science? *American Physical Society News, 20*,(6), 9.

Shanahan, M.-C. (2010). Reading like a scientist: Students evaluate the quality of a scientific study. *Science and Children, 48*(1), 42-46.

Gagné, M.-C. (2001). Food, fractions and fun. *Ontario Association of Math Educators (OAME) Gazette*, 39(4), 16-17.

Reports

Shanahan, M.-C. (2008). Teaching students to read scientific text. Report prepared for the Alberta Education, Elementary Science Program of Studies Committee.

Pedretti, E., Baker, L., De Coito, I. & **Shanahan, M.-C.** (2007). *Scientists in School impact study*. Toronto, Ontario, Canada: Ontario Institute for Studies in Education of the University of Toronto, Centre for Science, Mathematics and Technology Education.

Public, Professional and Outreach Presentations

Shanahan, M.-C. (2014, April). The importance of parents. Horizon of Possibilities, IOSTEM Parents Symposium.

Shanahan, M.-C., & Finke, E. (2013, February). Formal science education, informal science education and science writing. Science Online 2013, Raleigh, North Carolina.

Shanahan, M.-C.**,** & Schultz, C. (2013, February). Communicating science where there is no science communication. Science Online 2013, Raleigh, North Carolina.

Willingham, E., Gross, L., Konnikova, M., **Shanahan, M.-C.**, & Ewing, R. (2012, November). Follow 1500 people on twitter? Learn to manage the information deluge. Panel presentation at the National Association of Science Writers conference, Raleigh, North Carolina.

Shanahan, M.-C. (2012, October). What is science? What is the nature of science? Workshop presentation for the Edmonton Science Outreach Network, Edmonton, Alberta.

Shanahan, M.-C., & Anderson, C. (2012, January). Is encouraging scientific literacy more than telling people what they need to know? Science Online 2012, Raleigh, North Carolina.

Shanahan, M.-C. (2011, October). Learning about science writing from kids. National Association of Science Writers, Flagstaff, Arizona.

Shanahan, M.-C. (2011, October). Inspiring study interest through reading and writing about science online. Workshop presented at the Alberta Teachers' Association Science Council Conference, Lake Louise, AB.

Shanahan, M.-C. (2011, April). Relying on each other: The importance of the culture of science. Workshop presentation at LogiCon 2011, Telus World of Science, Edmonton, Alberta.

Schell, D., Loxton, D., Myers, K.O., **Shanahan, M.-C.**, Espejo, A. (2011, April). How to convince your friends and family that science is awesome. Panel presentation at LogiCon 2011, Telus World of Science, Edmonton, Alberta.

Baker, S., Collins, S., & **Shanahan, M.-C.** (2011, January). Still waiting for a superhero: Science Education needs you!. Workshop presentation at Science Online 2011, Raleigh, North Carolina.

Shanahan, M.-C., Bell, A., Yong, E., & Raper, V. (2011, January). Blogs, bloggers and boundaries. Workshop presentation at Science Online 2011, Raleigh, North Carolina.

Shanahan, M.-C. (2011, November). Expertise and interactions in online science commenting. Faculty of Education Research Forum presentation, Edmonton, AB.

Shanahan, M.-C., Bechtel, R., & Henkelman, G. (2010, October). Where are students coming from? Workshop presented at the Alberta Teachers' Association Science Council Conference, Edmonton, AB.

Cavalier, D., & **Shanahan, M.-C.** (2010, January). Adult scientific literacy. Workshop presentation at Science Online 2010, Raleigh, North Carolina.

Shanahan, M.-C., & de los Santos, S. (2009, October). Hybrid adapted primary literature: An integrated approach to scaffolding elementary students' reading of scientific text. Presentation at the Centre for Research in Youth Science Teaching and Learning (CRYSTAL-Alberta) Fall Forum, Edmonton, AB.

Shanahan, M.-C., de los Santos, J., & Morrow, R. (2008, November). Hybrid reading resources for teaching about science. Workshop presented at the Alberta Teachers' Association Science Council Conference, Calgary, AB.

Shanahan, M.-C. (2008, January). Using everyday materials in science education. Workshop presented at the University of Alberta Science and Math Education Students' Association Conference, University of Alberta, Edmonton, AB.

Shanahan, M.-C. & Gustafson, B. (2007, November). Using readily available materials to build devices that move. Workshop presented at the Alberta Teachers' Association Science Council Conference, Edmonton, AB.

Gustafson, B., & **Shanahan, M.-C.** (2007, November). Using models to understand the nature of matter. Workshop presented at the Alberta Teachers' Association Science Council Conference, Edmonton, AB.

Pedretti, E., **Shanahan, M.-C.**, Baker, L. & De Coito, I. (2006, November). Hands-on, minds-on: Lessons learned from Scientists in School. Workshop presented at the Science Teachers' Association of Ontario Conference, Toronto, ON.

Nieswandt, M., **Shanahan, M.-C.**, & Sharkawy, A. (2005, May). Challenging secondary pre-service science teachers' beliefs about the nature of science through argumentation. Poster presented at the Teacher Education for "The Schools We Need" Conference, Toronto, ON.

Popular Media and Online Publications and Productions

Shanahan, M.-C. (2015, April 16). Be careful saying "The Myth about Women in Science" is solved. *BoundaryVision.com.* http://boundaryvision.com/2015/04/16/be-careful-saying-the-myth-about-women-in-science-is-solved/ (Post received over 1000 views and was featured on *Scientific American* blogs as a recommended read).

Shanahan, M.-C. (2013, September 27). Popular Science is wrong to get rid of online comments. *The Conversation.* http://theconversation.com/popular-science-is-wrong-to-get-rid-of-online-comments-18674

Shanahan, M.-C. (host), & Myers, K.O. (producer) (2013, April 26). Spillover: Animal infections, pandemics and preparedness. *Skeptically Speaking*, Episode #210. Edmonton, Alberta: CJSR. (Syndicated to 30 stations in Canada and the United States).

Shanahan, M.-C. (host), & Myers, K.O. (producer) (2013, March 15). Mars Rocks!: Geology and atmospheric studies on the red planet. *Skeptically Speaking*, Episode #204. Edmonton, Alberta: CJSR.

Shanahan, M.-C. (host), & Myers, K.O. (producer) (2012, December 9). The Particle at the End of the Universe: The story of the Higgs Boson. *Skeptically Speaking,* Episode #192. Edmonton, Alberta: CJSR.

Shanahan, M.-C. (host), & Myers, K.O. (producer) (2012, September 23). Science Cinema. *Skeptically Speaking,* Episode #184. Edmonton, Alberta: CJSR.

Shanahan, M.-C. (host), & Myers, K.O. (producer) (2012, June 30). Infrastructure and you: Exploring the everyday engineering systems that make our world work. *Skeptically Speaking,* Episode #163. Edmonton, Alberta: CJSR.

Shanahan, M.-C. (host), & Myers, K.O. (producer) (2012, May 6). Newton and Counterfeiter: Understanding scientific methods through exploring the second career of Sir Isaac Newton. *Skeptically Speaking,* Episode #163. Edmonton, Alberta: CJSR.

Shanahan, M.-C. (host), & Myers, K.O. (producer) (2012, April 1). Reef Madness: using the story of Alexander Agassiz to examine the nature of science. *Skeptically Speaking,* Episode #158. Edmonton, Alberta: CJSR.

Shanahan, M.-C. (2012, March). A lesson in rocketry: Teaching science in the Canadian North. *Story Collider Magazine, 2,* 1-6.

Shanahan, M.-C. (host), & Myers, K.O. (producer) (2012, February 19). The Poisoners Handbook: exploring the forensic history of chemistry. *Skeptically Speaking*, Episode #152. Edmonton, Alberta: CJSR.

Shanahan, M.-C. (2011, October 12). Have a great science conversation with a kid. *Scientific American Guest Blog* (Commentary invited by the editors of Scientific American). http://blogs.scientificamerican.com/guest-blog/2011/10/12/having-a-great-science-conversation-with-a-kid/

Shanahan, M.-C. (2011, October 12). Creating Ankylosaur Attack: An interview with author Daniel Loxton. *Scientific American Guest Blog*. http://blogs.scientificamerican.com/guest-blog/2011/10/12/creating-ankylosaur-attack-an-interview-with-author-daniel-loxton/)

Shanahan, M.-C. (2011, July 28). Science education and changing peoples' minds: Writing to convince. *Scientific American Guest Blog.* http://blogs.scientificamerican.com/guest-blog/2011/07/28/science-education-and-changing-peoples-minds-writing-to-convince/

Shanahan, M.-C. (2011, June 16). Arsenic-eating bacteria have changed science education. *Scientific American Guest Blog.* http://www.scientificamerican.com/blog/post.cfm?id=arsenic-bacteria-have-changed-scien-2011-06-16

Shanahan, M.-C. (2011, March 29). Can we declare victory for women in their participation in science? Not yet. *Scientific American Guest Blog*. http://www.scientificamerican.com/blog/post.cfm?id=can-we-declare-victory-in-the-parti-2011-03-29

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MEDIA COVERAGE

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Lapointe, P. (2013, September 26). Comment combattre les trolls en science. *Agence Science-Presse* http://www.sciencepresse.qc.ca/blogue/2013/09/26/comment-combattre-trolls-science
Gonzalez, R. (2013, September 25). Popular Science has turned off comments. Here's why that's a bad idea. *Io9.com.* http://io9.com/popular-science-has-turned-off-comments-heres-why-tha-1389972966
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Myers, K.O. (Senior Producer and Editor). (December 16, 2012). *Skeptically Speaking* Episode 193: Science Books for Your Gift List. Edmonton, Alberta: CJSR.
Alphonso, C. (2012, November 2). Science careers start with young girls. *The Globe and Mail*, http://www.theglobeandmail.com/news/national/education/science-careers-start-with-young-girls/article5543555/
Brunhuber, K. (Correspondent). (March 16, 2012). Navel gazing: citizen science through belly-button research (featured interview). *CBC's The National.* Toronto, Ontario: Canadian Broadcasting Corporation.
Hoffart, K., & Grant, K. (March 14, 2012). Social media in education. *The Gateway*, p. 3.
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Henderson, J.M. (August 17, 2011). Is this scientific proof that women play dumb? *Forbes.com.* http://www.forbes.com/sites/jmaureenhenderson/2011/08/17/is-this-scientific-proof-that-women-play-dumb/
Ebsary, A. (Producer). (March 1, 2011). *Peer Review Radio* Episode 25: Election 41-The Science Issues (featured interview). Ottawa, Ontario: CHUO.
Myers, K.O. (Senior Producer and Editor). (April 3, 2011). *Skeptically Speaking* Episode 106: Science & Culture (featured interview). Edmonton, Alberta: CJSR.
Ebsary, A. (Producer). (March 1, 2011). *Peer Review Radio* Episode 20: Go Sing it On the Mountain – Communicating Science Online (featured interview). Ottawa, Ontario: CHUO.
Brunjes, A. (2010, April 26). Challenging young minds: University of Alberta study introduces youth to new breakthrough research. *Westlock News*, p. 8A. (Article awarded 2nd place 2011 University of Alberta Writing Award by the Alberta Weekly Newspapers Association.)
Zivkovic, B. (2010, February 17). ScienceOnline2010 - Interview with Marie-Claire Shanahan. *A Blog Around the Clock*: Seed Media Group. http://scienceblogs.com/clock/2010/02/scienceonline2010_-_interview_6.php

Busch, C.A. (2009, Summer). Education students help uncover some of life's mysteries at Science Sunday. *The Orange, 10*(2), p. 21.

Bridget Ryan (host) (March 6, 2009). Science Sunday at the University of Alberta Museums. Breakfast Television Live Eye [Television broadcast]. Edmonton, Alberta: Rogers Media CITY-TV.

SERVICE ACTIVITIES: External

National Association for Research in Science Teaching
Engineering Education Research Interest Group: Elected Board Member (2013-2016)
International Committee: Member at large (2009-2012)

Canadian Society for the Study of Education
Canadian Science Education Research Group:
Past-President (2011-2012)
President (2010-2011)
Vice President/Conference Program Chair (2009-2010)
Secretary/Treasurer (2008-2009)

Editorial Board Member
Journal of Research in Science Teaching (2015-ongoing)
FACETS: a Canadian Multidisciplinary Open Access Journal, subject editor for Science Communication/Science Education (2015-ongoing)
Science Education (2014-ongoing)
F1000 Research: Science Publishing, Education & Communication (2014-ongoing)
Studies in Science Education (2013-ongoing)

Peer Reviewer - Journals
Alberta Journal of Educational Research
Canadian Journal of Education
Canadian Journal of Science, Mathematics and Technology Education
Journal of Engineering Education
Journal of Research in Science Teaching
Science Education
Studies in Science Education
Journalism: Theory, Practice, Critique
The Neuroscientist

Peer Reviewer - Conferences
Canadian Society for the Study of Education (Canadian Association for Curriculum Studies and Canadian Science Education Research Group)
National Association for Research in Science Teaching

SERVICE ACTIVITIES: Internal
Werklund Professorship Selection Committee (Member, 2015)
2015 Selection Committees (Math and Statistics, Natural Sciences, Science Education x2)
University of Alberta, Research Ethics Board Panel 3 (Delegated reviewer and committee member, 2011-2013)
Department of Physics Outreach Committee (Member, 2011-2012)
Faculty of Education Academic Appeals Committee (Chair, 2010-2012; Alternate Chair, 2008-2010)
Education, Extension, Augustana, Campus Saint Jean Research Ethics Board (EEASJ REB) (Statutory member 2010-2011, Alternate member 2008-2010)
Faculty of Education Advisory Committee (Elected Member, 2008-2010)

TEACHING

Undergraduate Teaching
University of Calgary:
EDUC 460 Specialization I—Secondary Science

University of Alberta:
EDEL 330 Curriculum & Instruction in Elementary School Science
EDEL 432 Content Knowledge for Elementary Science I (Physical Sciences)
EDSE 401 ICT and Visualizations in Science Teaching
EDSE 451 Integrating Theory & Classroom Practice in the Advanced Professional Term
EDSE 460 Curriculum & Teaching for Secondary School Physical Sciences Majors II

Graduate Teaching

EDEL 530 Language, Inquiry and Science (Topics in science communication)
EDEL 567/EDPY 501 Introduction to Educational Research
EDEL 595 Physical Science for Elementary Teaching
EDES 501 Examining the Nature of Science (Topics in the sociology of science)

GRADUATE STUDENT SUPERVISION

Primary Supervision, Ph.D., Ed.D.

Rekha Dhawan, Ed.D. Student (Learning Sciences), Candidacy expected Summer 2017.
Wendy Simms, Ed.D. Student (Educational Technology), Candidacy expected Summer 2016.
Julieta de los Santos, Ph.D. Candidate (Secondary Education). *Identity and teachers' decisions to engage in outdoor education.* Supervisor. Candidacy September 2011.
Hagop Yacoubian, Ph.D. (Secondary Education). *Towards a philosophically and pedagogically reasonable nature of science curriculum.* Supervisor. Convocation Fall 2012.

Primary Supervision, M.A., M.Ed.
Joe Wilson, M.A. Student (Educational Technology), convocation expected Fall 2017.
William Bagshaw M.Ed. (2012-2013, completed with another supervisor)
Stan Bissell M.Ed. (2012-2013, completed with another supervisor)
Duncan Buchanan M.Ed. (2012-2013, completed with another supervisor)
Leslie Heinsen M.Ed. (2012-2013, completed with another supervisor)
Dorothy McGillis M.Ed. (2012-2013, completed with another supervisor)

Supervisory and Examining Committee Membership

Shaily Bhola, Ph.D. Student (Learning Sciences). *Understanding Student Learning Barriers in Postsecondary Chemistry.* Supervisory committee member, Candidacy expected Spring 2016. **Winner of the 2015 Werklund Doctoral Fellowship.
Monica Chahal, Ph.D. Candidate (Secondary Education). *Seeing urban youth through a critical lens: Emergent youth led science pedagogy*. Supervisory committee member. Candidacy June 2012.
Tai Munro, Ph.D. (Secondary Education). *Visualizing climate change through photography: outdoor educators examine climate change within their personal contexts*. Examining committee member, Convocation Fall 2012.
Hagop Yacoubian, Ph.D. (Secondary Education). *Towards a philosophically and pedagogically reasonable nature of science curriculum.* Supervisor, Convocation Fall 2012.
Erin Atkindson, M.Ed. (Educational Psychology). Pre-Service teachers' causal attributions about fasd and their teaching self-efficacy. Examining committee member, Convocation Fall 2012.
Glenda Carson, Ph.D. (Faculty of Nursing). *Learning about gestational diabetes mellitus: Encountering the other in nurse-patient pedagogic relationships.* Supervisory committee member, Convocation Spring 2012.
Lori Friesen, Ph.D. (Elementary Education). *How might a therapy dog influence interactions, relationships, and pedagogy in an elementary language arts classroom community?* Examining committee member, Convocation Spring 2012.

Marnie Lenore Hutchison, M.Ed. (Educational Psychology). Executive function strategies used by children and adolescents with Fetal Alcohol Spectrum Disorder. Examining committee member, Convocation Fall 2011.

Wing Sze Wence Leung, M.Ed. (Educational Psychology). Short and long term effect of neurofeedback and metacognitive training on children's Attention Deficit/Hyperactivity Disorder symptoms. Examining committee member. Convocation Fall 2011.

Robert Bechtel, Ph.D. (Secondary Education). *A discourse analysis comparing the use of models and metaphors in Western science and traditional knowledge.* Supervisory committee member, Candidacy May 2010, Convocation Fall 2011.

Tracy Ann Stock, M.Ed. (Secondary Education). *Investigating secondary science teachers' beliefs about what counts most as science education.* Convocation November 2010.

Jennell Rempel, M.Ed. (Secondary Education). *Contextualized evidence of learning in environmental education: Using drawings, interviews and surveys to investigate students' understanding and perceptions of wetlands.* Examining committee member. Convocation June 2009.

Man-Wai Chu, M.Ed. (Secondary Education). *Exploring science curriculum emphases in relation to the Alberta Physics program-of-study.* Examining committee member. Convocation November 2009.

External Examinations

Henriette Tolstrup Holmegaard (Department of Science Education, University of Copenhagen). *Students' narratives, negotiations, and choices: A longitudinal study of Danish students' transition process into higher education science, engineering and mathematics*. External examiner, Defense June 2012.