

Newsletter



Centre for
Science, Mathematics
& Technology Education
OISE, University of Toronto

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Director's Message

Greetings!

Welcome to another exciting year at OISE and at the SMT Centre. Since the last newsletter, we have been busy with a number of inspiring and engaging events, and making lots of plans for the future.

We wrapped up our Brownbag series last semester with some great sessions. Faculty member Larry Bencze, along with Nathalie Lemelin, a colleague from Montreal, spoke about how children can influence their powerful parents about social justice issues. Student Farveh Ghafouri discussed thesis research about young children's learning about the natural environment in school. We also hosted a fascinating seminar with Aaron Price, an astronomy education researcher. Dr. Price spoke about a 'citizen science' project and its impact on how participants viewed the nature of science.

In the spring, we had some good news from SSHRC and other funding agencies. I was lucky enough to receive both a SSHRC Standard Grant (Changing the equation: Mathematics

and social justice) and a SSHRC Insight Development grant (Developing analytic methods for digital media). Jim Slotta received a SSHRC Standard Grant as well (Knowledge community and inquiry for elementary science classrooms). In addition, John Percy, our colleague from the Astronomy department, was awarded a grant from the Higher Education Quality Council (Increasing engagement and understanding using interactive planetarium shows). (See further details on page 2)

Another exciting development over the summer was the introduction of our new 'student steering committee.' A group of dedicated and talented graduate students have volunteered to organize a set of activities that are designed to foster a stronger student community and support students and faculty in their collaborative work. The students describe this new initiative and some ways you can get involved on page 3.

At our Kickoff party for the year, held September 22, we launched our new online community. Anyone with an interest in SMT education is invited to join, post an autobiography, and participate in the discussions online. If you've got an idea for a project you'd like to undertake this year, let us know!

To join, follow the links on our SMT website (newly designed this year by the talented Rebecca Hughes) at: http://www.oise.utoronto.ca/smt/Get_Involved.html

Following the kickoff, we had a number of events in rapid succession: a seminar with mathematics education researcher Ruhama Even on September 26, a research seminar with science education researcher Lyn Carter on September 27, two SSHRC/OGS proposal swap sessions on September 22 and 30, and an informal discussion with mathematics education researcher Phil Clarkson on September 29.

It's been a great start to the new year and I look forward to many more events and initiatives as we get going.



Wishing you a productive and engaging year, *Indigo*

Mission

We are a centre for excellence in science, mathematics, and technology (SMT) education: Undertaking research, development, and teaching that promote critical understanding, inclusion, diversity, equity, personal wellbeing, creativity, and social and environmental justice.

Grants & Awards

Awards

CACS Outstanding Publication Award to CJSMTTE Article

The CACS 2010 Outstanding Publication in Curriculum Studies Award has been awarded to an article published in the SMT journal, Canadian Journal of Science, Mathematics and Technology Education. This annual award from the Canadian Association for Curriculum Studies recognizes an outstanding publication related to scholarly insights and advances made in Curriculum Studies in Canada. The article, "Activism: A Category for Theorizing Learning" (by Wolff-Michael Roth, University of Victoria) was published in the CJSMTTE special issue (volume 10, issue 3) on Activism in SMT Education edited by Steve Alsop and Larry Bencze. The award was presented at the CSSE conference this year, and the article can be accessed via:

<http://www.informaworld.com/smpp/content~db=all~content=a926433290~frm=titlelink>

Download and take a look!

Grants

Higher Education Quality Council

Mike Reid (PI), Mike Williams, and John Percy, Department of Astronomy and Astrophysics, received a \$32,000 (approx.) grant from the Higher Education Quality Council of Ontario to test the hypothesis that highly interactive planetarium shows, in small groups, are an effective tool for increasing student understanding of key astronomical concepts, and for improving student attitudes toward science in large (1350 students) first-year astronomy classes. We shall be recruiting an SMT graduate student to work with an astronomy graduate student on this project.

Insight Development Grant

Esmonde, Indigo. Developing analytic methods for digital media (2011-2013). From the SSHRC. Total amount: \$48,150. This project aims to develop research methods for the analysis of video data, specifically related to understanding how human

New Scholar Fellowship, Canadian Society for Studies in Education

The fellowship is awarded to an exemplary conference paper at CSSE. Awarded to: Esmonde, Indigo (May 2010). Snips and snails and puppy dogs' tails: Equity and boys-centered mathematics education in Toronto. Paper presented at the annual meeting of the Canadian Society for Studies in Education, Montreal, Quebec.

Joining the SMT Community

To be added to our email list, please send an email to: listserv@listserv.utoronto.ca. Put SUBSCRIBE SMT-ANNOUNCE-L in the subject line of your email. The body of the email can be left blank.

interaction enables learning. The goal is to extend existing methods of data analysis to effectively study data collected by multiple cameras (e.g., several different cameras used to capture multiple angles of the same interaction). By the end of the project, I will have piloted methods for use in a large-scale research study of mathematics learning.

Standard Research Grant, New Scholar

Esmonde, Indigo. Changing the equation: Mathematics and social justice (2011-2013). Received from SSHRC. Total amount received: \$28,336. The study broadens traditional views about learning, equity and mathematics by considering how out-of-school contexts might support equitable mathematical learning, and how they might use mathematics to support global equity. The two major research questions are: How is mathematics used outside of schools to analyze, educate about, and take action towards broad social justice goals? How is the learning and doing of mathematics supported in these contexts, and what issues of equity arise?

News & Announcements

The Top 10 (In Case You Missed Them)

The top ten articles downloaded from the *Canadian Journal of Science, Mathematics and Technology Education* in 2011 to date:

Rank	Article	Author(s)	Volume [Issue]
1	An Emerging Decolonizing Science Education in Canada	Aikenhead & Elliot	10[4]
2	Teaching the Mathematically Gifted: Featuring a Teacher	Leikin	11[1]
3	Science Education as a Call to Action	Hodson	10[3]
4	Teaching Mathematics for Social Justice in Multicultural, Multilingual Elementary Classrooms	Esmonde & Caswell	10[3]
5	A Model of Mathematical Giftedness: Integrating Natural, Creative, and Mathematical Abilities	Pitta-Pantazi, Chrisou, Kontoyiani & Kattou	11[1]
6	National Influences on Science Education Reform in Canada	Milford, Jagger, Yore & Anderson	10[4]
7	Toward a History of Teaching the Mathematically Gifted: Three Possible Directions for Research	Karp	11[1]
8	What Constitutes Effective Mathematics Instruction: A Comparison of Chinese Expert and Novice Teachers' Views	Huang, Li & He	10[4]
9	Pre-service Teachers' Understanding and Teaching of Nature of Science: An Intervention Study	Lederman, Schwartz, Abd-El-Khalick & Bell	1[2]
10	Introduction to the Special Issue on Mathematical Gift and Promise: Exploring and Developing	Karp & Leikin	11[1]

Announcement

Larry Bencze, co-editor of the Journal for Activism in Science and Technology Education:

We are currently seeking submissions on the subject of consumerism and science and technology education. These are due late November or early December 2011. For information, contact me at: larry.bencze@utoronto.ca

Congratulations

Congratulations to Dr. Sheryl MacMath on her successful doctoral defence. Sheryl's thesis is titled: *Teaching and Learning in an Integrated Curriculum Setting: A Case Study of Classroom Practices*. We thank Sheryl for all her good work on behalf of the Centre and wish her all the best in her career as a faculty member at the University of the Fraser Valley in BC.

A Message from the Student Steering Committee

Get to know your community

Throughout the year, you will have the opportunity to attend various events such as resume and scholarship workshops, professional development opportunities and parties. To stay informed, join our online community by going to the following link: http://www.oise.utoronto.ca/smt/Get_Involved.html to register yourself.

Let's go to the CSSE!

The Canadian Society for Studies in Education is Canada's premier platform for the sharing of research in education. The conference for 2012 will be held in May at the University of Waterloo. If you have no experience attending conferences, don't worry, because we will be there to support you!

We'll submit proposals together as part of a symposium, or multiple symposia. Individual papers will do, too! The closing date for proposal submissions will be the week of November 10, 2011. Stay tuned!

Recent Publications & Presentations

Refereed Journal Article Publications

Bencze, L., & Carter, L. (2011). *Globalizing students acting for the common good*. *Journal of Research in Science Teaching*, 48(6), 648-669.

Esmonde, I., Takeuchi, M., & Radakovic, N. (2011). *Getting unstuck: Learning and histories of engagement in classrooms*. *Mind, Culture and Activity*, 18(3), 237-256. DOI: 10.1080/10749031003790128.

Esmonde, I. (2011). *Snips and snails and puppy dogs' tails: Genderism and mathematics education*. *For the Learning of Mathematics*, 31(2), 27-31.

Pedretti, E., & Nazir, J. (2011). *Currents in STSE education: Mapping a complex field, 40 years on*. *Science Education*, 95(4), 601-626.

Shanahan, M.C., Pedretti, E., De Coito, I., & Baker, L. (2011). *Exploring the responses of underrepresented students in science to an elementary classroom outreach program*. *School Science and Mathematics*, 111(4), 131-142.

Book Chapters

Rennie, L., Venville, G. & Wallace, J. (2011). *Learning science in an integrated classroom: Finding balance through theoretical triangulation*. *Journal of Curriculum Studies*, 43(2), 139-162.

Caswell, B., Esmonde, I., & Takeuchi, M. (2011). *Towards culturally relevant and responsive teaching of mathematics*. In C. Rolheiser, M. Evans, & M. Gambhir, M. (Eds.), *Inquiry into practice: Reaching every student through inclusive curriculum practices* (pp. 64-71), OISE Initial Teacher Education Program, Toronto, Canada.

Academic Conference Presentations

Esmonde, I. (June, 2011). *Affluent students learning mathematics for social justice*. Paper presented at the annual meeting of the Jean Piaget Society, Berkeley, USA.

Bencze, J. L., Carter, L., & Sperling, E. (September, 2011). *Beyond argumentation in SSI education: Student-teachers' research-informed socioscientific activism*. European Science Education Research Association, Lyon, France.

Wilkinson, T., & Bencze, L. (July, 2011). *With head, hand, and heart: Children address ethical issues of design in technology education*. International Technology and Engineering Educators Association, London, United Kingdom.

Bencze, J. L., & Carter, L. (June & July, 2011). *A framework for socioscientific citizenship education: Students advocating for the common good*. Australasian Science Education Research Association, Adelaide, Australia.

Bencze, L., & Sperling, E. (April, 2011). *Student-teachers' research-informed actions to address socioscientific issues*. American Educational Research Association, New Orleans, USA.

Bencze, L., Alsop, S., & Sperling, E. (April, 2011). *Towards critical and emancipatory science and technology education: A theoretical framework*. National Association for Research in Science Teaching, Orlando, USA.

Pedretti, E., & Nazir, J. (2011, April). *Currents in STSE Education: Mapping a complex field, forty years on*. Paper presentation at the annual meeting of the National Association for Research in Science Teaching (NARST), Orlando, USA.

Pedretti, E., Dubek, M., & Jagger, S. (2011, April). *The medium is the message: Unravelling publics' responses to Body Worlds and the Story of the Heart*. Paper presentation at the annual meeting of the National Association for Research in Science Teaching (NARST), Orlando, USA.

Tan, M., & Pedretti, E. (2011, April). *Contradictions? What contradictions?: Science teachers do environmental education*. Paper presentation at the annual meeting of the National Association for Research in Science Teaching (NARST), Orlando, USA.

Jagger, S., Dubeck, M., & Pedretti, E. (2011, April). *It's a personal thing: Visitors' responses to Body Worlds*. Poster presentation at the annual meeting of the National Association for Research in Science Teaching (NARST), Orlando, USA.