



## SUMMER 2021 NEWSLETTER

### IN THIS ISSUE

- Director's Message
- This Year's Highlights: SMT Centre Activities
- News from the Canadian Journal of Science, Mathematics and Technology Education
- SMT Member Meeting Presentations
- Congratulations to SMT 2020/2021 Master's & Doctoral Graduates
- Recent Research Grants, Awards and Honours
- Members' Corner
- Member Announcements
- Acknowledgements

### DIRECTOR'S MESSAGE



This time last year, I penned a message thanking members for their continued support of the SMT Centre during the various challenges presented by the COVID-19 pandemic. One year later, I find myself echoing those same sentiments whilst acknowledging the resilience and innovation of members who maintained a full schedule of Centre activities throughout 2020/2021. Despite reducing the frequency of members' meetings, we have had a healthy attendance averaging more than 20 members at each meeting. In addition, we had two panel events welcoming local and international panelists and attendees. I extend many thanks to the range of presenters, subcommittee contributors, and engaged meeting attendees who have made

2020/2021 such a successful year for the Centre.

It is my pleasure to close out this year's program of events with this newsletter, containing an inspiring record of members' activities. I also take this opportunity to bid farewell as Centre Director and welcome Doug McDougall as the incoming Director for the term 2021-2024. Doug is no stranger to SMT Centre leadership (having led the Centre in 2009/2010). I would like to thank each student, alumnus, affiliate, and faculty member who has contributed to the SMT Centre community over the last 4 years, and I am so grateful for the many messages of encouragement and support I have received throughout my time as Centre Director, especially over the last few months. I look forward to joining you all at SMT Centre meetings and events in the new academic year!

*Carol-Ann Burke, Director, Centre for Science, Mathematics and Technology Education 2017-2021.*

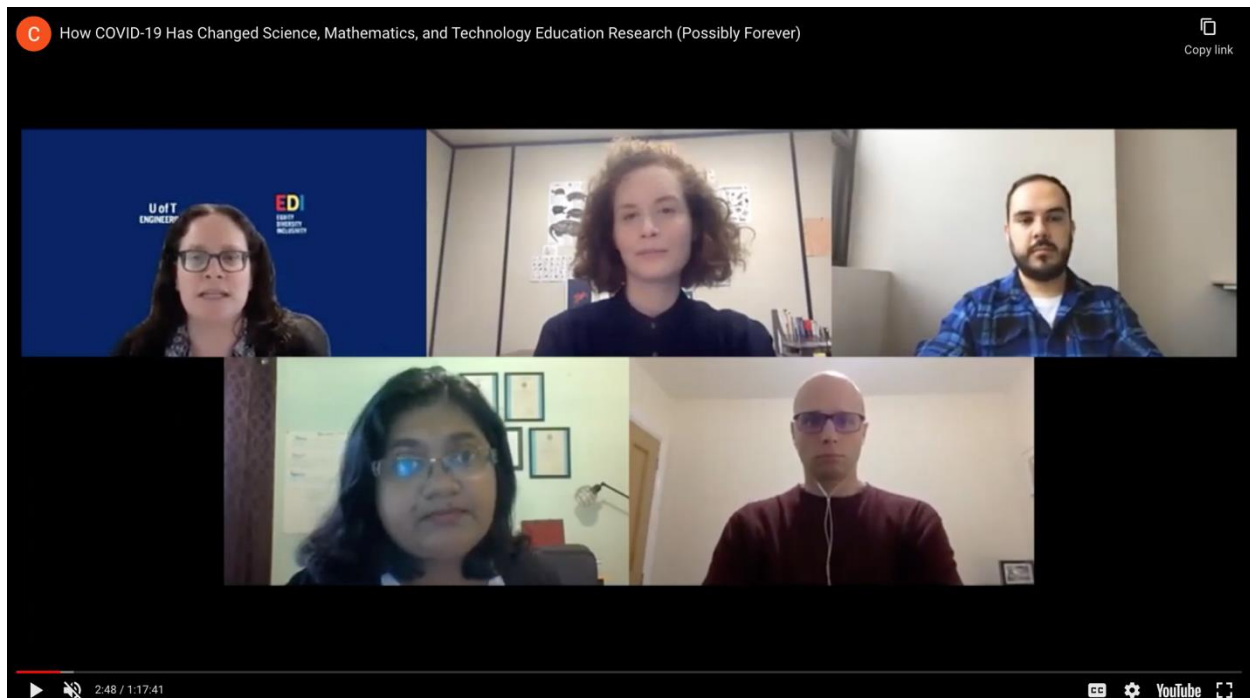
## OUR MISSION

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.

## THIS YEAR'S HIGHLIGHTS: SMT CENTRE ACTIVITIES

### *SMT Panel: How COVID-19 Has Changed the Face of Science, Mathematics, and Technology Education Research (Possibly Forever)*

On Friday 11 December 2020, the SMT Centre hosted a virtual panel event for faculty, students, alumni, affiliates, and community members to discuss the impact COVID-19 has had on the stories and trajectories of science, mathematics, and technology education researchers. There has been a lot of talk about how the COVID-19 pandemic has influenced curricula and pedagogies around the world but, as an organization committed to advancing research, we used this forum to consider how the pandemic has influenced our various programs of education research. We also discussed how education research may change in the short- and long-term future.



The panel, *How COVID-19 Has Changed the Face of Science, Mathematics, and Technology Education Research (Possibly Forever)* brought together local and international presenters to explore this challenging topic. Panel members included SMT Centre faculty member Alexandre Cavalcante, OISE Alumni Joanne Nazir (University of The West Indies, Trinidad & Tobago) and Murat Oztok (Lancaster

University, England), and SMT student member, Kristen Schaffer. The panel was moderated by Cindy Rottmann who is the Associate Director of Research at Troost Institute for Leadership Education in Engineering (University of Toronto).

Panelists revealed how the pandemic halted and shifted the foci of their research practises, including raising new questions around issues of equity in science, mathematics, and technology education. The pandemic forced researchers to adapt their research methodologies, methods and, at times, it ignited new and broader inquiry through virtual space. A lively discussion followed the panelists' presentations, conveying messages of empathy and hope in these trying circumstances. A video recording of the event is available on the SMT website: <https://www.oise.utoronto.ca/smt/resources/panel-discussions/>

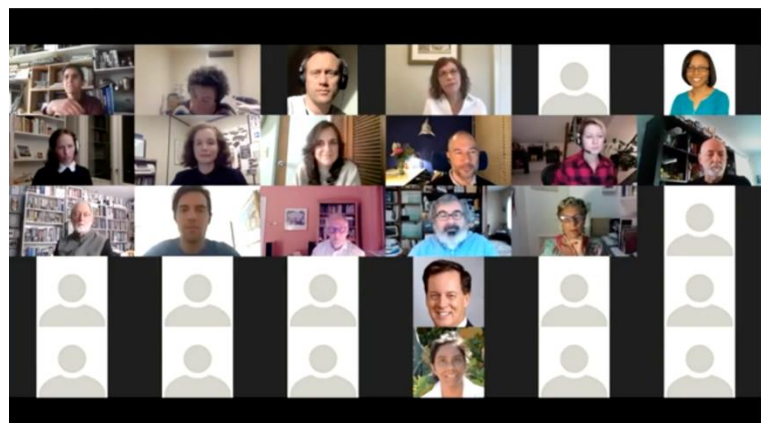
### *SMT Book Conversation: Controversy in Science Museums – Re-Imagining Exhibition Spaces and Practice*



On Tuesday 19 January 2021, SMT Centre faculty member Erminia Pedretti (OISE, University of Toronto) and SMT alumna, Ana Maria Navas Iannini (Faculty of Education, Los Andes University) shared their recent book entitled *Controversy in Science Museums: Re-imagining exhibition spaces and practice*. Their book considers how recent events and social movements have brought to the fore the significant ways in which science

museums can reinvent and expand their roles and purposes. Many are beginning to recognize that science museums can no longer serve as mere repositories for objects or sites for transmitting facts – they must become spaces for dialogue and actions that are inclusive, critical, and socially responsible.

The book conversation was followed by a panel presentation by international scholars: SMT Centre affiliate Martha Marandino (University of São Paulo), Ingrid Eikeland (Project Lead at the Faculty of Science and Technology, Norwegian University of Life Sciences), and Noah Weeth Feinstein (University of Wisconsin–Madison). The panel was moderated by SMT Centre student member, Kristen Schaffer. Panelists discussed how the issues raised in the book



intersect with their own research work and prompted thought-provoking discourse about current roles and purposes of science museums, particularly when controversy is at play. An international audience responded with questions and lively conversation. A video recording of the event is available on the SMT website: <https://www.oise.utoronto.ca/smt/resources/panel-discussions/>.

## SMT Centre Directorship



As already mentioned, our new SMT Centre Director, effective 1 July 2021, is Doug McDougall. Doug has extensive experience in leadership at all levels of OISE governance, so we are delighted that he has volunteered his time and talents to the Centre in this capacity. We look forward to supporting Doug during his 3-year term (2021-2024), as he advances the Centre's community-building focus.

## SMT Centre Collaborative Research Initiative

Due to the COVID-19 pandemic, and following federal and provincial guidelines, the anticipated SMT Centre research initiative has been postponed until the 2021/2022 academic year. ***Important Questions in Science, Technology, Engineering, and Mathematics (STEM) Education – A Colloquium for Exploring New Research Directions*** will provide opportunities for public engagement with the research activities of the Centre and create conditions for development of new collaborative research projects.

The first activity in the initiative will be a one-day research and practice colloquium bringing together researchers, graduate students, and community educators from across the Greater Toronto Area (GTA) to explore themes that are central to the Centre's mission: inclusion, diversity, equity, access, mental health and wellbeing, creativity, and critical thinking in STEM fields. We thank members for their continued interest in this initiative which we hope will be pursued in the new academic year.

## Proposal for an Open-Access SMT Journal for Emerging Scholars

In Summer of 2020, SMT faculty member Larry Bencze proposed that the SMT Centre provide a forum for the development of scholarship in science, mathematics, technology, and engineering education fields. Working alongside Sheliza Ibrahim Khan and John Percy in a subcommittee group, a proposal was developed for a new journal. The journal proposal was presented to SMT Centre members at the December members' meeting.

With the working title of *The SMT Education Chronical*, the journal would appeal to graduate students and early career scholars who wish to publish empirical and/or theoretical research. Authors would receive critical and constructive

feedback from a review committee prior to online, open access publication. Authors would also be encouraged to use feedback and forum comments from the journal readership to further develop their papers and submit them for publication in refereed outlets, if desired.

Unfortunately, due to increased pressures on faculty and students during the COVID-19 pandemic, combined with funding constraints, the journal launch has been postponed. In the meantime, faculty members and students continue to explore ways of supporting graduate students and early career professionals in their publication endeavors.

# NEWS FROM THE CANADIAN JOURNAL OF SCIENCE, MATHEMATICS AND TECHNOLOGY EDUCATION (CJSMTE)

Submitted by Doug McDougall, Editor-in-Chief, CJSMTE

What an incredibly busy year it has been for the Canadian Journal of Science, Mathematics and Technology Education! 2020 was a milestone in the journal's history as it marked 20 years of publishing CJSMTE. To celebrate two decades of scholarship, the journal published a Special Issue (20.4). This issue contained articles by two of the founding editors Derek Hodson and Gila Hanna, many board members of CJSMTE, and current members of our very own SMT community Erminia Pedretti and Larry Bencze. Some of the articles reflected on the history of the journal, while others discussed what the future of science, mathematics and technology education may hold. We encourage you to read and share the anniversary articles found here: (<https://link.springer.com/journal/42330/volumes-and-issues/20-4>).

As we begin the third decade of publishing, issue 21.1 contains a number of articles that launch us into a new foray of SMT education. Included in these publications is a wonderful book review (<https://link.springer.com/article/10.1007/s42330-021-00142-w>) written by Léonie J. Rennie on the book, *Controversy and Critical Exhibitions: Envisioning a Fourth Generation of Science Museums* (discussed above). In addition, issue 21.2 contains a special theme entitled *Responding to Anti-Black Racism in Science, Mathematics, Technology and STEM Education*. This special theme is guest edited by Fikile Nxumalo and Wanja Gitari.

We are also pleased to share some new and returning faces to CJSMTE. Isha DeCoito of Western University joined us as a science editor (English language), and Alexandre Cavalcante joined us as the new editor of the *Newsround* feature, discussing important events and news in the SMT community. *Newsround* is a special article founded in CJSMTE by David Blades at the inception of the journal and continued by Larry Bencze. The concept has been revived in a new form after reflections and discussions that occurred as part of an article written by Blades for the 20.4 issue.



Isha DeCoito



Alexandre Cavalcante

Eight new colleagues accepted our invitations to join the journal's editorial board, spanning from different countries including South Africa, Finland, Turkey, Ireland, Australia, Germany, and the Netherlands. We also welcomed Nadia Qureshi back as Editorial Assistant from her maternity leave. Sofia Ferreyro Mazieres had covered this leave, and incidentally went on her own maternity leave once Nadia rejoined. Indeed, it has been an eventful year at CJSMTE!

In February 2021, the journal held the first ever full editorial board meeting. This was very well attended and brought together scholars who sit on our board from a variety of countries and disciplines. Many ideas were brought forth and discussed around the development and future of the journal.

Finally, another new endeavor we initiated was our own YouTube channel (<https://www.youtube.com/channel/UCMF8dqWHJDwsgUYEJmndwiw>). Pamela Brittain of CTL interviewed authors who have published with CJSMTE and discussed their ideas in an accessible way, posted online to further knowledge mobilization. These interviews include Kitty Yan, Wolff-Michael Roth, and the guest editors of issue 20.2 *Reimagining the M in STEM*: Cynthia Nicol, Kathleen Nolan, Florence Glanfield, and Krista Francis.

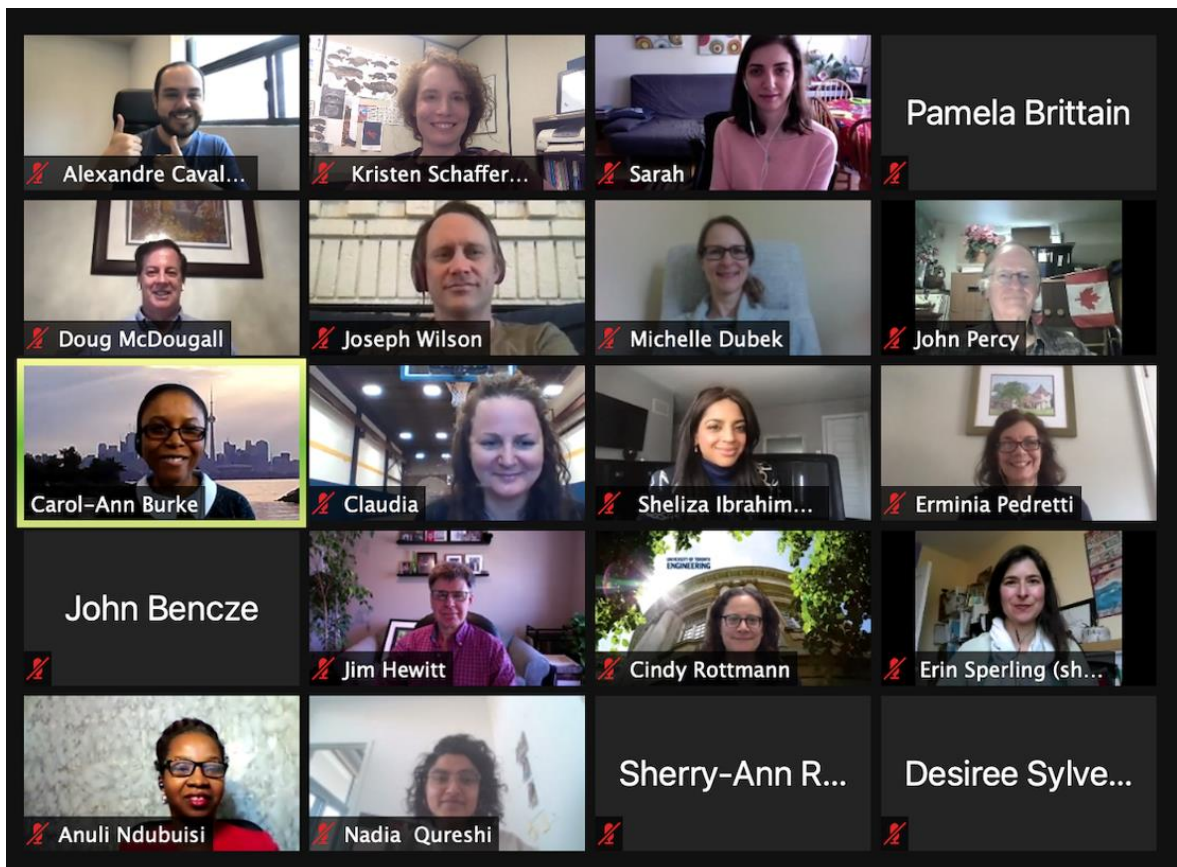
As you can see, CJSMTE has had a busy year. To keep up with our activities, please connect and engage with us on [Twitter](#), [YouTube](#), and [LinkedIn](#)

## SMT MEMBER MEETING PRESENTATIONS

When SMT Centre activities moved to the virtual space, members voted to continue meeting every 2 months via Zoom. Across, 4 meetings, Centre members shared their research and presented proposals (one for a new open access journal and another for a new mathematics course in the SMT Emphasis) to support and advance SMT education research. A regular feature of each meeting was a presentation made by the editorial team of the *Canadian Journal of Science, Mathematics and Technology Education* who provided updates on trends and events in SMT education research.

Research presentations made by students and recent graduates were:

- **Tasha Richardson:** *The use of digital video games in an elementary teacher education program – Exploring teacher candidates' attitudes and interest towards physics*
- **Maria Serevetas:** *Teacher's role in the design and implementation of a knowledge community and inquiry (KCI) classroom*
- **Claudia Mandekic, Pamela Brittain, and Sarah El Halwany:** Recent graduates' 3-minute thesis presentations



SMT Centre Members at the April 23, 2021, Centre Meeting

## CONGRATULATIONS TO 2020/2021 SMT MASTER'S GRADUATES<sup>1</sup>

<b>Eitan Dov Shour Laufer</b>	<i>The underrepresentation of youth from low-income communities in STEM education: A case study illustration from one organization seeking to confront this situation</i>
<b>Claudia Mandekic</b>	<i>BallMatics program – Basketball court as a middle-school math classroom: A mixed methods study</i>

## CONGRATULATIONS TO 2020/2021 SMT DOCTORAL GRADUATES<sup>2</sup>

<b>Alex Bing</b> (OISE SMT Alumnus member, Carlton University PhD)	<i>Extrinsic learning, corporate streaming, and ungrounded voting: The role of STEM schooling in the political socialization of Asian Canadian youths.</i>
<b>Pamela Brittain</b> Supervisor: <b>Douglas McDougall</b>	<i>Addressing math content knowledge and math anxiety in a teacher education program</i>
<b>Sarah El Halwany</b> Supervisor: <b>Lawrence Bencze</b>	<i>Affective contours of the college microbiology laboratories: Potentializing international students' be-longings with science, education and Canada</i>
Steven Alexander Engels Supervisor: <b>Jim Hewitt</b>	<i>Design factors for educational video games</i>
Bernard Ho Supervisor: <b>Erminia Pedretti</b>	<i>Critical thinking integration in post-secondary college pre-health science education</i>
Kimia Moozeh Supervisor: <b>Gregory Evans</b>	<i>An instructional structure to enhance learning in undergraduate laboratories</i>
Josephine Carnevale Seddon Supervisor: <b>Douglas McDougall</b>	<i>Project-based learning: A case study of early data analytics learning in undergraduate mathematics</i>
<b>Erin Randi Sperling</b> Supervisor: Antoinette Gagne	<i>ScienCivic literacy: An ethnographic case study of food justice education through an ecojustice lens</i>
Andrew Tkachenko Supervisor: <b>Douglas McDougall</b>	<i>Investigating secondary school teachers' understandings of and approaches to STEM integration</i>

---

<sup>1</sup> The list highlights graduates who were student members of the SMT Centre.

<sup>2</sup> The list highlights graduates who were student members of the SMT Centre or who were supervised by SMT Centre faculty members. Member names are in bold.

## RECENT RESEARCH GRANTS, AWARDS AND HONOURS

### *Research Grants*

**Gila Hanna** (2021-2024). *Teaching proof with technology to enhance understanding in undergraduate mathematic*. SSHRC Insight Grant. \$149,384.

**Rubaina Khan** (2020-2023). *Engineering education – A learning community approach*. SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship – Doctoral. \$105,000.

**Christina Phillips** (2021-2023). CBU Start-Up Research Grant, Cape Breton University. \$10,000.

**Desiree Sylvestre** (2020-2023). *From interest to identity: The role of teacher efficacy in developing STEM interest in racialized girls*. SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship – Doctoral. \$105,000.

**Joseph Wilson** (2020). Pilot Research Award, Department of Anthropology, University of Toronto. \$4,000.

**Joseph Wilson** (2021-2024). *Communicating science: A critical ethnography of knowledge production in the field of artificial intelligence*. SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship – Doctoral. \$105,000.

### *Funding for Research-Informed Teaching Innovation*

Queen's University (Lead Organization) and **Michelle Dubek**, University of Toronto (Partner Organization) (2021-2022). *Assessment strategies in Higher Education: Principles, practices, & e-applications*. eCampusOntario Virtual Learning Strategy Digital Fluency Fund. \$200,000.

**Jim Hewitt & Clare Brett**, University of Toronto (Lead Organization), Ryerson University (Partner Organization), and Ontario Tech University (Partner Organization) (2021-2022). *An introduction to effective online teaching for elementary and secondary instructors*. eCampusOntario Virtual Learning Strategy Digital Content Fund. \$76,117.



## *Awards & Honours*

Laurence Biro, **Joyce Nyhof-Young** and the LGBTQ Clinical Skills Team were awarded the 2021 W. T. Aikins Award in the category of Excellence in Development and Use of Educational Innovations.

**Greg Evans** was named a Fellow of the Canadian Engineering Education Association (CEEA).

**Gila Hanna** received the 2020 Partners in Research Canada Award, Dr Jonathon Borwein Mathematics Ambassador Award.

**Rubaina Khan** and colleague Nikita Dawe received a 2020 COVID-19 Student Engagement Award from the University of Toronto for the project *Together we Learn: Fostering an online learning community in an Engineering Science undergraduate course* (\$3,000).

**Asia Majeed** was awarded a School of Graduate Studies Conference Grant (valued at \$1,950).

**Cathy Marks Krpan** was announced as winner of the 2021 Margaret Sinclair Memorial Award Recognizing Innovation and Excellence in Mathematics Education from the Fields Institute for Research in Mathematical Sciences.

**Doug McDougall** received 3 prestigious awards during the 2020/2021 academic year. The awards were the 2020 Leaders and Legends, Mentor of the Year Award presented by the OISE Alumni Association at the University of Toronto, the 2020 JJ Berry Smith Doctoral Supervision Award by the School of Graduate Studies at the University of Toronto and the 2021 David E Hunt Award for Excellence in Graduate Education at the Ontario Institute for Studies in Education, University of Toronto.

**Joyce Nyhof-Young** was recipient of the 2021 Miriam Rossi Award for Health Equity in Undergraduate Medical Education.

**Dimpho Radebe** was awarded the 2020 Paul DiNovo Graduate Scholarship in Engineering Education from the University of Toronto (\$4,000).

**Tasha Richardson** was awarded the Science Education Research Group (SERG-GRÉS) 2021 Best Dissertation Award for her thesis *The use of digital video games in an elementary teacher education program: Exploring teacher candidates' attitudes and interest towards physics*. Thesis supervisor: Erminia Pedretti.

**Lesley Wilton** was presented with Canada's EdTech 2020 Post-Secondary Leader of the Year Award at the 5<sup>th</sup> Canadian EdTech Awards.

# MEMBERS' CORNER






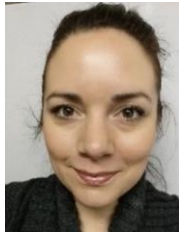


## SMT Faculty Profiles

<p><b>Larry Bencze</b></p>  <p><b>Research Interests:</b> Critical and activist science and technology education; critical analyses of STEM education and emotions in education</p>	<p><b>Clare Brett</b></p>  <p><b>Research Interests:</b> Online learning; educational technology</p>
<p><b>Carol-Ann Burke</b></p>  <p><b>Research Interests:</b> Science education; postcolonial theory in science education; underrepresented youth in science; informal science education</p>	<p><b>Alexandre Cavalcante</b></p>  <p><b>Research Interests:</b> Financial literacy and numeracy; critical mathematics education; ethnomathematics; entrepreneurship</p>
<p><b>Michelle Dubek</b></p>  <p><b>Research Interests:</b> STEM education; co-teaching; assessment in integrated contexts development</p>	<p><b>Greg Evans</b></p>  <p><b>Research Interests:</b> Engineering education; student data analytics; lab-based education; transdisciplinary competencies</p>
<p><b>Wanja Gitari</b></p>  <p><b>Research Interests:</b> Use of school/academic science in everyday life; access and equity in school/academic science</p>	<p><b>Gila Hanna</b></p>  <p><b>Research Interests:</b> Mathematics education; mathematical proofs; gender and mathematics education; distance education</p>
<p><b>Jim Hewitt</b></p>  <p><b>Research Interests:</b> Educational technology; computer-supported learning environments; electronic discourse; distance education</p>	<p><b>Sheliza Ibrahim Khan</b></p>  <p><b>Research Interests:</b> Science education; place-based education; STEM; critical pedagogy; mathematics education</p>

<p><b>Cathy Marks Krpan</b></p>  <p><b>Research Interests:</b> Mathematics education; Student communication, argumentation, English language learners, learners who struggle</p>	<p><b>Doug McDougall</b></p>  <p><b>Research Interests:</b> Mathematics education; teacher education; qualitative methods</p>
<p><b>Emily Moore</b></p>  <p><b>Research Interests:</b> Engineering leadership; student motivation and team dynamics; systems thinking; Equity in engineering</p>	<p><b>Erminia Pedretti</b></p>  <p><b>Research Interests:</b> Science education; STSE education; science museums; controversy and exhibition practices; teacher education; action research</p>
<p><b>John Percy</b></p>  <p><b>Research Interests:</b> Astronomy and astrophysics; nature and evolution of stars; formal and informal astronomy education</p>	<p><b>Christina Phillips</b></p>  <p><b>Research Interests:</b> Science education; environmental education; STEM education</p>
<p><b>Mary Reid</b></p>  <p><b>Research Interests:</b> Math education; teacher education; professional learning; educational technology</p>	<p><b>Gurpreet Sahmbi</b></p>  <p><b>Research Interests:</b> Transitions in mathematics (middle to secondary, secondary to tertiary); student experiences in pre-service teacher education</p>
<p><b>Jim Slotta</b></p>  <p><b>Research Interests:</b> Learning sciences; technology enhanced learning environments; collaborative learning; STEAM inquiry</p>	<p><b>Erin Sperling</b></p>  <p><b>Research Interests:</b> Food justice education through an ecojustice lens; ecojustice pedagogy for teacher education</p>

<p><b>John Wallace</b></p>  <p><b>Research Interests:</b> Curriculum integration; science education; teacher learning; STEM; qualitative research</p>	<p><b>Lesley Wilton</b></p>  <p><b>Research Interests:</b> Online learning (e-learning and blended learning); pre-service education; teaching with technology; social practices and new literacies</p>
--	--

*SMT Student Profiles*

<p><b>Thelma Akyea</b></p>  <p><b>Research Interests:</b> Black women in Canadian physics</p>	<p><b>Daniel Atkinson</b></p>  <p><b>Research Interests:</b> Food education; health education; science education</p>
<p><b>Jennifer Calix</b></p>  <p><b>Research Interests:</b> Mathematics education &amp; technology education research; curriculum &amp; pedagogy</p>	<p><b>Stacy Costa</b></p>  <p><b>Research Interests:</b> Mathematics education; knowledge building; STEM; collaborative learning; computational thinking; online learning</p>
<p><b>Sofia Ferreyro-Mazieres</b></p>  <p><b>Research Interests:</b> Mathematics education</p>	<p><b>Darlee Gerrard</b></p>  <p><b>Research Interests:</b> Science/engineering/STEM education; experiential and co-curricular learning; access to/equity in education; outdoor/environmental education</p>
<p><b>Alyse Kennedy</b></p>  <p><b>Research Interests:</b> Environmental and sustainability education in teacher education; EcoSchools and green schools programming</p>	<p><b>Rubaina Khan</b></p>  <p><b>Research Interests:</b> Engineering education; engineering design; learning communities; online learning</p>

<p><b>Chelsie Leger</b></p>  <p><b>Research Interests:</b> Mathematics education; transitions in mathematics</p>	<p><b>Asia Majeed</b></p>  <p><b>Research Interests:</b> Mathematics Education</p>
<p><b>Nurul Hassan Mohammad</b></p>  <p><b>Research Interests:</b> STEM education; identity; postsecondary education; higher education</p>	<p><b>Rumina Musani</b></p>  <p><b>Research Interests:</b> Medical education/pathology education; collaborative online learning</p>
<p><b>Anuli Ndubuisi</b></p>  <p><b>Research Interests:</b> Engineering education; collaborative learning; active learning; learning in diverse virtual teams</p>	<p><b>Sa'diyya Parnell-Hendrickson</b></p>  <p><b>Research Interests:</b> Mathematics education; self- regulated learning</p>
<p><b>Nadia Qureshi</b></p>  <p><b>Research Interests:</b> Experiences of Black and racialized students in accessing STEM post-secondary studies</p>	<p><b>Dimpho Radebe</b></p>  <p><b>Research Interests:</b> Engineering education; engineering culture &amp; identity; public sector engineering careers; ethics, equity &amp; social justice in STEM</p>
<p><b>Kristen Schaffer</b></p>  <p><b>Research Interests:</b> Informal science education; community-responsive research; ecology education</p>	<p><b>Desiree Sylvestre</b></p>  <p><b>Research Interests:</b> Identity development; science teacher identity development; positionality; agency</p>
<p><b>Joseph Wilson</b></p>  <p><b>Research Interests:</b> Metaphor studies; laboratory life; discourse analysis; artificial intelligence; communicating science</p>	<p><b>Majd Zouda</b></p>  <p><b>Research Interests:</b> Activist science education; STSE/socioscientific issues; STEM education; elite schools; action research; critical discourse analysis</p>

## Affiliate and Alumni Members

**Affiliates:** Alisa Acosta; George Chiran; Einat Gil; Darren Hoeg; Albert Huynh; Qin Liu; Martha Marandino; Sarah Mayes-Tang; Joyce Nyhof-Young; Andrew Petersen; Cindy Rottmann; Mayrose Salvador; Chirag Variawa; Zhaoyun Helen Wang

**Alumni:** Alex Bing; Nasim Booloorsaz Mashhadi; Pam Brittain; James Crimmins; Sarah El Halwany; Eitan Laufer; Clauda Mandekic; Ana Maria Navas Iannini; Murat Oztok; Zoya Padamsi; Tasha Richardson

## Selected Member Publications for 2020/2021

(\*Indicates student SMT Centre member authorship; member names in bold; no more than 3 publications submitted per member, but some names appear more than 3 times due to extensive collaboration and submissions made by multiple members.)

Attie, J. P., & **Marks Krpan, C.** (2020). Argumentação em livros didáticos de matemática: Brasil e Canadá. [Argumentation in mathematical textbooks: Brazil and Canada]. *Interfaces Brasil/Canadá*, 20, 1-20.

Avery, T. L., & **Brett, C.** (2020). Teacher presence and pedagogy: Faculty-identified pedagogical themes emerging from interviews about online learning. In D. Schmidt-Crawford (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1601-1606). Association for the Advancement of Computing in Education (AACE).

Avery, T., Makos, A., Sarguroh, W., \***Raman, P., Brett, C., & Hewitt, J.** (2020). This is why we do it: Using a design based approach to optimize student learning in an online discussion based course. *International Journal of E-Learning & Distance Education*, 35(1), 1-35.

**Bencze, J. L.** (2020). Re-visioning ideological assemblages through de-punctualizing and activist science, mathematics and technology education. *Canadian Journal of Science, Mathematics & Technology Education*, 20(4), 736-749.

Biro, L., Tang, H., Tang, G., Song, K., & **Nyhof-Young, J.** (2021). Introducing sexual and gender minority health: Medical students develop and evaluate an LGBT+ infographic. *American Journal of Sexuality Education*, 16(2), 181-198.

Bizerra, A., & **Marandino, M.** (2021). Sobre serpentes e públicos: (Bio)grafias na comunicação pública da ciência no Instituto Butantan do século XX [Of snakes and audiences: Biographies/Graphs in the public communication of science at the Butantan Institute of the 20th Century]. In S. P. Santos, G. L. Ferreira & A. F. Vigário (Eds.), *(Bio)grafias: Nós e entrenós na educação em ciências e biologia [Biographies/graphs: nodes and internodes in science and biology education]* (pp. 340-362). Culturatrix.

Bunce, L., McGee, N., & **Phillips-MacNeil, C.** (2020). Ontario EcoSchools: A framework for environmental learning and action in K-12 schools. In A. Gough, J. C. K. Lee & E. P. K. Tsang (Eds.), *Green schools globally* (pp. 103-123). Springer.

**Burke, L. E. C.** (2020). Informal science educators and children in a low-income community describe how children relate to out-of-school science education. *International Journal of Science Education*, 42(10), 1673-1696.

**Burke, L. E. C.** (2021). Foregrounding intersectionality in considerations of diversity: Confronting discrimination in science teacher education. *Research in Science Education*. doi: 10.1007/s11165-021-10001-1.

**Burke, L. E. C.,** McAvella, A., & Wessels, A. (2020). Using drama to uncover and expand student understandings of the nature of science. *The Science Teacher*, 88(2), 28-35.

Căprioară, D., Savard, A., & **Cavalcante, A.** (2020). Empowering future citizens in making financial decisions: A study of elementary school mathematics textbooks from Romania. In D. Flaut, S. Hořková-Mayerová, C. Ispas, F. Maturo & C. Flaut. (Eds.), *Decision making in social sciences: Between traditions and innovations* (pp. 119-134). Springer.

**\*Costa, S. A.,** Danesi, M., & Martinovic, D. (Eds.). (2020). *Mathematics (education) in the information age*. Springer.

Davies, S., **Liu, Q.,** & **Evans, G.** (2020, June). The educational trajectory of high school students to engineering programs at a comprehensive Canadian university. *2020 Proceedings of the Canadian Engineering Education Association (CEEA)*, Montreal, Canada. <https://doi.org/10.24908/pceea.vi0.14130>

Demmans Epp, C., Phirangee, K., **Hewitt, J.,** & Perfetti, C. A. (2020). Learning management system and course influences on student actions and learning experiences. *Educational Technology Research and Development*, 68(6), 3263-3297.

Elfassy, M. D., Duncan, L. J., Green, A., Sun, H., Guimond, T., Tzanetos, K., & **Nyhof-Young, J.** (2020). Patients as teachers: Evaluating the experiences of volunteer inpatients during medical student clinical skills training. *Canadian Medical Education Journal*, 11(6), 8-16.

**\*El Halwany, S., \*Zouda, M.,** Pouliot, C., & **Bencze, L.** (2020). Student-teachers' relationships to knowledge and to their practices for critical and activist STSE education. In K. W. Clausen & G. Black (Eds.), *The future of action research in education: A Canadian perspective* (pp. 171-193). McGill-Queen's University Press.

**\*El Halwany, S., Bencze, L., \*Hassan, N., \*Schaffer, K.,** Milanovic, M., & **\*Zouda, M.** (2021). Becoming alive within science education (research): Thinking with life history(ies), bodies and stickiness. *Cultural Studies of Science Education*, 16(1), 85-107.

Elias, P., Luk, A., Perry, J., **\*Qureshi, N.,** & Wyper, L. (2021). Adult literacy policy and practitioners. In S. M. Brigham, R. McGray & K. Jubas (Eds.), *Adult education and learning in Canada: Advancing a critical legacy*. Thompson Books.

Fincher, S., Jeuring, J., Miller, C. S., Donaldson, P., du Boulay, B., Hauswirth, M., Hellas, A., Hermans, F., Lewis, C., Mühling, A., Pearce, J. L., & **Petersen, A.** (2020). Notional machines in computing education: The education of attention. In *Proceedings of the Working Group Reports on Innovation and Technology in Computer Science Education* (pp. 21-50). Association for Computing Machinery. <https://doi.org/10.1145/3437800.3439202>

**Gil, E.** (2020, October). *Leading a culture of innovative pedagogy through future learning spaces* [Conference presentation]. Learning Cultures Learning Spaces Symposium, Illinois Institute of Technology.

**Gitari, W.,** Foster, D., & **Mashhadi, N.** (2020). A commentary on Kenya's response to the global STEM movement from social justice perspectives: Would school-community innovation centres/makerspaces address apparent gaps in the proposed curriculum? *Comparative and International Education*, 49(1), 1-17.

**Hanna, G.** (2020). Mathematical proof, argumentation, and reasoning. In Lerman, S. (Ed.), *Encyclopaedia of Mathematics Education* (pp. 561-566). Springer.

**Hanna, G.,** & Knipping, C. (2020). Proof in mathematics education, 1980-2020: An overview. *Journal of Educational Research in Mathematics, 30*(SP1), 1-13.

**\*Hassan, N., \*El Halwany, S., \*Schaffer, K., Milanovic, M. [sic], \*Zouda, M., & Bencze, L.** (2021, February). Action-oriented pedagogy to cultivate student agency in postsecondary project-based STEM education. In J. L. Bencze (Presider), *Promoting sociopolitical civic engagement through science and technology education: Ontological, epistemological, methodological and axiological considerations* [Symposium presentation]. International Organization for Science and Technology Education 2020 (IOSTE 2020) Conference, Daegu, Korea.

Inwood, H., & **\*Kennedy, A.** (2020). Conceptualizing art education as environmental activism in preservice teacher education. *The International Journal of Art & Design Education, 39*(3), 585-599.

Inwood, H. J., & **\*Kennedy, A.** (2020). Exploring how university and school board partnerships can integrate professional development in environmental and sustainability education. *Canadian Journal of Environmental Education, 23*(1), 68-84.

Inwood, H., & **\*Kennedy, A.** (2021, April). *Integrating in-service and pre-service professional learning in ESE* [Conference presentation]. EECOM 2021 Research Symposium, Online.

Jao, L., **Sahmbi, G.,** & Lopez, M. J. B. (2021). The cycle of enactment and investigation: An approach for novice teacher educator professional development. *International Journal of Teacher Education and Professional Development (IJTEPD), 4*(1), 30-48.

**\*Khan, R., & Slotta, J.** (2020, October). *Fostering learning communities in engineering design education: A critical discourse analysis of engineering syllabi* [Conference presentation]. 2020 IEEE Frontiers in Education (FIE) Conference. doi: 10.1109/FIE44824.2020.9274012

**\*Khan, R., Phillips, C., & Burke, L. E. C.** (2021). *Engineering in K-12 STEM education: Navigating interpretations of learning within and between divergent knowledge traditions* [Conference presentation]. American Education Research Association (AERA) Conference, Online.

Klassen, M., Reeve, D., **Evans, G. J., Rottmann C.,** Sheridan, P., & Simpson, A. (2020). Engineering: Moving leadership from the periphery to the core of an intensely technical curriculum. *New Directions for Student Leadership, 2020*(165), 113-124.

**Liu, Q.** (2020). The impact of quality assurance policies on curriculum development in Ontario postsecondary education. *Canadian Journal of Higher Education, 50*(1), 53-67.

**Liu, Q., & Evans, G.** (2020, June). *Unleashing the power of data analytics to examine engineering students' experiences and outcomes* [Conference presentation]. 2020 ASEE Virtual Annual Conference. doi: 10.18260/1-2--35431

Macdonald-Roach, E., **Rottmann, C., Chan, A., & Moore, E.** (2020, June). Gendered patterns in senior engineers' leadership learning. *2020 Proceedings of the Canadian Engineering Education Association (CEEA)*, Montreal, Canada. <https://doi.org/10.24908/pceea.vi0.14140>

MacKinnon, K. Makos, A., **Wilton, L., Brett, C.,** Malhotra, T. Avery, T. & **\*Raman, P.** (2020). Instructor perspectives on building community in online discussion-based courses: Issues of pedagogy and functionality. *International Journal of E-Learning & Distance Education, 35*(1), 1-31.



**Marandino, M.** (2021, March 1). É necessário ir além das “etiquetas” no ensino de ciências [It is necessary to go beyond “labels” in science education]. *Jornal Pensar a Educação em Pauta*. <https://pensaraeducacao.com.br/pensaraeducacaoempauta/e-necessario-ir-alem-das-etiquetas-no-ensino-de-ciencias/>

**Marandino, M.,** Pugliese, A., Monaco, L. M., Milan, B., & Scalfi, G. (Eds.). (2020). *Práticas educativas e formação de públicos de museus: Relações entre ciência, sociedade e temas controversos [Educational practices and the formation of museum audiences: Relationships between science, society, and controversial issues]*. Faculdade de Educação da USP.

**Marks Krpan, C.** (2020, October). *Using visuals to deepen mathematical understanding*. [Conference presentation]. British Columbia Association of Mathematics Teachers (BCAMT) Virtual Conference.

**Marks Krpan, C., & Sahmbi, G.** (2020, June). *Teachers’ perspectives on students’ use of visual representations in counter arguments in elementary mathematics* [Conference presentation]. Canadian Society for the Study of Education (CSSE) Conference, London, Ontario.

**Marks Krpan, C., & Sahmbi, G.** (2020). Argumentation is elementary: The case for teaching argumentation in elementary mathematics classrooms. In **\*S. A. Costa,** M. Danesi & D. Martinovic (Eds.), *Mathematics (education) in the information age* (pp. 37-52). Springer.

**McDougall, D.** (2020). A generation of the Canadian Journal of Science, Mathematics and Technology Education. *Canadian Journal for Science, Mathematics, and Technology Education*, 20(4), 585-587.

**McDougall, D. & \*Ferreyro-Mazieres, S.** (2020). CJSMT: 20 Years Strong. *Canadian Journal for Science, Mathematics, and Technology Education*, 20(4), 784-791.

**\*Mohammad, N. H., \*El Halwany, S., \*Schaffer, K., & Bencze, L.** (2020). *Enhancing project-based STEM education through student participation and autonomy: Implementing a STEPWISE framework*. [Conference presentation]. Australian Science Education Research Association (ASERA), Online.

Moozeh, K., Farmer, J., Tihanyi, D., & **Evans, G. J.** (2020). Learning beyond the laboratory: A web application framework for development of interactive postlaboratory exercises. *Journal of Chemistry Education*, 97(5), 1481-1486.

**\*Ndubuisi, A., \*Khan, R., Marzi, E., & Edun, O.** (2020, October). *A KCI approach to promote intercultural competencies for international virtual [sic] engineering student teams (InVEST)*. [Conference presentation]. 2020 IEEE Frontiers in Education (FIE) Conference. doi: 10.1109/FIE44824.2020.9274093

**\*Ndubuisi, A., \*Khan, R., Marzi, E., & Edun, O.** (2020, September). *InVEST: Integrating virtual collaboration and intercultural competencies in engineering education*. [Conference presentation]. 2020 International Conference on Technology and Entrepreneurship (ICTE). <https://doi.org/10.1109/ICTE47868.2020.9215541>

**\*Ndubuisi, A., Marzi, E., & Slotta, J.** (2021) Cross-cultural virtual team projects: International virtual engineering student teams. In S. Stephanie, B. Barbosa, I. Crawford & S. Luck (Eds.), *Developments in virtual learning environments and the global workplace* (pp. 86-107). IGI Global.

**Pedretti, E., & Navas Iannini, A. M.** (2020). *Controversy in science museums: Re-imagining exhibition spaces and practice*. Routledge.

**Pedretti, E., & Navas Iannini, A. M.** (2020). Towards fourth-generation science museums: Changing goals, changing roles. *Canadian Journal of Science, Mathematics and Technology Education*, 20(4), 700-714.

**Pedretti, E., Navas Iannini, A. M., \*Schaffer, K. & \*Atkinson, D. J.** (2021, April). *Empowering publics to engage with socio-scientific issues in science exhibitions: Mental Health-Mind Matters* [Conference presentation]. National Association for Research in Science Teaching (NARST) Virtual Conference.

**Pedretti, E., & Nazir, J.** (2020). Correntes na educação CTSA: Mapeando um campo complexo, 40 anos depois [Currents in STSE education: Mapping a complex field, 40 years on]. In P. M. Marini Teixeira (Ed.), *Movimento CTS, Estudos, pesquisas & reflexões* (pp. 235-278). Editoria CRV. [Portuguese Translation, original work published in 2011.]

**Phillips, C.** (2021, February). *Exploring how to make science, technology, engineering and mathematics (STEM) education at the K-16 level more cognitively inclusive for students in face-to-face and virtual learning spaces* [Conference presentation]. International Organization for Science and Technology Education 2020 (IOSTE 2020) Conference, Daegu, Korea.

**\*Raman, P., Avery, T., Brett, C., & Hewitt, J.** (2020). Exploring the use of #hashtags as an easy entry solution to enhance online discussions. *International Journal of E-Learning & Distance Education*, 35(1), 1-34.

Romkey L., Dawe N., & **\*Khan, R.**, (2020). What is engineering science? Defining a discipline through a cross-institutional comparison and a multi-institutional workshop. *2020 Proceedings of the Canadian Engineering Education Association (CEEA)*, Montreal, Canada. <https://doi.org/10.24908/pceea.vi0.14168>

**Rottmann, C.**, Handley, M., **Moore, E.**, Quitoriano, N., Etmanski, T., Jamieson, M., Meister, D., & Hsiao, A. (2020, June). *We the North: Engineering leadership programs in Canada* [Conference presentation]. American Society for Studies in Engineering Education Annual Conference & Exposition, Virtual Conference.

Savard, A., **Cavalcante, A.**, & Căprioară, D. (2020). The representations of financial education among elementary teachers in Romania: Between cognition and citizenship. *Bulletin of the Transilvania University of Braşov*, 13(62), 47-56.

Savard, A., **Cavalcante, A.**, Turineck, L., & Javaherpour, A. (2020). Some considerations towards the concept of money in elementary school: Money as measurement. *For the Learning of Mathematics*, 40(3), 22-24.

Schell, W. J., Hughes, B. E., Donald, J., Goldfinch, T., Kadi, A., **Moore, E.**, Reeve, D., **Rottmann, C.**, & Sheridan, P. K. (2020). Leadership transcending borders: Building bridges to integrate technical and professional knowledge. *2020 Proceedings of the Canadian Engineering Education Association (CEEA)*, Montreal, Canada. <https://doi.org/10.24908/pceea.vi0.14174>

**Sperling, E.** (2021, April). *Food justice education as/for ecojustice education: Challenges and opportunities* [Conference presentation]. Canadian Network for Environmental Education and Communication 2021 (EECOM 2021) Research Symposium, Toronto, ON.

Steinhorst, P., **Petersen, A.**, & Vahrenhold, J. (2020). Revisiting self-efficacy in introductory programming. In *ICER '20: Proceedings of the 2020 ACM Conference on International Computing Education Research* (pp. 158-169). Association for Computing Machinery. <https://doi.org/10.1145/3372782.3406281>

**\*Wilson, J.** (2021, March). *The ghost in the machine: Emergent metaphors of 'virtual' and 'artificial' in computer science in the 1950s*. Workshop presented at Epistemology of the Large Hadron Collider, European Organization for Nuclear Research (CERN). Online.

**\*Wilson, J.** (2021). Decaying words: The Metaphor of evolution in language becomes literal in a Canadian forest. *Technology and Language*, 2(1), 26-36.

**Wilton, L.** (2020). New literacies, social practices and active learning in e-discussions. In M. Dugdale & L. Charles (Eds.), *SALTISE: Proceedings from the 9th Annual Meeting* (pp. 44-45). SALTISE.

**Wilton, L., & Brett, C.** (Eds.). (2020). *Handbook of research on online discussion-based teaching methods*. IGI Global.

**Wilton, L., Brittain, P., & Stodolak, M.** (2020, December). *AI is here. Have some fear? 5 assurances to alleviate and educate you on the potential of artificial intelligence in K-12 education* [Conference presentation]. The Learning & Training Virtual Conference.

Zavaleta Bernuy, A., Zheng, Q. Y., Shaikh, H., **Petersen, A.**, & Williams, J. J. (2021). Investigating the impact of online homework reminders using randomized A/B comparisons. In *SIGCSE '21: Proceedings of the 52nd ACM Technical Symposium on Computer Science Education* (pp. 921-927). Association for Computing Machinery. <https://doi.org/10.1145/3408877.3432427>

Zhou, J. S., Chen, R., Feng, Y. Y., Lu, Y., & **Nyhof-Young, J.** (2020). Who wants to translate? Evaluation of a novel medical Mandarin education program for and by pre-clerkship medical students. *MedEdPublish*, 9(1), 262. <https://doi.org/10.15694/mep.2020.000262.1>

Zhu, S. C., Xie, S., & Ma, Y., & **McDougall, D.** (Eds.). (2020). *Reciprocal learning for cross cultural mathematics education: A partnership project between Canada and China*. Palgrave Macmillan.

**\*Zouda, M.**, Tsubaris, D., **El Halwany, S.**, Milanovic, M., **\*Nurul-Hassan, M.**, [sic] Rahman, S.S., & **Bencze, L.** (2021, February). Values negotiations and constructs of sociotechnical imaginaries in a school science course. In J. L. Bencze (Presider), *Promoting sociopolitical civic engagement through science and technology education: Ontological, epistemological, methodological and axiological considerations* [Symposium presentation]. International Organization for Science and Technology Education 2020 (IOSTE 2020) Conference, Daegu, Korea.

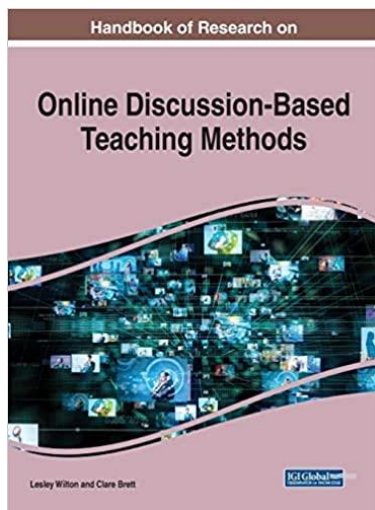
**\*Zouda, M.**, Tsubaris, D., **\*El Halwany, S.**, Milanovic, M., **\*Padamsi, Z.**, **\*Qureshi, N.**, & **Bencze, L.** (2020, June). *'It's very complicated': Expanding students' views on relationships in socioscientific issues* [Conference presentation]. Australian Science Education Research Association (ASERA), Online.

## MEMBER ANNOUNCEMENTS

### *Announcing New Books*

#### ***Handbook of Research on Online Discussion-Based Teaching Methods***

Lesley Wilton & Clare Brett (Editors)



Publisher's extract:

“In this digital age, faculty, teachers, and teacher educators are increasingly expected to adopt and adapt pedagogical perspectives to support student learning in instructional environments featuring online or blended learning. One highly adopted element of online and blended learning involves the use of online learning discussions ... The **Handbook of Research on Online Discussion-Based Teaching Methods** is a cutting-edge research publication that seeks to identify promising designs, pedagogical and assessment strategies, conceptual models, and theoretical frameworks that support discussion-based learning in online and blended learning environments.”

For more details, please visit IGI Global:

<https://www.igi-global.com/book/handbook-research-online-discussion-based/241183>

#### ***Reciprocal Learning for Cross-Cultural Mathematics Education: A Partnership Project Between Canada and China***

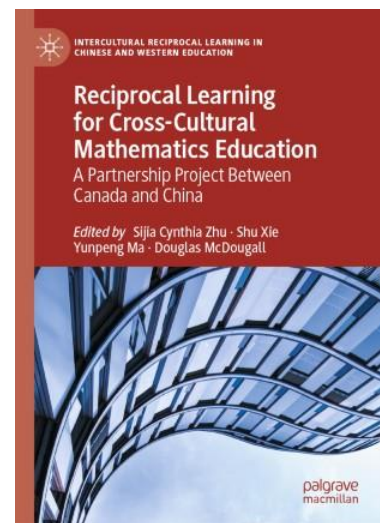
Sijia Cynthia Zhu, Shu Xie, Yunpeng Ma & Douglas McDougall (Editors)

Publisher's extract:

“This edited volume examines new ways of teaching mathematics through a cross-cultural reciprocal learning project between sister schools in Canada and China. Situating teacher learning in the intersection of the two different school systems, curriculums, and cultures of mathematics learning and teaching in both nations, this volume offers teachers a unique and much-needed perspective on how practices between countries become more and more likely shaped by each other in the emerging global society.”

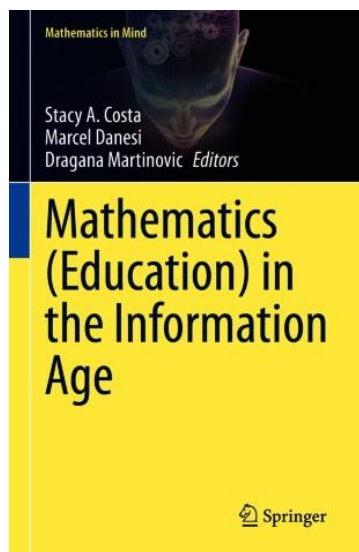
For more details, please visit Palgrave Macmillan:

<https://www.palgrave.com/gp/book/9783030568375>.



## ***Mathematics (Education) in the Information Age***

Stacy A. Costa, Marcel Danesi & Dragana Martinovic (Editors)



Publisher's extract:

"This book brings together ideas from experts in cognitive science, mathematics, and mathematics education to discuss these issues and to present research on how mathematics and its learning and teaching are evolving in the Information Age ... Given the interdisciplinary nature of the chapters, this will be of interest to all kinds of readers, from mathematicians themselves working increasingly with computer scientists, to cognitive scientists who carry out research on mathematics cognition and teachers of mathematics in a classroom."

For more details, please visit Springer:

<https://link.springer.com/book/10.1007%2F978-3-030-59177-9#about>.

Stacy Costa adds: "We hope this opens up new connections and appreciation regarding how mathematics is perceived." If you have questions, you can reach out to Stacy at [stacy.costa@mail.utoronto.ca](mailto:stacy.costa@mail.utoronto.ca)

## ***Práticas educativas e formação de públicos de museus: relações entre ciência, sociedade e temas controversos***

***[Educational practices and the formation of museum audiences: Relationships between science, society, and controversial issues]***

Martha Marandino & Adriana Pugliese, Luciana M. Monaco, Barbara Milan & Grazielle Scalfi (Editors)

[This book is published in Portuguese.]

Publisher's extract:

"The relationship between science, society and pertinent controversial issues goes further in this publication, as it expands in the relationship between museum and school, and, in particular, the formation of different audiences. The book offers a new look at the theme ... The project seeks to understand, on the one hand, how the relationships between science, technology, society and the environment (STSE) and controversial issues have been addressed by museums and what the public understands, and, on the other hand, what the public's opinions are about the museums that address these topics."

For more details, please visit Faculdade de Educação da USP: <http://www.livrosabertos.sibi.usp.br/portaldelivrosUSP/catalog/book/559>



## Member Activities

### Engineering Education

Cindy Rottmann

Cindy shares information about Susan McCahan’s Engineering Education Research Snacks initiative. In partnership with the Canadian Engineering Education Association (CEEA), a collection of short editorials on research methods for engineering education students has been produced. To learn more, visit the CEEA website: <https://ceea.ca/resources-2/#eer-snacks>. “These 1-2 page Snacks can be used as introductions for new researchers or summer students, or as refreshers for even the most experienced researchers.”

Cindy was also one of five international scholars invited to contribute an editorial on ethics and equity in engineering for SEFI (European Engineering Education Society). Her editorial *Centring Equity in Engineering Ethics Case Study Instruction* can be retrieved from <https://tinyurl.com/snu4zd>

### 2021 Canadian Network for Environmental Education & Communication (EECOM) Conference

Alysse Kennedy

Conference coordinator Alysse Kennedy reports that the 2021 Canadian Network for Environmental Education & Communication (EECOM) conference took place on April 21-24, 2021. This event welcomed over 800 registrants across Canada who are passionate about Environmental and Sustainability Education. Hosted by OISE’s Environmental and Sustainability Education (ESE) Initiative, Toronto District School Board’s EcoSchools, EcoSchools Canada and Natural Curiosity, this online gathering featured:

- a full-day research symposium to establish an ESE in Teacher Education national agenda
- a Youth Forum showcasing Gr. 7-12 students’ climate action projects through Learning for a Sustainable Future (LSF)
- an EcoExpo with over 30 partner organizations
- ‘Nuit Verte’ evening social events
- 70+ workshops
- powerful keynotes by Dr. Julian Agyeman (Tufts), Indigenous artists Christi Belcourt & Isaac Murdoch, and youth activist Larissa Crawford.

Alysse records that the committee is grateful to all who participated and helped to make EECOM 2021 the largest EECOM conference to date. To learn more, please visit the conference website <https://ecoschools.ca/eecom/>.

## ACKNOWLEDGEMENTS

This newsletter was prepared with the invaluable support of Kristen Schaffer (SMT Centre Assistant, 2019-2021). The Centre Director apologises in advance for any errors that may appear in this publication.

Information presented in this newsletter covers the period from May 2020 to April 2021 (inclusive) and members have restricted themselves to no more than three publications each to provide a sample of their work. [Some members appear more than 3 times in the publication list, illustrating the extensive degree of collaboration occurring between Centre members.]



252 Bloor Street West, Toronto, ON M5S 1V6  
<https://www.oise.utoronto.ca/smt/>  
smtcentre@utoronto.ca