CMESG **GCEDM**

NEWSLETTER / BULLETIN

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The NEWSLETTER is a publication of the Canadian Mathematics Education Study Group

***CMESG** is a group of mathematicians and mathematics educators who meet annually to discuss mathematics education issues at all levels of learning. The aims of the Study Group are:*

1) *to study the theories and practices of the teaching of mathematics*
2) *to promote research in mathematics education*
3) *to exchange ideas and information about all aspects of mathematics education in Canada*
4) *to disseminate the results of its work.*

Ce BULLETIN est une publication du Groupe canadien d'étude en didactique des mathématiques

*Le **GCEDM** est composé de personnes œuvrant en mathématiques et en didactique des mathématiques et qui se réunissent une fois par année pour étudier diverses questions relatives à l'enseignement des mathématiques à tous les niveaux. Les buts du Groupe sont les suivants:*

1) *susciter une réflexion critique sur la théorie et la pratique de l'enseignement des mathématiques*
2) *encourager la recherche en didactique des mathématiques*
3) *faciliter l'échange d'idées et d'information sur tous les aspects de l'éducation mathématique au Canada*
4) *faire connaître les résultats de ses travaux.*

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(in order of appearance / en ordre d'apparition)

PRESIDENT'S MESSAGE DU PRÉSIDENT

Olive Chapman

"Celebrating the past, Inspiring the future"

This is the theme of our 40th Annual Meeting, hosted by our colleagues (Jamie Pyper and Peter Taylor) at Queen's University, Kingston, Ontario, June 3 – 7, 2016. The focus is on celebrating our history and providing inspiration for the future. Thus, our program [www.cmesg.org] for this year highlights past and current senior members of our Group as plenary and plenary panel presenters. These special anniversary plenary sessions are replacing our normal program regarding the two plenaries, the separate time slots for small-group discussion of plenaries and preparation of questions that are presented to the plenary speakers in separate question periods, and the invited topic sessions. Other aspects of the program (working groups, new PhDs, gallery walk, and ad hoc discussion) remain the same. Thanks to all of our colleagues who accepted the invitations of the CMESG executive to be plenary and plenary panel speakers and working group leaders. Our research community continues to grow with 7 new PhDs who will be presenting their work at the meeting. I also encourage participants of the meeting to share their work in the "Gallery Walk". This is a poster session that allows you to display and talk about some aspect of your research or teaching.

I hope many of you will be able to join us for this socially and scientifically exciting anniversary meeting. Don't miss the opportunity to engage with some of our prominent and inspiring Canadian researchers in mathematics and mathematics education.

As a reminder, you are always invited to share any comments and concerns via any member of the executive for us to address. We return to our regular program structure next year and

« Célébrons le passé, Inspirons le futur »

Voilà le thème de notre 40e rencontre annuelle, organisée par nos collègues (Jamie Pyper et Peter Taylor) de Queen's University à Kingston en Ontario du 3 au 7 juin 2016. L'accent est mis sur la célébration de notre histoire et l'inspiration de notre futur. Ainsi, le programme de cette année [www.cmesg.org] met en scène des membres expérimentés, anciens et actuels, en tant que participants à une table ronde ou conférenciers. Les présentations plénières anniversaires (tables rondes et conférences) remplacent les deux conférences plénières que l'on trouve habituellement dans le programme, les discussions en petits groupes (qui suivent normalement chacune des conférences plénières et qui visent la préparation de questions pour les conférenciers) et les séances thématiques. Les autres éléments du programme (groupes de travail, nouvelles thèses de doctorat, galerie mathématique et discussions ad hoc) restent tels quels. Merci à tous nos collègues qui ont accepté l'invitation du comité exécutif du GCEDM à prononcer une conférence plénière, à participer à une table ronde ou à animer un groupe de travail. Notre communauté de recherche continue de s'agrandir avec 7 nouvelles thèses de doctorat qui seront présentées lors de notre rencontre. J'encourage également les participants à notre rencontre à partager leur travail dans le cadre de la « galerie mathématique ». Il s'agit de présentations par affiche qui vous permettent de présenter et de discuter de différents aspects de votre recherche ou de votre enseignement.

J'espère que plusieurs d'entre vous pourrez vous joindre à nous pour cette rencontre anniversaire très riche autant socialement que scientifiquement. Ne manquez pas l'opportunité de rencontrer et discuter avec nos importants et inspirants chercheurs canadiens en mathématiques et en didactique des mathématiques.

encourage you to make suggestions to us regarding speakers and working group topics.

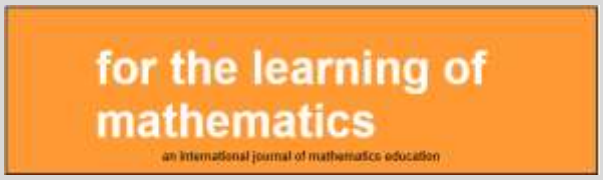
I look forward to seeing many of you in Kingston!

J'aimerais rappeler que vous êtes invités à partager vos commentaires ou questionnements aux membres du comité exécutif. Nous retournerons à la structure habituelle du programme l'an prochain et nous vous encourageons à nous suggérer des conférenciers ou des thèmes pour les groupes de travail.

Au plaisir de vous voir en grand nombre à Kingston!

NOTICES / AVIS

FLM pre-conference June 2-3 / pré-conférence de FLM le 2-3 juin



FLM will be hosting pre-conference meeting prior to the annual meeting of the CMESG. The pre-conference event will be held from the evening of Thursday June 2, to the afternoon of Friday June 3 2016, at Queens University, Kingston, Ontario.

The themes for the pre-conference meeting include writing for publication in mathematics education in general, and challenges and opportunities related to (linguistic) diversity in publishing in mathematics education in particular. The organizing committee would like to invite interested participants to join us for this event.

The full program can be found on the CMESG website; it includes:

- A talk by Richard Barwell, editor of FLM since 2011, on aspects of writing and publishing in FLM.
- A panel discussion addressing diversity in research and publishing with Florence Glanfield, France Caron, JF Maheux, and Kgethi Phakeng.
- A workshop on publishing in mathematics education led by Kgethi Phakeng.

Registration is free and comes with one night accommodation in Smith House - Brant House (Queen's U.). CMESG members are invited to pass the invitation on to your students.

If you are interested in attending, please register at: https://www.surveymonkey.com/r/SL65H2M

For more information, contact Ami Mamolo at ami.mamolo@uoit.ca

La revue For the Learning of Mathematics organise une pré-conférence à la rencontre annuelle du GCEDM qui aura lieu du jeudi 2 (en soirée) au vendredi 3 (matin et après-midi), à Kingston, Ontario.

Les thèmes de la réunion pré-conférence comprennent la rédaction pour publication dans l'enseignement des mathématiques en général, et de la diversité linguistique et culturelle, plus particulièrement l'exploration des défis et opportunités apportés par cette diversité dans la recherche et sa publication. Le comité organisateur souhaite inviter les participants intéressés à nous rejoindre pour cet événement.

Le programme peut être trouvé sur le site GCEDM; il y aura:

- Une présentation de Richard Barwell, editeur de FLM depuis 2011, sur les aspects concernant l'écriture et la publication en FLM.
- Une table ronde qui répond des questions de la diversité en recherche et publication avec Florence Glanfield, France Caron, JF Maheux, and Kgethi Phakeng.
- Un atelier sur la publication en didactique des mathématiques conduite par Kgethi Phakeng.

L'inscription est gratuite et est inclut une nuit d'hébergement en Smith House - Brant House (Queen's U.). Membres du GCEDM sont invités à faire passer l'invitation à vos étudiants.

Si vous êtes intéressé à participer, s'il vous plaît inscrivez à: https://www.surveymonkey.com/r/SL65H2M

Pour plus d'informations, veuilez communiquer avec Ami Mamolo à ami.mamolo@uoit.ca

Submit your manuscript to the Fields Mathematics Education Journal

The Fields Mathematics Education Journal is inviting articles for consideration! See http://www.springer.com/education+%26+language/mathematics+education/journal/40928 for more information. Article processing charges are completely covered by the Fields Institute. Authors of articles published in the FMEJ retain the copyright, and are free to reproduce and disseminate their work further. Please consider submitting your manuscript. Also, if you are interested in recommending a special issue and acting as a guest editor, please contact us.

Dragana Martinovic, Editor-in-Chief, dragana@uwindsor.ca
Donna Kotsopoulos, Editor-in-Chief, dkotsopo@wlu.ca

Remembering Julie Long

On March 17, 2016, Dr. Julie Sharon Long passed away in Edmonton at the age of 42. She was the wife of Patrick Savoie and the mother of two sons, Rémi and Maxime. Born in Grand Falls, NB, she was the daughter of Rino and Beatrice (Toner) Long.

Julie was always a scholar. After graduating with a BSc from Dalhousie University (1994), she spent two years teaching in The Federated States of Micronesia with Jesuit Volunteers International. She then received her BEd from the University of New Brunswick (1998) and taught in her home town. She continued her studies with a MEd (UNB 2004) and a PhD (2008) from the University of Alberta where she taught mathematics in the faculty of education. Above and beyond her studies, she was an extraordinarily caring and loving being.

In lieu of other tributes, donations may be made to the Dr. Julie Long Graduate Scholarship in Mathematics Education, in memory of Dr. Julie Long, 3-501 Enterprise Square, 10230 – Jasper Avenue NW, Edmonton, AB T5J 4P6 or Memorial donations may be made to the Dr. Julie Long Graduate Scholarship in Mathematics Education at the University of Alberta. Visit uab.ca/honour.

MEMBERS' ACTIVITIES / ACTIVITÉS DES MEMBERS

On the fusing mathematics with other subjects

Dr. Timothy Sibbald
Schulich School of Education, Nipissing University

In view of concerns articulated below, a book proposal was prepared, and has been accepted, that will address the mathematics specific aspect of interdisciplinary approaches. An active call for chapters is available for anyone who is interested in making a proposal. Details are provided following details of the concerns.

Funding by the NSF for STEM (Bequette & Bequette, 2012) has led to considerable activity in the mathematics education community. It has also led to many other subject areas suggesting they can contribute through combining with other subject areas. For example, aesthetics contributes to design and, as it falls in the curriculum of art, has led to the acronym STEAM. Combining subjects has also been proposed by other subject areas such as medicine, business, computer programming, social justice, history, and English. However, for all the activity the funding has caused, there appears to have been little concerted effort to consider what happens to mathematics education when it is combined with other subject areas. That is, where is the mathematics specific view of whether combining with other subjects is reasonable and valid in terms of the field of mathematics?

Consider the possibility of having physics and mathematics taught in combination throughout the high school years. Optics and waves can surely facilitate the teaching of trigonometry although some effort may be needed to justify the purpose of examining identities. Exponents could be taught through examination of decay processes. A doubt, however, may arise when kinematics finds few reasons to extend beyond a quadratic. If curriculum designers feel that cubics and higher order polynomials have a place in the high school curriculum, then they have to point out that potential deficiency or argue for including a component of physics that uses them (I can't think of one, but I dare say there is one).

It has been suggested that problem solving might act as an instructional glue to combine different subject areas (Bequette & Bequette, 2012). As an example, interdisciplinary reading seems to help students with understanding word problems (Halladay & Neumann, 2012) and they point to the more general benefit in communicating all aspects of working on problem solving. Certainly combining mathematics with other subject areas provides contextual components to problem solving that support students (Staats & Batteen, 2009). More broadly having problem solving embedded in contextual circumstances fits with vocational education (Coben & Weeks, 2014). However, little consideration has been given to the possibility that problem solving with minimal context or no context may serve to increase student ability to handle abstraction.

There appears to be substantial interest in the combining of mathematics with other disciplines because mathematics brings significant tools that can be applied to those contexts. However, doing this without proper consideration of the theoretical basis for it potentially diminishes the scope of what mathematics education might accomplish. In view of this concern, I sought a theoretical framework for combining subject areas and found only one. It is Jantsch (1947), which was reprinted in 1970 (and has also been reported as 1972 by a prominent database).

In light of curriculum and pedagogical changes since 1970 (and 1947) there is a need to verify that this framework remains applicable. Checking the validity has some urgency in the face of the attention STEAM and other interdisciplinary suggestions are getting. As Rogers has said about interdisciplinary approaches that combine math, history and art: "…these connections need to be fully theorized, so as to not essentialize all students as sharing the same cultural experience and personal history" (Rogers, 2015, p.26).

The concerns raised here led to an accepted book proposal. The call for chapters is active and proposals are welcome. Ultimately, it is intended that the collection of points of view will help clarify the theoretical underpinnings and what needs to be done, theoretically, to properly support mathematics education. Anyone who would like the formal call or to discuss possibilities can email timothys@nipissingu.ca

References

Bequette, J., & Bequette, M.B. (2012). A place for art and design education in the STEM conversation. *Art Education, March*, 40-47.

Coben, D., & Weeks, K. (2014). Meeting the mathematical demands of the safety-critical workplace: medication dosage calculation problem-solving for nursing. *Educational Studies in Mathematics, 86*, 253-270.

Halladay, J.L., & Neumann, M.D. (2012). Connecting reading and mathematical strategies. *The Reading Teacher, 65*(7), 471-476.

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* Note that this is also cited as 1972 with doi: 10.1007/BF01956879. The article was also reprinted as: Jantsch, E. (1970). Inter- and transdisciplinary university: A systems approach to education and innovation. *Policy Sciences, 1*(4), 403-428. doi:10.2307/4531408

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Questions and reflections on the anticipated promise of coding

Andy Lucacescu
Havergal College

The rise and subsequent prominence of coding in the classroom is a testament to the potential of this tool in transforming classroom experiences. Even among teachers from widely diverse backgrounds, certain themes emerge when the role of coding in education is discussed. In my experience, these themes include (but are not limited to) high degrees of student engagement, real-world relevance, authenticity, a tool for supporting STEM habits of mind, and (to some) even an essential skill for future employment. Truly, I find it difficult to argue with any of these points. It is likely that coding meets and exceeds teacher expectations in all of these areas. However, in the spirt of thoughtful pause and reflection, I have lately found myself thinking about how I might best position coding in my own practice. It is my view that some positions are helpful, while others are not, and that the key to unlocking the promise of coding as a transformative tool lies in living within the tension between various interpretations. To this end, I offer the following questions, comments, and musings that have helped me structure my own exploration of the grip that coding has on our collective hearts and imaginations.

On a foundational level, if we, as educators, allow coding as an activity to guide our instructional choices, what thinking and learning outcomes can we anticipate when we let the tool dictate the teaching?

It would seem to me that coding is often (admittedly, not always) connected to rich STEM experiences, with mathematics educators suggesting its usefulness in expressing key mathematical concepts and processes (e.g. computational thinking). However, it is my experience working in primary/junior grades that activities purporting themselves to integrate the disciplines of STEM often underserve the “M”, or address only a small slice of it (operational sense or arithmetic, data collection). What, then, is the implied message about the nature of mathematics, both for students and for teachers?

Are teachers aware of the "mathematics" behind coding? Multiplicative and algorithmic reasoning, parsing, and problem-solving are all important in the mathematical landscape, but are teachers aware of how these processes and understandings express themselves in a coding activity? How can teachers leverage these opportunities in formative assessments that move students toward the twin goals of transfer and generalization? As teachers, what do we know about what students have learned and can transfer after taking part in a coding activity?

And, last but not least: What are students "mathematizing" when they are coding?

NEWS FROM THE EXECUTIVE / DES NOUVELLES DE L'EXÉCUTIF

News from the Executive

Report of the Nominations / Elections Committee 2016

Regular members were invited to participate in the election for the CMESG Executive and FLM Board. 42 of the regular members voted with the following results:

CMESG Executive:

- Olive Chapman (acclamation), president of CMESG/GCEDM, 2016-2018
- Caroline Lajoie, member of the executive of CMESG/GCEDM, 2016-2018

FLM Board

- Egan Chernoff, member of the board
- Cynthia Nicol, member of the board

Congratulations to the newly elected CMESG Executive and FLM Board members. Sincere thanks to those members who let their names stand for election. Our organization was very fortunate to have a strong list of nominees for the elections.

The members of the CMESG/GCEDM and FLM Nominations & Election Committee are Peter Liljedahl, Chair, (liljedahl@sfu.ca) and Lucie DeBlois (lucie.deblois@fse.ulaval.ca).

Nouvelles du comité exécutif

Rapport des nominations et élections du comité 2016

Merci pour votre participation à notre récente élection des membres de l'exécutif du GCEDM et membres du Conseil de la FLM. Nous sommes heureux d'annoncer les résultats.

Exécutif du GCEDM :

- Olive Chapman (élue par acclamation), présidente du CMESG/GCEDM, 2016-2018
- Caroline Lajoie, membre du comité exécutif du CMESG/GCEDM, 2016-2018

FLM Comité de rédaction

- Egan Chernoff, membre du comité
- Cynthia Nicol, membre du comité

Félicitations aux nouvelles et nouveaux élus sur le comité exécutif et au comité de rédaction de la revue FLM. Merci à tous ceux qui ont accepté de soumettre leurs noms pour l'élection. Notre organisation est très chanceuse d'avoir une longue liste de nominations pour les élections.

Les membres du comité des nominations et des élections du CMESG/GCEDM sont Peter Liljedahl (liljedahl@sfu.ca) et Lucie DeBlois (lucie.deblois@fse.ulaval.ca).

CMESG EXECUTIVE / L'EXÉCUTIF DU GCEDM

The members of the executive extend an invitation to you to contact us about any item of interest. If you have something you want to suggest, if you have a concern you wish to raise, if you want more information, etc., please let one of us know. In order to be of service to the membership, we need to be aware of what your interests are.

Les membres du Comité exécutif vous invitent à leur faire part de votre point de vue concernant n'importe quel aspect de la vie du GCEDM. Que ce soit pour transmettre suggestions ou commentaires, ou encore pour être mieux informé, n'hésitez pas à entrer en contact avec l'un d'entre nous. En nous faisant connaître vos intérêts, vous nous aidez à mieux vous servir.

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