



**American University of Beirut
Faculty of Arts & Sciences
Department of Education
Science and Math Education Center (SMEC)**

**The Thirteenth Annual Science and
Math Educators Conference (SMEC 13)
Beirut, Lebanon
April 8 and 9, 2011**

CALL FOR PROPOSALS

The Science and Math Education Center, Department of Education, American University of Beirut, will hold its Thirteenth Annual Science and Math Educators Conference (SMEC 13) on **April 8 and 9, 2011** on campus at the American University of Beirut. The SMEC 13 Program Committee invites science and math education university faculty members and science and math teachers and coordinators from **Lebanon, Arab countries and beyond** to submit proposals for presentations to be reviewed for possible inclusion in the conference program. Completed proposals (including cover sheet) are due on **January 31, 2011**.

Conference Themes and Session Formats

The program for SMEC 13 will be relevant to both researchers and practitioners and will relate research and practice as much as possible. We recognize that the traditional roles of 'researcher' and 'practitioner' are constantly being redefined as more teachers engage in action research and as researchers look more deeply into classroom processes. The Conference organizers remain committed to building relationships between researchers and practitioners as well as building relationships among members of the community of researchers in science and mathematics education regionally and internationally. In addition to the formal research-oriented sessions in the program (see below), informal discussions among participating researchers will be part of the SMEC 13 program. Proposals are welcome from researchers and practitioners on all topics in the following categories at the elementary, intermediate, secondary, and university levels for mathematics, science or integration of the two subjects:

Innovative Ideas: All innovative idea sessions will be 75 minutes in length. These sessions should be designed to engage participants in hands-on activities or demonstrations of how to make use of a particular innovative idea at either the school level (to improve overall programs) or at the classroom level (to improve student learning of a particular concept or skill). At least 2/3 of the session should be hands-on or significantly interactive. Handouts and slides from these sessions will be published on the SMEC website if the presenter wishes.

Development Workshops: All workshops will be 120 minutes in length. Through extended interaction and hands-on activities, workshop leaders should aim to develop particular knowledge and/or skills of teachers, coordinators, or administrators. Workshop handouts and slides will be published on the SMEC website if the presenter wishes.

To the extent possible, related proposals from the following three categories may be grouped into larger sessions in order to facilitate further discussion and exchange of ideas.

Action Research: All action research presentations will be 30 minutes in length. In these sessions researchers or school practitioners (teachers, coordinators or administrators) will present research that they have designed and carried out (or are in the process of conducting) at the school association, school, or classroom level either for the purposes of self-study or to deliberately test theoretical ideas in a practical setting. Presenters should also focus on how research results are used to improve practice (or plans for doing so). These sessions are not expected to be hands-on, however at least ¼ of the session should be designed to engage participants in interactive discussion. Written papers from these sessions will be eligible for publication in the official conference proceedings.

Theoretical and Empirical Research Made Relevant for Practice: All research into practice sessions will be 30 minutes in length. These sessions should be designed to inform participants about theoretical or empirical research studies (preliminary or final results could be presented) with a clear focus on the relevance of the research for school or classroom-based practice. In other words, the researcher must propose or demonstrate specific practical uses for the theory or empirical results presented. These sessions are not expected to be hands-on, however at least ¼ of the session should be designed to engage participants in interactive discussion. Written papers from these sessions will be eligible for publication in the official conference proceedings.

Reports of National/International Research and Development Projects: All project report sessions will be 30 minutes in length. The aim of these sessions is for principal investigators or project leaders to present a report of large-scale research and development projects at the national or international level. Projects could be at various stages of enactment, thus reports could focus on project concept and design, interim progress or final results. Written reports/papers will be eligible for publication in the official conference proceedings.

Guidelines for Preparing Proposals

All proposals will be reviewed anonymously by the members of the Program Committee or external referees. Incomplete proposals will not be reviewed.

Each proposal must include completed cover sheet(s), a session synopsis and an abstract:

Synopsis. The merits of a proposal will be evaluated on the basis of the synopsis. The synopsis is basically the detailed description of the content and flow of the session, i.e., how you will use the time in your session. The **synopsis should not exceed 2 pages (single-spaced) in length. If handouts are ready, copies should be attached.** The synopsis should show only the title of the proposal and the description of the session. **Author(s) information should NOT appear anywhere on the synopsis.** The synopsis should summarize the goals and objectives of the presentation; materials that will be used during the session; and a specific outline of the flow of the session, i.e., how all the session time will be used with specific descriptions of any activities or tasks with which participants will be engaged during the session. If the session is strongly linked to or based on specific research, then the research should be summarized and the link to practical educational settings should be clearly explained. A list of any reference materials (articles, books, chapters, etc) used for the session should be attached to the synopsis. The synopsis should be clear about the nature of the planned audience involvement during the session. Please see the examples provided below. Please feel free to ask for assistance as you prepare your synopsis (see contact list of persons available to assist).

Sample Synopsis for Innovative Idea Sessions and Workshops

Title: Using Pattern Blocks to Develop Fraction Understanding

The primary purpose of this session is to increase participants' understanding of how to use pattern blocks to develop students' understanding of fractions in elementary mathematics classrooms. Participants will take on the role of the learner during the session by actually using pattern blocks to solve problems. Pattern blocks are concrete materials that consist of a set of colored geometric shapes (yellow hexagon, red trapezoid, blue rhombus, green triangle, orange square, tan rhombus). Because of their shapes, pattern blocks are most commonly used to help students begin exploration of the characteristics of common geometric shapes. However, pattern blocks are also useful for developing understanding of other topics, including fractions. It is important for teachers to understand that fractional relationships are dependent on the unit whole. In a typical pattern block set a yellow hexagon is equivalent to two trapezoids or three blue rhombuses or six green triangles. So for example, a green triangle could be $\frac{1}{6}$ of a yellow hexagon. By changing the definition of the unit whole, other equivalence relationships can be discovered. For example, if the unit whole is defined as the red trapezoid, then the yellow hexagon represents the quantity of 2 and the green triangle represents $\frac{1}{3}$. Or if the unit whole is defined as two hexagons put together, then the green triangle becomes $\frac{1}{12}$ and the red trapezoid is $\frac{1}{4}$, and so on. Once students have a firm understanding of these equivalences, pattern blocks can also be a useful tool for introducing fraction operations and for developing conceptual understanding that is usually problematic for students, such as understanding the meaning of fraction multiplication and that "multiplication does not always make bigger."

The session is planned as follows: (a) Brief introduction and initial exploration of pattern block materials (5 minutes); (b) Participants will solve the problem "If the whole is two hexagons put together, find as many ways as you can to cover the whole using pieces of the same color. Make a list of the relationships you discover." This activity will be followed by a brief discussion, including mention of how the relationships would change if the unit whole is different (20 minutes); (c) Participants will solve three fraction multiplication problems (2 easy, one more complicated) taken from the Lebanese curriculum and alternate solutions or ways of reasoning will be presented by participants at the overhead (25 minutes); and (d) Participants will summarize the main issues that came up during the session (these should include: how materials should be distributed and picked up from students, initially allowing students to explore materials before doing problems with them, importance of the unit whole, conceptualizing multiplication as finding fractional areas, importance of allowing for different ways of reasoning, how to make pattern block sets if commercial materials are not available (10 minutes).

Sample Synopsis (empirical research)

Title: Mathematical Properties Underlying Mental Computational Strategies

The primary purpose of this session is to increase participants' awareness and understanding of the mathematical properties underlying students' mental computational strategies and to introduce participants to the research findings in support of the existence of such properties. In the first part, participants will take on the role of the learner during the session by actually solving computational tasks mentally. For example, participants will be engaged in solving tasks like 3×1750 and the strategies used will be identified (for example, one strategy would be to think of this multiplication as $3 \times 1000 + 3 \times 500 + 3 \times 250$). The mathematical properties in such strategies will be identified and discussed (in the previous strategy the decomposition and distributive properties are used). In the second part a presentation will be made about a study that examined the computational strategies of ten young street vendors in Beirut by describing, comparing, and analyzing the computational strategies used in solving three types of problems in two settings: transactions in the workplace, word problems, and computation exercises in a school-like setting. The results indicate that vendors' use of semantically-based mental computational strategies was more predominant in transactions and word problems than in computation exercises whereas written school-like computational strategies were used more frequently in computation exercises than in word problems and transactions. There was clear evidence of more effective use of logico-mathematical properties in transactions and word problems than in computation exercises. Moreover, the success rate associated with each of transactions and word problems was much higher than that associated with computation exercises. The third part in the session would be to discuss the implications of this study to teaching and learning mental computational strategies. Ten minutes will be allotted to each of the three parts

Abstract

If a proposal is accepted, the abstract will be published in the conference program and in the final conference proceedings. Therefore, care must be taken in preparing the abstract using the following instructions as a guide. **ABSTRACTS NOT MEETING ALL REQUIREMENTS WILL NOT BE REVIEWED.** This could result in delaying the acceptance of a proposal or rejection of the proposal if deadlines are not met with a completed proposal. Please feel free to ask for assistance as you prepare your abstract (see contact list of persons available to assist).

1. *Submission:* Abstracts should be submitted on a SEPARATE PAGE.
2. *Length of Abstract:* **Limited to 250 words** (excluding title, proposer(s) name(s), institution(s), and country). All abstracts in excess of 250 words will be cut at the end of the sentence nearest the 250-word limit.
3. *Font:* Use Times New Roman 12 pt. font (all word processing software carries this font type).
4. *Titles:* The title should be clear and descriptive of the session and should match exactly with the title on your synopsis and on your proposal cover sheet. The title should be in **bold face type**.
5. *Author(s), Institutions(s), and Country:* Immediately follow the title with name(s) of the author(s), institutions(s), and country. Again, use **bold face type**.
6. *Abstract Text:* Skip one line after the name of the institution(s), and country. Begin the first word from the extreme left and type the entire abstract as a single paragraph. Do not exceed the 250-word limit. Please see the sample below.

Sample Abstract

Using Portfolios in Secondary Mathematics Classrooms

Sophie Germain, Science and Math Education Center, American University of Beirut, Beirut, Lebanon

Portfolios are one important innovative technique for implementing authentic assessment in mathematics classrooms. However, implementing them is not an easy process, particularly at the secondary level when a large portion of time and attention is devoted to preparing for national examinations. General principles for using portfolios in mathematics classrooms will be shared with participants and participants will be involved in a discussion of how to apply these principles appropriately. In addition, session participants will review and discuss examples of actual student portfolios used in grade 11 and 12 mathematics classrooms. Participants will also have an opportunity to develop and share their own ideas for how portfolios can be used productively with secondary-level students.

Where to Send Proposals

A copy of the completed proposal including a cover sheet (see guidelines below) should be sent using regular mail **or** email to:

Dr. Saouma BouJaoude
Fisk Hall, Room 241
Department of Education
American University of Beirut
P.O. Box 11-0236
Beirut, Lebanon
boujaoud@aub.edu.lb

E-mail proposals, including completed cover sheet may be sent as electronic attachments (Microsoft Word) ***no later than January 31, 2011***



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Cover Sheet for All Proposals

This form must be completed for all proposals. If there is more than one presenter, a separate cover sheet should be completed for each presenter. Note that we need to communicate directly with the First Proposer so be sure that the contact information provided will allow us to do that.

Title of Session:	Intended Audience: indicate whether math/science and for what level(s)

First Proposer Information:

Family Name	First Name	Institutional Affiliation
E-Mail Address	Telephone	Address

Name and address of co-author(s):

Family Name	First Name	Institutional Affiliation
E-Mail Address	Telephone	Address

Primary language of presentation: English Arabic French

Session Format (Please carefully read the descriptions of the session format types):

- Innovative Idea (75 minutes)
- Development Workshop (120 minutes)
- Action Research (30 minutes individual presentation time)
- Research Relevant for Practice (30 minutes individual presentation time)
- Project Report (30 minutes individual presentation time)

Recommended maximum number of participants:

No limit 15-20 20-35 35-50

NOTE: An overhead and an LCD projector will be provided for all sessions. Please indicate if other equipment is needed: