
Séminaires de l'unité de recherche éducationnelle en mathématiques

Mathematics Educational Research Unit Seminars

Hi! My name is Vicki Zack, and on April 17 I will be speaking with you during one of your MERU sessions. I wanted to tell you a little about myself and the work I have been doing over the past few years so as to set the context. At the end of my "blurb" I have appended points which briefly summarize some of the ideas I would like to explore with you. I would love to know from you if there are questions you have which I could deal with when we meet. (See below the section titled: **Possible ideas for exploration.**)

I will use as a title for our session a header I used in a paper I wrote recently:

What's a literature person like you doing . . . , teaching and researching in elementary level mathematics?

I will be speaking to you about the research I did, as a teacher researcher, in my fifth-grade elementary classroom for twelve years (1989-2001). I retired recently but am still thinking and writing about the work. For me, researching from the 'inside' has been transformative and generative. There have been so many instances in which I have learned something significant about the mathematics due to the children's questions and this has changed my understanding in fundamental ways. I learned more about the children as they do the mathematics work, and more about the mathematics from the way the children solved the non-routine problems. Some insist that teacher research is about change, that as educators we must be committed to improving our practice, and that of course is important. However, it might just as likely involve a deliberate attempt to make more visible what is going on (Cochran Smith & Lytle, 1993). As I tried to make more visible what was going on, I came to better understand the mathematics and the children's thinking, and this in turn affected my practice. It has been a stimulating journey for me, whose identity has been tied into literature and language arts for the first half of my lifespan, to engage with mathematics and to learn to love it with a passion.

My main overarching goal has been to study how learning is interactively accomplished, namely: How is mathematical meaning made, and shared? My focus when I began was on explanations -- children's explanations to their peers-- and I then extended my search to explore arguments, and the children's notions of convincing and proving. I gathered a great deal of material each year, and so what did I select to study more closely? I have always chosen incidents or ideas which made me pause and wonder.

To establish the context, I will tell you briefly about my background, and the school and classroom environment in the private school in Montreal in which I

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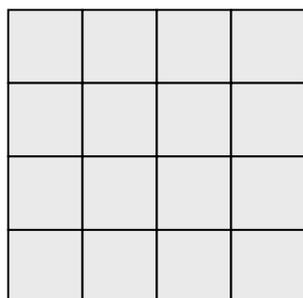
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taught. I returned to the elementary classroom in 1989 after completing my doctoral work, and after working at the university level in a faculty of education for a number of years, in order to research from the inside, in the changing ecologies of reform-oriented classrooms (literature-based approaches in reading and problem-solving approaches in mathematics). The school in which I worked is a problem-solving culture in which the students are expected to support their positions and present arguments for their point of view in most areas of the curriculum. In my fifth grade classroom (10 - 11 year-olds) we used an inquiry-based approach in which we-- students and teacher alike-- often pursued questions of interest to us; we pursued inquiries in the literature and social studies areas, as well as in the mathematics area.

For our session:

There is one task I would like you to do prior to our session (see below) which you can do alone or with others, and there is one short paper which I would like you to read after you do the task. I have attached the paper. The task and paper will give us a jumping off point from which we might discuss some of the ideas. **You will not be questioned, tested, or otherwise put on the spot (as if I would ever do that!) if you have not had a chance to do the task or read the paper!!!**

The Count the Squares Task:



Find all the squares in the figure on the left.
Can you prove that you have found them all?

Referenced Paper:

Zack, V. (1997). "You have to prove us wrong": Proof at the elementary school level. In E. Pehkonen (Ed.), *Proceedings of the Twenty-First Conference of the International Group for the Psychology of Mathematics Education (PME 21)* (Vol. 4, pp. 291-298), Lahti, Finland, July 14-19, 1997.

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Possible ideas for exploration:

- Learning from learners
- One mathematical task and how the ensuing inquiry evolved
- Nitty-gritty questions such as:
 - How do you set up 2 (sometimes 6) videotape recording devices & microphones, do observation notes, do follow-up interviews when necessary, etc.

Please e-mail your ideas and questions to me: vicki.zack@mcgill.ca