

New report urges broad changes in mathematics education relationships

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(PhysOrg.com) -- A new report published by the National Council of Teachers of Mathematics (NCTM) indicates that changes to the nature of the relationships between researchers and mathematics educators could benefit both. The report, *Linking Research and Practice*, is based on the work of 60 mathematics education researchers, teachers and other school-level educators who participated in 2008 conference sponsored by the National Science Foundation and developed by NCTM.

Fran Arbaugh, associate professor of [mathematics education](#) in Penn State's College of Education, presided over the one-week conference. She is lead author of the recently released report, which was based on hundreds of questions previously collected from focus groups of teachers across the country. The report was co-written by Beth Herbel-Eisenmann (Michigan State University), Eric Knuth (University of Wisconsin-Madison), Henry Kranendonk (Milwaukee Public Schools), Nora Ramirez (Arizona State University), and Judith Reed Quander (NCTM).

"To me," Arbaugh said, "the take away message is that these two seemingly disparate communities -- researchers and practitioners -- can greatly benefit from more concerted efforts to link our work, which, in turn, will ultimately better serve students' learning of mathematics."

In several areas the authors of the report found disconnects between researchers and classroom-based practitioners.

The report says that the "frameworks more often than not present the relationship as unidirectional." That is, the researchers conduct research and then report research results, and practitioners frequently are end-product consumers.

"We propose that this emphasis on practitioners as merely consumers of research be called into question," the report said, suggesting that "researchers seek ways to build research collaborations with, and disseminate research findings to, practitioners."

"Linking research and practice in mathematics education is vitally important for improving math learning and teaching for all students," Arbaugh added.

"Practitioners," she continued, "bring a host of knowledge about teaching and learning in classrooms and schools that can be very beneficial to a researcher who is trying to better understand and document, for example, the impact of certain teaching practices on student learning. On the other hand, researchers who have investigated teaching practices and have determined their impact have much to share with school-based practitioners."

Among the changes recommended in the report:

- Researchers develop working relationships with practitioners at all levels to better understand specific district and classroom contexts and limitations;
- Researchers not only publish in academic journals, but also present research at conferences that are closely connected to practitioners;
- Practitioners develop alliances with researchers to identify similar interests and participate in research design and/or implementation; and
- Practitioners actively read and review research and challenge the research community to provide meaningful explanations of what has

been learned from the research

The report also noted the monetary challenges inherent in any changes and recommends to mathematics leadership and funding agencies that they provide for more opportunities for researchers and practitioners to collaborate and learn from, and with, each other.

"Such changes are considerable," the report said, "Without more encouragement and support from the broader mathematics education community (including researchers, administrators, policymakers, and funding agencies), real changes in the state of mathematics education in the United States are more likely to be next to impossible."

"We hope that this report is a step in the right direction -- that mathematics education researchers and funding agencies will take up the call for better linking research and practice. NCTM has a number of projects aimed at this initiative," Arbaugh said. "We hope that the continua contained in chapter three of the report provide some direction for both researchers and practitioners who seek to improve their contributions to linking research and practice. A very tangible first step is for the two communities to find (and then use) avenues for facilitating communication."

The publication is intended for [researchers](#), funding agencies and others who make decisions about mathematics education research. It is organized around 10 "research-guiding questions" on issues that include student thinking, assessment and teacher preparation. Linking Research and Practice is available online at www.nctm.org/researchagenda .

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