

## Linking Mathematics Education Research and Practice

Why is linking research and practice in mathematics education essential for addressing critical issues of mathematics teaching and learning?

### **NCTM Position**

Linking research and practice in mathematics education is necessary for addressing critical issues of mathematics teaching and learning. Researchers and school personnel must work together to address and examine issues pertinent to the teaching and learning of mathematics. Together they need to consider ways to implement strategies across contexts that build on findings from research. Collaboration between researchers and school personnel provides integrated perspectives for addressing critical issues in mathematics teaching and learning.

The relationship between research and practice is bidirectional in that research and practice communities have much to contribute to each other's work (Arbaugh, et al., 2010). The research and practice communities must work collaboratively to improve the processes, outcomes, and conditions for mathematics teaching, learning, and assessment. Collaborators who examine students' and teachers' experiences in mathematics classrooms, the impact of educational policies on mathematics teaching and learning, or express new commitments to problems of practice should design a program of inquiry using ideas from both the research and practice communities. This work must be conceptually and methodologically sound as well as open to peer review, and the reports of findings should be accessible to researchers, teachers, school personnel, and policymakers. In doing so, the research and practitioner's literature serves as a resource that these constituencies and others draw on to generate valid and useful knowledge.

Understanding mathematics education as a complex system involving multiple constituencies and contexts is a requisite for designing research to provide useful information for mathematics teaching and learning. Researchers and practitioners should develop, design, and use appropriate research approaches to ask and answer key questions about mathematics teaching and learning. Quantitative and qualitative, descriptive and critical, large-scale and small-scale, cross-sectional and longitudinal, observational and experimental are approaches that can be conducted to create appropriate research designs to analyze mathematics education within, but not limited to, classrooms, schools, school districts, states, or provinces.

Effective modes of professional interactions and communications within and between researchers and practitioners are necessary for transmission of research, practical questions, and findings (NCTM Research Committee, 2012). Findings or interpretative insights must meet the needs of both the research and practitioners' communities to provide a principled basis for understanding students' and teachers' mathematical experiences, making decisions about policies, and knowing the impact of programs on mathematics teaching and learning. When viewed from this perspective, linking research and practice becomes the basis for sound practice in understanding and investigating critical issues and problems of practice in mathematics education.

## References

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## Other resources

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