

ENGAGING K-12 TEACHERS IN THE MATHEMATICS EDUCATION RESEARCH COMMUNITY

Dorothy Y. White, PhD

University of Georgia

Department of Mathematics and Science Education

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THE COACHES' QUESTION: BACKGROUND

- PI for Project ISMAC (Improving Students' Mathematical Achievement through Collaboration)
- Professional Development and Research Project with Middle School Mathematics Teachers in 4 schools
- Funding by a school district in Year 2 of Implementation



THE COACHES' QUESTION

Ask teachers to respond weekly to the following

- I am feeling..
- My most meaningful learning..
- My learning will influence my work..
- What else would you like to know
- Choice

THE COACHES' QUESTION

What is your research question?

What do you want to know?

- The impact we are making on instruction and student learning.

What impact am I having on teachers' instruction and student learning?

MY EXPERIENCES IN MATHEMATICS EDUCATION

- Professional Developer
- Teacher Educator
- Researcher
- Chair of the TCM Editorial Board
- NCTM Research Committee
- Editor, *Research, Reflection, Practice* of TCM

THE IMPORTANCE OF TEACHERS ENGAGED IN RESEARCH

- The community of mathematics education researchers is not complete without the participation and voice of classroom teachers.
- Teachers' understandings and interpretations of what happens in their classrooms can make mathematics education research more relevant to others.
- Teachers' critique of research can improve the claims and arguments made by mathematics education researchers.

“When researchers and practitioners work purposefully together to inform one another’s work, the probability that both entities’ work will serve students’ mathematics learning likely will be enhanced.”

(NCTM Research Committee, 2006, p. 84)

WHAT IS RESEARCH? WHAT DO MATHEMATICS EDUCATION RESEARCHERS DO?

Research is “an active process of investigation, one that relies on strategic use of knowledge in context” (p. 497)

Mathematics Education Researchers engage in a core set of practices:

- Read
- Formulate a Research Question
- Use Data carefully to Make and Ground Claims
- Move from the Particular to the General
- Consider Mathematics
- Communicate Findings

A COLLABORATIVE RESEARCH PROJECT WITH KERI V.

- **Keri** read the book: *Good Questions for mathematics teaching: Why ask them and what to ask [K-6]*
- **We** talked about an upcoming unit on probability as a context to try out the book's strategies. We first needed to design a research question.
 - How do my classroom questioning techniques elicit student's mathematical thinking and learning of probability?
 - In what ways does my questioning techniques improve throughout the unit?
- **I** read to find out more about children's probabilistic thinking to ground the work

A COLLABORATIVE RESEARCH PROJECT WITH KERI V.

- **Keri** taught the lessons as **I** recorded and took fieldnotes
- **We** Planned & Debriefed Keri's lessons with Special Ed teacher
- **We** analyzed the data together looking for types of questions and how students responded
- **We** considered the mathematics by examining students' cognitive challenges with learning probability and the lesson formats.
- **We** presented our finding in a peer-reviewed book chapter. **I** did the initial writing and **Keri** edited & added her reflections. **We** both revised based on the reviewers comments.

A COLLABORATIVE RESEARCH PROJECT

Examining Teacher Questioning through A Probability Unit

Keri Valentine

Clark County School District, Athens, Georgia

Dorothy Y. White

University of Georgia

In 2006, *Teachers Engaged in Research: Inquiry into Mathematics
Classrooms in Grades 3-5*

RECOMMENDATIONS

- For Teachers/ Practitioners
 - Allow your inquisitive self to come out
 - Read about a topic of interest and jot down ideas and questions
 - Talk to Colleagues and Researchers (email is great!)
- For Researchers
 - Ask teachers what they need from research
 - Listen to teachers questions and concerns and help them think through their research ideas and formulate questions
 - Share your research ideas with teachers and get their feedback and support (being in schools is great!)

In Keri's words...

I no longer see my role as solely a mathematics classroom teacher, but part of a larger community of learners. Teaching is not a “skilled laborer” job as Dorothy has helped me see, but rather a profession of constant reflection and revision of practice. As a classroom teacher, the isolation of our practice and the feeling of being overwhelmed by non-teaching duties can make adding another level to our teaching seem impossible. Yet, without this constant reflection on our practice, we become stale as learners and in turn become disengaged from the reform needed in mathematics education.

THANK YOU!

dywhite@uga.edu