

Guest Editorial

Why Research has a Role with Teachers

**Jean Moon, Ph.D.
Advisor to the ExxonMobil Foundation's
Education Programs
321 Reedy Meadow Road
Groton, Massachusetts 01450 USA**

What do we know about what contributes to forming an effective classroom teacher? For one thing, it is becoming increasingly clear that teachers with a deep understanding of subject matter, facility with diverse pedagogical approaches, and skills in encouraging students' progressive understanding of key subject matter concepts have three powerful legs upon which to build a successful teaching career.

Moreover, we know that good teachers see themselves as continuous learners who invite dialogue about the complexities of teaching and learning, who are comfortable taking risks and posing interesting questions about the teaching and learning process. They also know how to use data effectively to make conjectures about the ways in which students are learning or not learning, and revise their classroom lessons accordingly. In many ways the teachers who prove to be most effective with their students, colleagues, and parents share the qualities of a researcher engaged in posing questions that in big and small ways advance knowledge within a given discipline.

The role of a teacher is not generally viewed with this kind of lens. Undergraduate experiences do not always afford opportunities for future teachers to become comfortable and practiced with research as a metaphor for understanding the work of their own profession. Too often teachers emerge from their undergraduate

experiences with a limited, standardized view of their role as an educator. Opportunities and models for differentiation among teachers is too seldom available. I want to suggest that if teachers, in the course of pre-service education as well as throughout their careers, had opportunities to engage in researching interesting questions about teaching and learning, the profession would be better served. The practice of inquiry by teachers will ultimately yield a greater understanding about the complexities of their work as well as their agency and ability in doing that work.

Let me back up for a minute. Why am I linking teaching and research? Whether out of habit or by design, teachers are more practiced at delivering the routines of the teaching process, rather than questioning or examining them. These routines chart out how to deliver information to children, how to organize a lesson, and how to involve children in applying the information or ideas contained in those lessons. What is missing is a cultivated interest among teachers about collecting information on these routines from their perspective as a practitioner. Most education research in this country is done by university researchers with academic credentials in a variety of areas such as cognitive psychology, curriculum and instructional design, and special education, often working in conjunction with someone like a scientist or science educator or mathematician or mathematics educator.

A fruitful path of collaboration is to have schools and colleges in which undergraduate research has been a strong tradition to work with faculty and administrators in education units to establish like opportunities. The goal is to help establish opportunities, if not expectations, that research in education is a skill as essential to a good teacher as it is to a good scientist or mathematician. Along the way models for undergraduate research in education need to be cultivated, and the case needs to be made for introducing a process of question posing and data gathering as part of effective teaching practice.

The ExxonMobil Foundation through its K-5 Mathematics Specialist Program has been chipping away at the challenge of differentiating teaching roles. Since 1988, the Foundation has been awarding grants to school districts who are committed to developing a school-based specialist role as a strategy for improving student and teacher understanding and interest in mathematics. In my role at the Foundation I have spent a significant amount of time in schools and with project leaders helping them to define the work of a specialist. Through the years I have observed that among the many components to a specialist role, one of the most important is to help teachers look at their practice, the work of their students, and the culture of their classroom with an inquisitive eye. The specialist, in a coach-like role, invites teachers to engage in ongoing research by encouraging them to look critically and analytically at their

instructional decisions, their ability to make inferences based on evidence of student learning, and their cultivation of a questioning environment among students. A major goal of the specialist is to improve teacher understanding not only of mathematics, but the challenging business of creating lessons and learning environments in which all children can learn mathematics.

I am a strong advocate for building more research experiences into teacher preparation programs. While these experiences will differ from those found within the disciplines, they can draw upon lessons learned within disciplines to shape quality research opportunities. Moreover, conversations between schools and colleges of education with discipline areas may well result in some kind of collaborative undergraduate experiences among students who seek a major or minor in the sciences or mathematics. Whatever form it takes, the goal is to increase the facility of teachers to use the processes of investigation, inquiry and research to do the work of teaching and learning more effectively. This is a necessary programmatic step in rethinking the preparation of teachers.

Dr. Moon is a professor at Lesley College and an advisor to the ExxonMobil Foundation. Information about the foundation and its support of education can be obtained by writing to them at: ExxonMobil Foundation, 5959 Las Colinas Blvd., Irving, Texas 75039-2298 USA.

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