

Responses to Guiding Questions for Faculty

Workshop on Education Research Positions in STEM Disciplinary Departments

from Sharon McCrone and colleagues at Illinois State University

1. What motivated you to specialize in discipline-specific education research? What did/do you hope to achieve?

- I spent a few years as a secondary teacher of mathematics and decided that I needed to learn more about the field of education. At the same time I was very interested in pursuing a degree in mathematics. A blend of both led me to mathematics education. It was not until part-way through the doctoral program that I decided I wanted to help preservice teachers become better teachers and I wanted to help students achieve a deeper understanding of mathematics – deeper than I experienced in high school.
- Some excellent role models motivated me to pursue mathematics education.
- From a hard-sciences background in mathematics and physics, I longed for the human aspects to be part of my work. Research in mathematics education was the bridging of the sciences and the arts or humanities for me, with the intellectual stimulation of theory-building combined with the potential to contribute to the improvement of the teaching and learning of mathematics.
- I had been a senior secondary mathematics teacher and had written textbooks for upper-secondary students. I had also been head of a mathematics department in a school. I realized that a lot of research in mathematics education was needed -- it seemed that many students really struggled to cope with the mathematics they were expected to learn. Not only that, the main message many got was that "they couldn't do math." It seems to me that the same factors still exist in the schools.

2. What are your responsibilities for teaching, research, and service? (e.g., teaching loads, courses, mentoring roles, types of research, liaison roles with education departments)

- I typically teach 2 to 3 courses per semester (4 to 6 per year, depending on credit hours). It is expected that research is 1/3 of our work load each year, but in reality research accounts for about 1/4 of my work load. I just cannot find the time. Since tenure, my service responsibilities have increased. I chair two departmental committees and serve on another; I serve on a committee in the College of Education (campus-wide assessment of our performance-based assessment system); and I am the department coordinator for secondary mathematics student teachers. I am currently directing a doctoral dissertation and serving as committee member of two others. Service responsibilities are a bit overwhelming at the moment.
- Teaching load is equivalent to 5 classes a year. In research I have almost always had a grant with no release time. In terms of service, I have served on the Department "faculty status" committee and I am currently the department representative to the university's Institutional Review Board.
- I typically teach two courses per semester, serve as major professor for about 7 doctoral students, direct the doctoral PhD program in mathematics education,

serve as an editor of one major journal and serve as book review editor of another, review international grant proposals, review credentials for promotion and tenure nationally and internationally, serve as a consultant and an external supervisor in five countries, and within the university serve on departmental, college, and university committees.

- This semester I am teaching two mathematics courses (in a Mathematics Department). These courses aim at helping prospective middle-school teachers to gain knowledge of content related to what they will be likely to teach (especially in regard to algebra, arithmetic, geometry). I am not teaching graduate courses, but am on the committees of several graduate students. I am involved in several research projects.

3. In what ways (if any) do your responsibilities differ from your non-education focused colleagues?

- Very few of my non-education colleagues serve on dissertation committees (certainly never as a director or co-director). Non-education colleagues are more likely to serve on non-education related university committees, but education colleagues are more likely to sit on education-related committees. Me and my mathematics education colleagues seem to do more service on a national and international level (presentations at conferences, workshops for teachers, editors, reviewers, etc.). In terms of research and teaching, I believe our expectations are the same.
- It's not clear how to answer this...mathematicians prove....we work with teachers and students...qualitative vs. quantitative.
- Supervision of preservice teachers' clinical experiences in schools is a major difference.
- My concern (when teaching mathematics, and when carrying out research) is whether students are learning mathematics with understanding (in contrast to instrumental learning, which has been said to be "rules without reasons"). I think the main focus of my non-education colleagues, in the Mathematics Department, is on making sure students are presented with accurate content.

4. What positions have you held and do you currently hold in your department?

- Tenured Associate Professor: Chair of Secondary Education Committee, Chair of Mathematics Education Search Committee, member of Pure Mathematics Curriculum Committee, Coordinator for Secondary Mathematics Student Teachers.
- Tenured Full Professor: IRB representative, department's equipment committee (monitoring use and needs of calculators, portable projection units, TV/VCR units, etc.). Served on many departmental committees in the past, including elementary mathematics education liason with College of Education.
- Tenured Full Professor: Director of the PhD program in mathematics education, and serve on Secondary Education Committee. Previously: member of departmental faculty status committee.
- Tenured Associate Professor: serve on 2 departmental committees

- We have only one Assistant Professor in mathematics education at this time. She is tenured but did not get promoted.

5. In what ways (if any) do your current position and your career prospects differ from your non-education focused colleagues? (e.g., title and rank, paths to tenure, resource issues, joint appointments with other departments)

- There are no differences in terms of possible title/rank. In terms of paths to tenure, expectations are the same, which has been a point of contention because many faculty in mathematics education put lots of energy into service and possibly writing educational textbooks. These two endeavors do little in terms of promotion and tenure.
- Many/most/possibly all mathematics education faculty work hard to obtain external funding to support our research. In some cases the research would not be possible without the funding. This differs significantly from the pure mathematicians. Many have never written a grant proposal and do not rely on any outside funding to be successful in their research.
- Criteria for promotion and tenure were satisfied largely in my "leisure" time, producing publications and doing international service from my home.
- I think the mathematicians and the mathematics educators seem to work together, happily, in the Mathematics Department. There doesn't seem to be any favoritism one way or the other.

6. To what extent and how does your department, school or university support your position and your research? (e.g., financial support, cultural support, etc.)

- The university and department are happy for the external funding that supports our research. There are some university resources available to help with writing grant proposals and administering grants, but this is not widely known. Our current department chair is slowly learning about the needs of the mathematics education faculty and is beginning to be sensitive to these needs. My current work with a non-education focused colleague has helped to open his eyes to the work that I do in educational research and service. I believe this has been a helpful partnership.
- Very little support...it's always been that way. Currently there has been more support (with a semester of release time), but I've never been supported or encourage much during the 18 years here and I've brought in over \$1.7 million in grant funds. I don't believe what I do is valued in the department....but, I value what I've done and that keeps me going.
- I know from serving on the department faculty status committee that there is a strong ethos in the department of trying to reward and value educational accomplishments as well as disciplinary ones.
- The teaching load is not heavy, and that permits me to get involved in research.