

Mathematics Education Doctorates

A Report on Current Research

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Mathematics Education Positions in Higher Education and Their Applicants: A Many-to-One Correspondence

By Robert Reys in *Notices of the AMS, Volume 49 (2), 2002.*

- 134 Positions advertised for Doctorates in Mathematics Education during 2000-2001. (119 institutions responded to the survey.)
 - Most positions had 2 to 10 applicants
 - 49% were not filled
- 106 Positions advertised in 2001-2002
 - 37% were not filled

Are there not enough mathematics education doctorates?

A Study of Graduates of Doctoral Programs in Mathematics Education (Glasgow, 2000)

- How many graduates were there?
- What was their educational background?
- What kinds of jobs did they take?
- In what activities are graduates involved?

How Many Graduates Were There From 1993 to 1995?

- 838 Dissertations related to Mathematics Education
- 361 Identified as graduates of Doctoral Programs in Mathematics Education
- Thus an average of 120 graduates per year (compared to NRC's reported average of 80 per year)

What was the Educational Background of Graduates?

- 38% have Master's degree in Mathematics
- 33% have Master's degree in Mathematics Education
- 13% have Master's degree in Education
- **90% have either a Bachelor's or Master's emphasizing mathematics
- **Averaged 18 years between Bachelor's and Doctorate

What Kinds of Jobs Did Graduates Take?

- 80% at Colleges or Universities
- 20% at K-12, Governmental, Commercial, or International Institutions

**33% employed at their current position prior to earning their doctorate

What Kinds of Jobs Did Graduates Take?

Of the Graduates in Higher Education:

- 18% at Research Level Institutions
 - 20% at Doctoral Level Institutions
 - 42% at Master's Level Institutions
 - 10% at Baccalaureate Level Institutions
 - 10% at Associate of Arts Level Institutions
- *Only 38% at institutions that grant doctorates

What Kinds of Jobs Did Graduates Take?

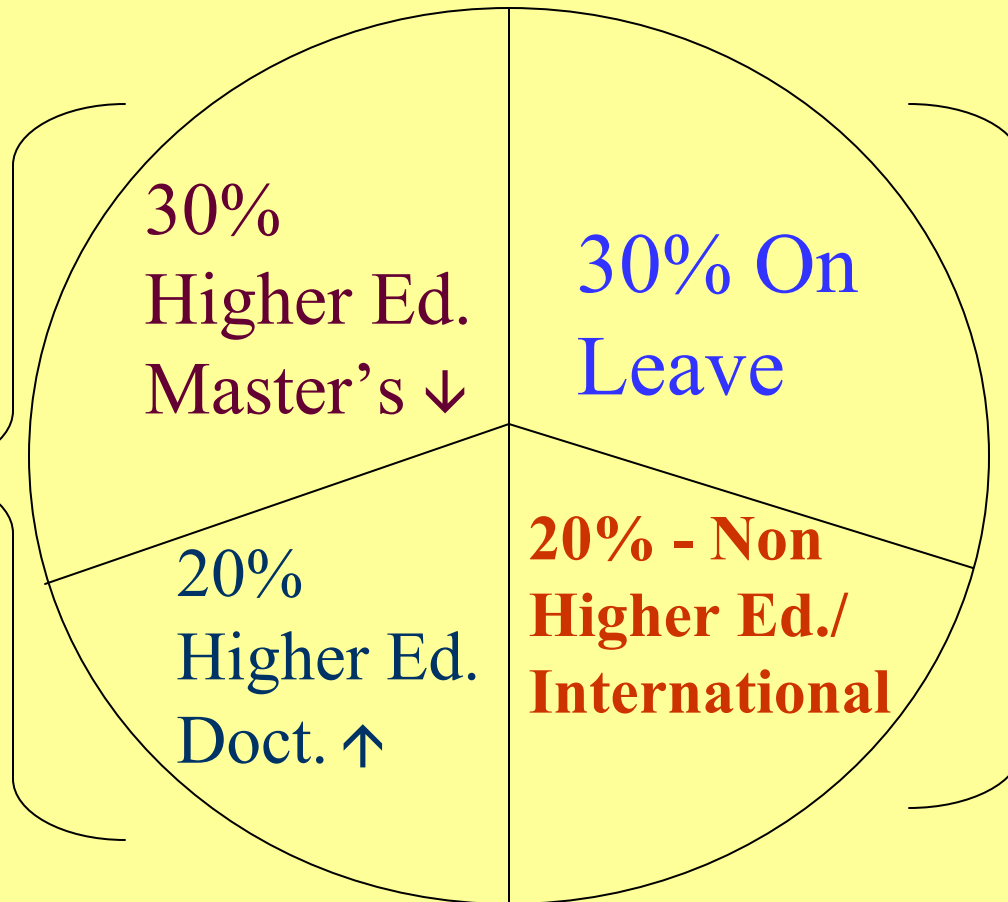
Of the Graduates in Higher Education:

- 60% in Departments of Mathematics or Colleges of Arts and Science
- 32% in Colleges of Education
- 5% have joint appointments

Where do doctoral graduates go?

(The big picture)

About 60 out of 120 graduates per year for Higher Ed. Jobs in Math and Education



About 50% never enter Higher Ed. Job Market

What Activities are Graduates Involved in?

- Average 9.5 hours of teaching per week
 - (5.3 at Research, 10.8 at Master's)
- Average 9 publications over career
 - (21 at Research, 6 at Master's)
 - (over 20% have 0 publications)
 - (25% Conference Proceedings, 22% in Mathematics Education Journals)
 - (25% published prior to earning doctorate)
- Average 19 presentations over career
- Involved in an average of 3 funded projects

Observations

- The increasing demand for doctorates in mathematics in education is outpacing the production of these doctorates.
- The shortfall of doctorates is, in part, a result of the following:
 - The percent of new doctorates who complete their degree while on leave from a position to which they will return. (33%)
 - The large percent of current mathematics education doctoral program faculty who are eligible for retirement -- about 65% within the next 3 years. (Reys, Glasgow, Ragan, and Simms, 2000)
 - The increasing demand for doctorates in mathematics departments, and the appeal of the expectations and responsibilities associated with these positions to many doctorates. (Interviews with graduates indicate that those taking positions in Mathematics Departments at Master's level institutions do so for 3 main reasons.)
 1. They were already employed at such a position before earning their doctorate.
 2. The desire to teach mathematics, while working with preservice math teachers.
 3. While seeing the importance of research, the desire to spend the majority of their time in teaching and professional development of teachers.

References

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