What Are the Effects of Teacher Education and Preparation on Beginning Math and Science Teacher Attrition?

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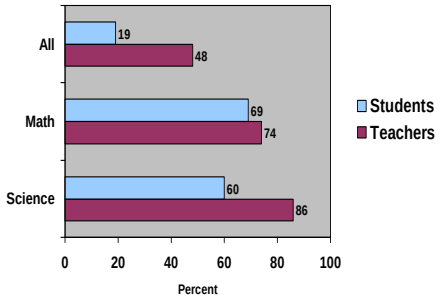
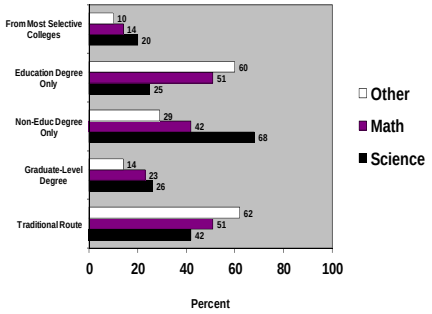
(1.) The Number of Qualified Math and Science Teachers Has Ballooned

Figure 1: Percent Increase in Students and Qualified Teachers Employed, by Field from 1987-88 to 2007-08



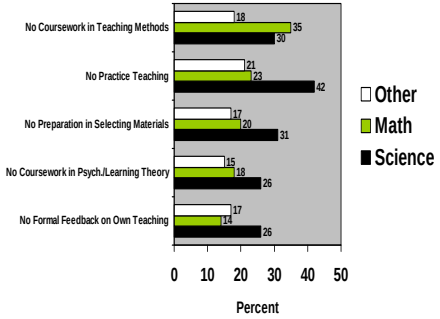
(2.) Math and Science Teachers Have More Academic Preparation Than Other Teachers

Figure 2: Percent Beginning Teachers with Different Types of Academic Preparation, by Field: 2003-04



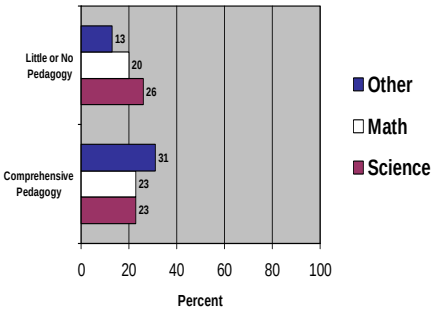
(3.) Math and Science Teachers Have Less Pedagogical Preparation Than Other Teachers

Figure 3: Percent Beginning Teachers without Different Types of Pedagogical Preparation, by Field: 2003-04



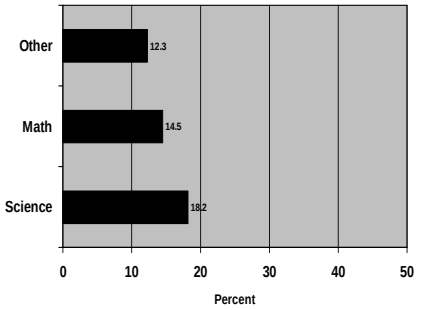
(4.) Pedagogical Preparation Comes in "Packages"

Figure 4: Percent Beginning Teachers Who Received Different Pedagogical Preparation Packages, by Field: 2003-04



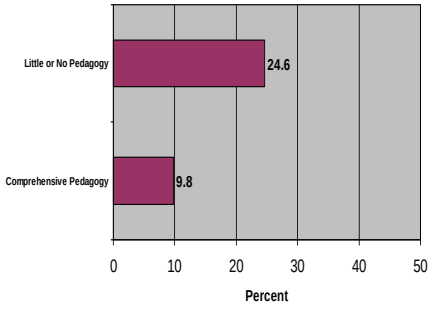
(5.) Beginning Math and Science Teachers Have Higher Attrition

Figure 5: Percent Beginning Teacher Attrition After First Year, by Field: 2004-05



(6.) Academic Preparation Has Little Impact on Attrition, but Pedagogy Does

Figure 6: Attrition of Beginning Teachers, by Various Pedagogy Packages: 2004-05



Conclusion

It is important for math and science teachers to have adequate academic and subject-matter preparation. And, our research shows that, in fact, math and science teachers are more academically able and more likely to hold degrees in their discipline.

But our data suggests it is also important to have adequate preparation in pedagogical methods and skills – the "how" of teaching – and in these areas of preparation math and science teachers are disadvantaged.

The types of preparation associated with better retention are the types of preparation that math, and especially science, teachers are less likely to have.

Source of Data

The Schools and Staffing Survey and Teacher Followup Survey from the National Center for Education Statistics

Next: Research in Progress

What impact have accountability policies and practices had on the retention of mathematics and science teachers?

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