ABOUT THE ORIGINAL STUDY

Changes in the demographics, qualifications, and turnover of American STEM teachers, 1988–2012

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Why It Matters

Recruiting and retaining qualified STEM teachers is central to equitable access to STEM education. This study documents national changes in the STEM teacher workforce and examines whether improvements in qualifications extend to high-poverty schools, where staffing and retention challenges may differ.

Data and Sample

The study uses seven waves of the nationally representative Schools and Staffing Survey from 1988 to 2012, including 42,010 public school STEM teachers. STEM teachers are identified by their main assignment in mathematics, computer science, or natural sciences.

Key Findings

- The share of female STEM teachers increased from 43% in 1988 to 64% in 2012; changes in racial and ethnic composition were less dramatic.
- Improved qualifications did not consistently narrow gaps between high- and low-poverty schools. In 2012, 30% of STEM teachers lacked a major or certification relevant to their main assignment.
- STEM teachers were not more likely to turn over than other teachers overall. Adjusted results showed a lower risk of moving schools and no difference in leaving teaching.
- In high-poverty schools, STEM teachers were more likely than non-STEM teachers to leave teaching: their predicted probabilities were 8.9% and 7.3%, respectively.
- In high-poverty schools, administrative support and more content-based professional development were associated with lower risks of leaving teaching.

Policy Implications

- Prioritize recruiting qualified STEM teachers into high-poverty schools and supporting their retention.
- Consider administrative support and content-based professional development as retention strategies, especially in high-poverty schools. The study identifies associations, so their causal effects require further evaluation.
- Evaluate recruitment and preparation programs on retention as well as qualifications. The authors call for more evidence on programs serving historically underserved schools.

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