Teacher Induction Programs that Lead to Retention in the STEM Teaching Workforce

Presentation at the Noyce Summit
July 20th, 2017

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Overview

- Why Focus on Teacher Retention?
- Definitions of “STEM Teacher,” “Induction Programs,” and “Induction”
- Research on Mentoring/Induction Programs
  --Questions To Address in Our Review
- Research on Principal Leadership
  --Questions To Address in Our Review
- Research on Social Networks, School Organizational Context
  --Questions To Address in Our Review
- Audience Questions, Feedback
Why Study Factors That Affect STEM Teacher Retention?

- Why is it important to study factors that influence STEM teacher retention?
- Ronfeldt, Loeb, and Wyckoff (2013) reported that students of teachers at the same grade level in the same school perform worse in mathematics and reading when teacher turnover levels are higher.
- STEM teachers who remain in the profession generally become much more effective over time. Some studies have shown that teachers’ effectiveness continues to increase long after their first five years in the profession (Harris & Sass, 2011; Papay & Kraft, 2015).
- STEM teachers who remain in teaching and in their schools of origin are likely to contribute to a positive climate in their schools over time. Schools with supportive professional environments have higher levels of student achievement gains over time than other schools (Bryk & Schneider, 2002).
- Mathematics teacher retention is strongly influenced by their degree of individual classroom autonomy while science teacher retention is strongly affected by salaries (Ingersoll & May, 2012).
Definitions

- STEM teachers: secondary science, technology, engineering, or mathematics teachers; elementary teachers who teach any STEM subject.

- Induction programs: Formal support programs provided by school districts or schools for 1st-year teachers and sometimes 2nd- and 3rd-year teachers. Such programs typically feature formal mentoring, orientations, and regular workshops/professional development activities. They sometimes feature training for mentors, released time for 1st-year teachers, and teacher assessments.

- Induction: The career stage that follows pre-service teacher preparation. This period usually lasts about 2 to 4 years or until the beginning teacher achieves more permanent employment status and/or a regular/professional teaching license.
Research on Mentoring/Induction Programs

Examples of Studies
- Smith and Ingersoll (2004)
- Glazerman et al. (2010)
- Schmidt, Young, Cassidy, Wang, and Laguarda (2017)

Key Predictors
- Mentoring provided by full-time teacher in same school
- Mentoring provided by full-time mentor who is released from teaching
- Training for mentors, released time for 1st-year teachers, teacher assessments, same teaching assignment for mentors and mentees

Key Outcomes
- Teacher Retention
- Instructional Quality
- Teacher Effectiveness (i.e., effects on student learning)
Questions to Address in Our Review

- Do beginning STEM teachers benefit from mentors who are released from teaching and work with a caseload of 10 to 12 novice teachers?
- Do beginning STEM teachers benefit from mentors who teach full-time and work in their schools?
- How important is it to have subject-area and/or grade-level matches between mentors and mentees for STEM teachers vs. other teachers?
- How important is it for mentors to have knowledge of/experience with the school organizational contexts where their STEM teacher mentees work?
- How important is it for induction programs to feature training for mentors, released time for 1st-year STEM teachers, and/or teacher assessments?
Research on Principal Leadership

Examples of Studies
- Boyd et al. (2010)
- Kim (under review)
- Ladd (2011)

Key Predictors
- Principal leadership related to instruction
- Principal leadership related to student discipline
- Principal leadership related to teacher professional community

Key Outcomes
- Teacher Commitment
- Teacher Retention
Questions to Address in Our Review

- Does effective principal leadership for elementary STEM teachers look similar to effective principal leadership for secondary STEM teachers?
- Does effective principal leadership for 1st-year STEM teachers look similar to effective principal leadership for 2nd-year STEM teachers?
- Do principals primarily support beginning STEM teachers through direct interactions with them or by supporting them in other ways (i.e., through indirect support)?
- How do principals balance supporting beginning STEM teachers with formally evaluating them?
- How do principal background characteristics affect their support for beginning STEM teachers?
Research on Social Networks, School Organizational Context

Examples of Studies
- Chan et al. (2008)
- Frank et al. (under review)
- Pogodzinski, Youngs, and Frank (2013)

Key Predictors
- Characteristics of beginning teachers’ social network members
- Beginning teachers’ perceptions of person-organization fit

Key Outcomes
- Teacher Commitment
- Teacher Retention
- Instructional Quality
Questions to Address in Our Review

- How do characteristics of beginning STEM teachers’ social network members affect their commitment and retention?
- How do characteristics of beginning STEM teachers’ social network members affect the quality of their instructional practices?
- Do beginning STEM teachers’ perceptions of person-organization (P-O) fit better explain key teacher outcomes than objective measures of P-O fit (i.e., from social network data)?
- How do beginning STEM teachers’ perceptions or experiences with accountability policies or teacher evaluation policies affect their commitment, retention, and instructional quality?
Next Steps

- We are continuing to identify relevant research studies this review
- If you are doing research on our topic, please let us know
- If you know of studies that we should consider for this review, please let us know
- We plan to finish this paper by December 2017
Audience Questions, Feedback

- We welcome your questions and feedback
- Feel free to e-mail us!

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References


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