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Supporting Teacher Retention in Diverse Educational Settings (STRIDES)

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Problem Addressed and General Approach

The United States faces a continuing shortage of well-prepared secondary mathematics teachers, among the worst of any subject (Malkus, Hoyer, & Sparks, 2015). To address this issue, schools often rely on both in-service professional development, which not all teachers may opt to participate in, as well as initial teacher preparation programs, to recruit and retain highly qualified teachers. The quality of teacher preparation, particularly related to pedagogical practice, significantly impacts new teacher attrition (Ingersoll, Merrill, & May, 2014). Studies find that 50% of all teachers leave the profession within the first five years (Foster, 2010), and the rate of departure for mathematics teachers is highest in high-poverty schools (e.g., Goldring, Taie, & Riddles, 2014). According to the Learning Policy Institute, 40% of newly hired mathematics or science teachers are underprepared, and underprepared teachers are far more likely to teach in schools serving students of color and low-income students (Carver-Thomas, 2018). These studies speak to the urgency of both training highly qualified mathematics teachers and providing ongoing support during their induction years to ensure new teachers find the success and job satisfaction needed to retain them in the profession.

The Secondary Teacher Recruitment and Induction in Diverse Educational Settings (STRIDES) RAC members strive to create a sustainable and cohesive system of professional support (from pre-service through early years in the profession) to retain high-quality secondary mathematics teachers in the field. This report highlights the current work of the STRIDES team to develop timely interventions and supports through which to meet this goal.

Theoretical Framework

Novice teachers often feel isolated, and those feelings of isolation are often associated with teachers leaving the field (Carroll & Fulton, 2004; Schlichte, Yssel, & Merbler, 2005). This work is grounded in the perspective that teacher retention would improve with the development of communities of practice to provide a support network to draw upon, including online communities (Wenger, 2011). Communities of practice are “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (Wenger, 2011, p.1). Wenger further shared three features that characterize communities of practice: a domain of interest, a community (members who participate in joint activities and discussions), and shared practice. For our work, our domain of interest is teaching high school mathematics during the early years of a teacher’s career. The community consists of early-career teachers, mid-career mentoring teachers, curriculum specialists, and university program coordinators and mathematics teacher education faculty. The practice of focus is teaching mathematics. We recognize that the work of retaining teachers requires, in part, a focus on developing relationships within the educational community and promoting connectedness within the larger community (Minarik, Thornton, & Perreault, 2003).

Past Progress

In the fall of 2014, the STRIDES Research Action Cluster (RAC) was formed to address the national crisis of teacher attrition. Experts agree that addressing this crisis meaningfully requires building a more cohesive system of teacher preparation, support, and development (Mehta et al., 2015). The overarching goal of this RAC is to expand meaningful support for early-career mathematics teachers and by doing so to increase teacher retention at-large.

From 2014–2016 the RAC developed a survey in iterative cycles of survey design. The purpose of the survey was for teachers to reflect on the professional learning activities and communities in which they participate, and to learn more about the current support systems that exist, in hopes to better support teachers and ultimately improve teacher retention rates. This survey was implemented nationally in 2016–2017 with 141 early-career secondary mathematics teachers responding (with matched pair responses in fall/spring). The data from this survey was analyzed in 2017–2018 and used to identify two focal areas (administrative relationships and local support). Data driven interventions were also designed, and the planning began for pilot implementation.

In 2018, two sub-RACs were formed, each taking on one of the focal areas aforementioned. One sub-RAC referred to itself as the “admin sub-RAC” and the other as “PLC sub-RAC.” From 2018–2020 pilot interventions were implemented nationwide on a small scale, with the overall goal to support early-career teachers in a purposeful way. The admin sub-RAC focuses its efforts on making substantive connections between early-career secondary mathematics teachers and administrators at their sites. In the spring of 2019, members of this sub-RAC completed a pilot study with teachers and site principals in the Knoxville, Tennessee, area. This experimental research study involved the principal and an early-career teacher in a “10-minute meeting” where the pair viewed a five-minute video illustrating the importance of discourse in the secondary mathematics classroom followed by five minutes of discussion about the merits of this instructional strategy. A second early-career mathematics teacher at the same school site did not participate in the intervention and served as a control participant. Electronic surveys were completed by all participants, administrators as well as both experimental and control teachers, before and after the intervention to measure feelings of support and self-efficacy. Relative to control participants, increased feelings of self-efficacy and support were found for all experimental participants at all sites where the intervention was conducted. Relative to before the intervention, increases in professional self-efficacy and increased feelings of providing support to teachers was found for the administrative participants as well. The PLC sub-RAC implemented an intervention designed to provide targeted support to first-year teachers by: (1) strengthening the mentor/mentee relationship through monthly communications; (2) suggesting targeted discussion topics between the mentor/mentee teachers; (3) and providing synchronous online meetings as well as social media outlets for the teachers to build a professional community. Some of the timely, targeted communications included teacher self-care, keeping testing in perspective, time management, goal setting, and orchestrating productive struggle and mathematical discourse. Data collection was done in the form of teacher/researcher communications such as emails, Google forms at mid and end of year, recorded Zoom sessions, and commentary from the social media group account. All active teacher participants report that the support received was positive and impactful, but the research team struggled to keep participants engaged throughout the academic year. Both sub-RACs used PDSA cycles to test interventions and make data-driven improvements to strengthen them over the two-year span.

Next steps for STRIDES in the 2020–2021 academic year include major changes in both sub-RACs. The admin sub-RAC is planning on scaling up this academic year with the support of the California State University (CSU) Chancellor’s Office, who will be providing institutional support and access to email contacts for approximately 600 early-career mathematics teachers who have completed their certification in the CSU system the past three years. The PLC sub-RAC is going back to the drawing board with several lessons learned to revamp

existing interventions as recruitment, participation, and active engagement of teacher participants have been issues.

STRIDES at the 2020 MTE-Partnership Conference

STRIDES members began the conference with a pre-work assignment of divvying up all of the conference presentations. Each member took one to three sessions to watch and then reported via a shared document, and also spent significant time discussing each research session and whether there were any implications to our RAC. The RAC welcomed several new members this summer, which was very exciting. Next, we spent time discussing the possibility of writing a grant to support our work. As of now, all of STRIDES' work has been done with no funding. The decision was made that no one on the team has the capacity or desire to lead a large grant such as NSF, and we are unfamiliar with possible smaller-scale grants. We also believe that this work would be more sustainable if it was implemented with little to no funding.

The rest of the conference time was spent broken into sub-RACs. The admin sub-RAC further defined protocols for recruitment and implementation of the scaled up research study planned for the late fall in California. The PLC sub-RAC spent significant time thinking through lessons learned from the past two years and how we can use those to update and improve efforts for the upcoming year. We discussed: whom do we recruit, how do we recruit, are local efforts more impactful than national efforts, and how do we incentivize our program.

Resources Available

STRIDES members have done multiple presentations at national conferences over the past several years as well as had their work published in multiple places. A few of those examples are listed below. Some of these are available online but all of them are available by reaching out to Lisa Amick.

Publications

- MTE-P annual conference proceedings from previous years
- "The Mathematics Teacher Education Partnership: The Power of a Networked Improvement Community to Transform Secondary Mathematics Teacher Preparation" (2020)
- Martinez, J., & Amick, L. (2019). What educational leaders need to know about early career mathematics teachers. *Journal of Mathematics Education Leadership*.

Recent Conference Presentations

- Gomez-Johnson, K., Martinez, J. A., Uy, F., & Williams, C. (2020, June). Developing relationships between early-career teachers and their principals: An intervention scaling dilemma. Presented at the annual meeting of the MTE-P, Scottsdale, AZ. (virtual conference)
- Amick, L., & Jakopovic, P. (2020, June). Impacting teacher retention by supporting secondary mathematics teachers in their first two years of teaching. Presented at the annual meeting of the MTE-P, Scottsdale, AZ. (virtual conference)
- Amick, L. (2020, February). Research-based, targeted interventions to support and retain early-career secondary mathematics teachers. Presented at the annual meeting of the AMTE, Phoenix, AZ.
- Uy, F., & Amick, L. (2019, November). Impacting teacher retention by supporting secondary mathematics teachers in their first year. Presented at the annual meeting of the SSMA, Salt Lake City, UT.

- Amick, L. (2019, June). Impacting teacher retention by supporting secondary mathematics teachers in their first year of teaching. Presented at the annual meeting of the MTE-P, St. Louis, MO.
- Amick, L. et. al. (2019, April). Working as a NIC to prepare secondary mathematics teachers to meet the AMTE Standards. Presented at the annual meeting of NCTM, San Diego, CA.

Upcoming Conference Presentations

- Amick, L., Campitelli, M., Jakopovic, P., Kysh, J., Parker, D., Pforts, A. Weiland, T., & Wilding, L. (2021, June). The design and implementation of an intervention to target and retain early-career mathematics teachers. To be presented at the 42nd annual meeting of the PME-NA, Mazatlán, Mexico.
- Amick, L. (2020, November). Supporting and retaining early-career mathematics teachers through targeted interventions. To be presented at the 2020 SSMA Convention in Minneapolis, MN.

Opportunities for Engagement

Moving beyond the 2020 conference, the STRIDES team is interested in hearing from other members of the MTE-Partnership community to strengthen our recruitment and retention efforts. Insights into how local NICs might utilize the work of this RAC for local transformation, as well as suggestions and recommendations to continue to refine the team's efforts are solicited. The team would like to encourage new and returning MTE-Partnership members to join the team for the revised implementation of interventions during the 2020–2021 academic year, and to share this invitation with colleagues at your and other institutions, particularly those who have connections to local teams that might be interested in the work of STRIDES.

In addition to supporting the interventions, the team is open to collaboration to consider various internal or external funding opportunities that could strengthen the recruitment and participation of new teachers, teacher mentors, and local school partnerships, as well as potentially provide supports to members of the research team who are investing time and resources to analyze data and develop/deliver the interventions. If you are interesting in learning more about STRIDES or joining the RAC, please contact Lisa Amick, STRIDES RAC Leader, at lisa.amick@uky.edu.

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