Secondary Teacher Retention & Induction in Diverse Educational Settings[1]

Link to Promo Sheet

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Overview of the STRIDES RAC Work to Date

Half of all teachers leave the profession within the first five years. This rate is even higher for mathematics positions in high poverty schools (Fantilli & McDougall, 2009; Goldring et al., 2014). Furthermore, with half of all current teachers in the U.S. retiring in the next five years (Foster, 2010), enrollment in teacher preparation programs declining, and teacher turnover costing America $7.3 billion annually (National Math + Science Initiative, 2013), the mathematics teaching crisis is of major proportion. This crisis leads to many underprepared mathematics teachers and has a profound effect on how well prepared our students are to be successful in high school, college and beyond. Experts agree that addressing the mathematics teaching crisis meaningfully will require building a more cohesive system of teacher preparation, support, and development (Mehta, Theisen-Homer, Braslow, & Lopatin 2015).

The Secondary Teacher Retention & Induction in Diverse Educational Settings (STRIDES) Research Action Cluster (RAC) addresses Mathematics Teacher Education Partnership (MTE-P) Guiding Principle 8: Student Recruitment, Selection, and Support. Teacher preparation programs actively recruit high quality and diverse teacher candidates and monitor/support them as they complete their programs. Since the inception of MTE-P, the national problem of retaining secondary mathematics teachers within the profession has been a priority. This priority led to a proposal to form a RAC focused on retention at the 2013 MTE-P Annual Conference, but was not acted upon in order to focus first on recruitment. The Marketing for Attracting Teacher Hopefuls (MATH) RAC was formed with this charge. A few years later, the recruitment effort was rekindled, and the STRIDES RAC began its work by creating the driver

[1] The RAC Promo Sheet, presented during the opening of the conference to report on current activities of the RAC, can be found after the reference list.

Lawler, B. R., Ronau, R. N., & Mohr-Schroeder, M. J. (Eds.). (2016). *Proceedings of the fifth annual Mathematics Teacher Education Partnership conference*. Washington, DC: Association of Public Land-grant Universities.

diagram shown in Figure 1, based on a review of recent literature on retention. The aim statement and drivers include support for early career teachers and Professional Learning Communities, and call for the examination of school structures and professional pathways to support/retain teachers.

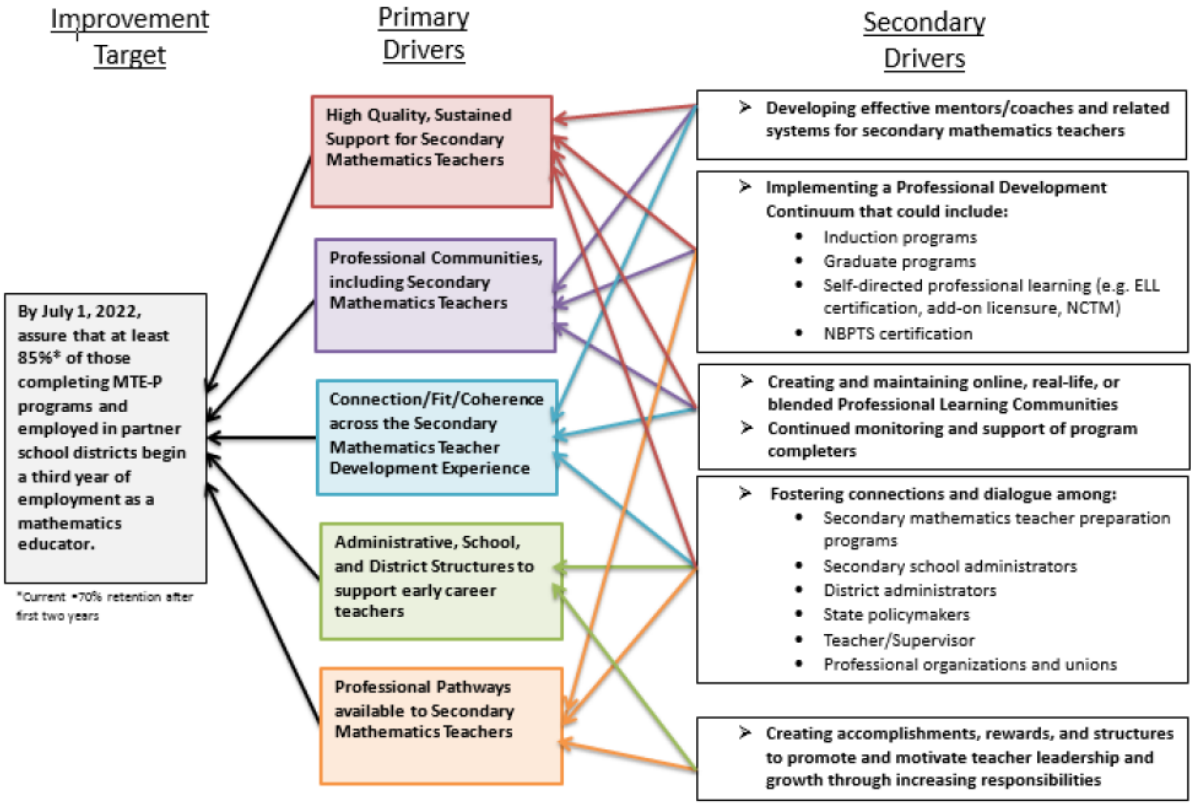

Figure 1. STRIDES driver diagram.

Members of STRIDES decided early on that the work of the RAC must focus on understanding and providing support for both pre-service and early in-service teachers, given the significance of a cohesive continuum of professional learning on teacher growth and retention. Thus, to launch early initiatives aimed at improving teacher retention rates, STRIDES members designed a survey in summer 2015 to gather preliminary data on the nature and quality of professional support for pre-service, 1st, 2nd, and 3rd year teachers. Specific research questions guiding this effort were: What is the perceived scope, nature and impact of professional support for early career mathematics teachers?; and How does this (a) change as teachers progress in their teaching career and (b) relate to how likely it is a teacher will remain teaching? Researchers from thirteen institutions and secondary mathematics teachers from four school districts designed the pilot survey, called “Reflection on Professional Activities.” This survey was created through an iterative design and vetting process, having stemmed from a discussion centered on research-based reasons that teachers leave the field.

The survey asked participants to specify activities that have helped them grow professionally, and the degree to which these activities were worthwhile to them, allowing STRIDES to better understand the degree to which early-career mathematics teachers are being supported by professional learning opportunities, professional learning communities, and administrators. Also, instructional context (i.e. public, private, etc.) data was collected, as well as whether the early service teachers serve students from special populations (i.e. special education, English Language Learner, gifted). Participant estimations regarding the degree that specific professional development activities changed these teachers' practices, as well as the level of "inspiration" these activities invoked, were surveyed, allowing researchers to discern connections between these two measures. Qualitative responses allowed survey participants to provide additional details regarding their support systems. Finally, the degree that the participants felt that their administrators support them professionally was measured, including support in specific areas (e.g. assessment, instruction, curriculum, classroom management, collegial collaboration and course assignments/loads).

Work of the STRIDES RAC at the 2016 Annual Meeting

At the Fifth Annual MTE-P Conference in Georgia, STRIDES members analyzed data from the pilot survey with two goals: (1) Create a revised survey that could be sent to early-career teachers across the MTE-P network 3-4 times in the 2017-18 year to understand professional support, and (2) To develop intervention(s) targeting professional learning and support for early-career teachers to launch in August 2016. The group analyzed pilot survey data with respect to respondents' (N=66) reports of professional learning and support, and the impact on their teaching. Further, a subset of those surveyed responded twice (N=19) allowing for consideration of the change in these reports over time.

To analyze the data, STRIDES members split into three groups, each with a distinct lens: nature and impact of professional learning activities, nature and impact of participation in professional communities, and the nature and impact of support from administrators. Each group examined qualitative and quantitative responses, summarized key themes and questions for the group, and posted key inferences on posters around the room. Based on each inference, individual RAC members brainstormed ways we might revise the survey for full implementation in Fall 2016 and ways we might make early career teachers' professional learning and support more effective. From this collection of ideas the group distilled three, key change ideas: (1) the need for long-term, collaborative groups for early-career teachers to participate in, (2) a clearer role of site-based administrators and colleagues in supporting these collaborative groups, and (3) the need to train and support the mentors supporting these early-career teachers.

STRIDES RAC members self-selected into one of these three groups to create PDSA cycles that would guide early interventions in Fall 2016. The change idea and questions each group will begin to address are provided in Table 1.

Table 1
Change idea and guiding questions.

Change Idea	Description of Change Idea	What We Want to Learn
1. Long-Term Collaborative Groups for Early Career Teachers	Teacher collaborative groups that focus sustained attention on one teaching practice for early career teachers can support a sense of professionalism and professional improvement for early career teachers.	*How can collaborative teacher groups be supported to engage in sustained attention to a particular teaching practice that early career teachers can grow in?* *How does participation in a collaborative group develop a sense of accomplishment in relation to the selected practice?* *What structure of collaborative group creates a positive perception about their profession and future professional trajectory?*
2. Role of Administrators and Site-Based Colleagues	Support administrators by creating a common vision and using strategies to reinforce retention of early career mathematics educators.	*What targeted supports for administrators' impact teacher retention?*
3. Training & Supporting Teacher Mentors	Does training mentors affect teacher retention?	*Can mentor teachers use the learning cycle (see below) to facilitate early career (pre-service through 3rd) teachers enacting the 8 core teaching practices defined by NCTM?*

Conclusion

Two primary conclusions of the STRIDES RAC from the 2016 annual meeting were that supporting early-career mathematics teacher retention will involve a cohesive effort across teachers' entrance into and early years in the profession, and the preparation and support provided to new mathematics teachers by teacher educators, mentors, coaches, administrators, and colleagues must be more cohesive. The three change ideas for better supporting early career teachers (see Table 1) distilled from the pilot data are symbiotic; early-career mathematics teachers need to participate in professional communities composed of other new teachers (Change Idea 1), need targeted support from administrators, colleagues, and mentors (Change Idea 2), and these mentors need training on mentoring that supports mathematics teacher development and retention (Change Idea 3). Members of the STRIDES RAC will work during 2016-17 in smaller groups to implement PDSA cycles based on these change ideas at their respective institutions. Additionally, a RAC subcommittee is revising the survey and disseminating to a larger participant pool three times during the 2016-2017 academic year. The revised survey will inform STRIDES members as they engage in the PDSA cycles that target retention efforts for secondary mathematics teachers.

References

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MTE-Partnership
Solicitation for Participation in the planned

STRIDES: Secondary Teacher Retention & Induction in Diverse Educational Settings

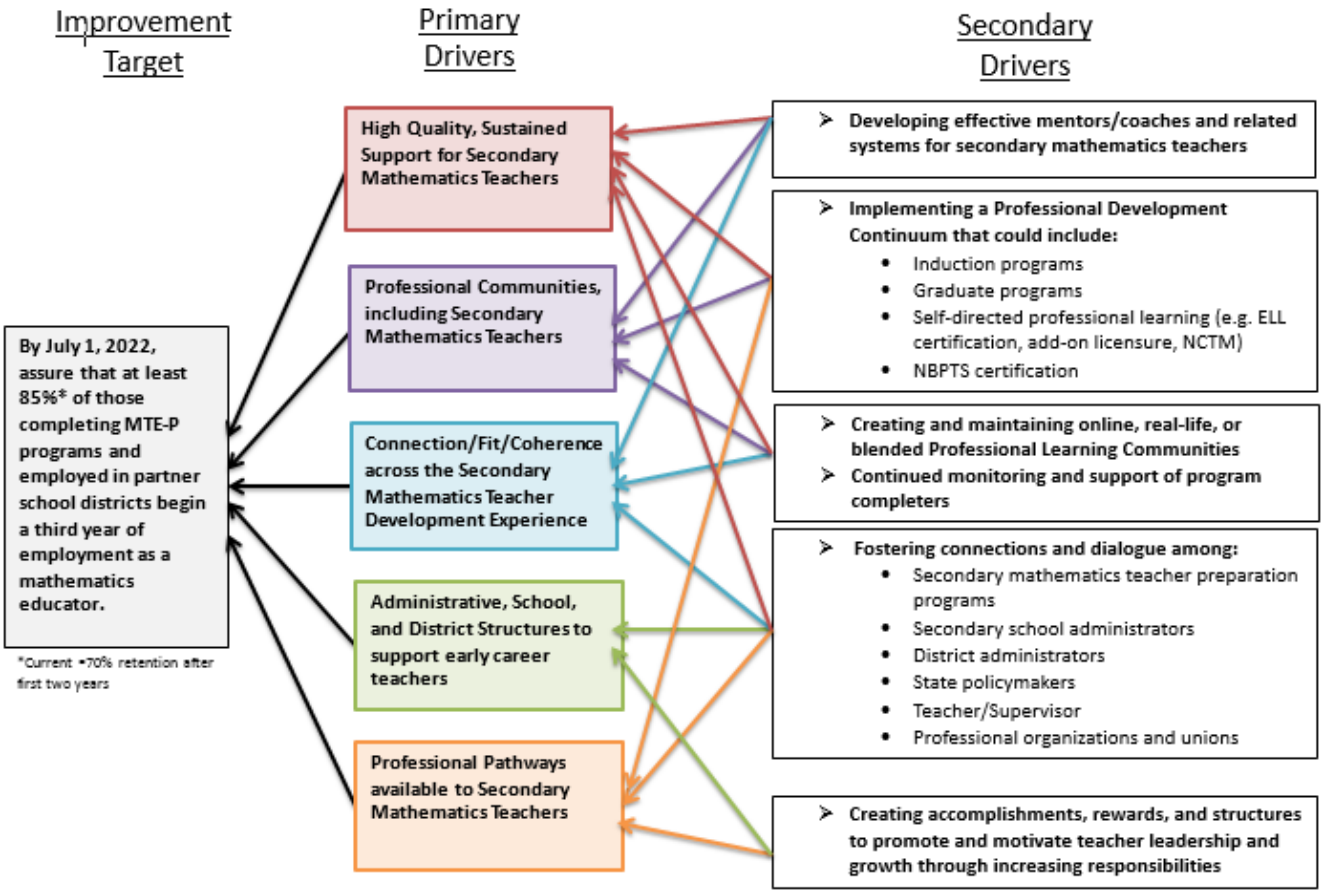
April, 2016

Problem Addressed

Guiding Principle 8: **Student Recruitment, Selection, and Support**
The teacher preparation program actively recruits high-quality and diverse teacher candidates into the program, and monitors and supports their success in completing the program.

Since the inception of MTE-P, the national problem of retaining secondary mathematics teachers within the profession has been a priority. A RAC on retention was proposed at the 2013 Conference, but not implemented because recruitment was determined to be a higher priority at the time. From review of the earlier White Paper, the previous RAC proposal, and more recent literature on retention, the driver diagram below is proposed with an aim statement and drivers that include support for early career teachers, PLCs, and the need to examine school structures and professional pathways.

General Approach



Who We Are (Current Working Group)

- **APLU**
  - Howard Gobstein
- **Auburn University**
  - Gary Martin
- **California State University**
  - Nancy Barker
  - Eric Hsu
  - James Martinez (co-leader)
  - Fred Uy
- **East Central Texas**
  - Laura Wilding
  - Jennifer Whitfield
- **Georgia State University**
  - Pier Junor Clarke
- **South Dakota**
  - Nicol Reiner
  - Jami Stone
- **Trellis Education**
  - Megan W. Taylor (co-leader)
- **University of Cincinatti**
  - Bob Ranau
- **University of Kentucky**
  - Lisa Amick (co-leader)
  - Craig Schroeder
- **University of South Carolina**
  - Ed Dickey (initial organizer)

Current Progress

After a recent survey of partnership members, a significant interest in teacher retention and induction was assessed, so a working group made up of partners expressing a strong interest in the topic was formed. The working group reviewed prior literature and recommendations to analyze the retention problem in the context of Secondary Mathematics Teachers, to understand the current problem space, and devise a new driver diagram.

From the driver diagram, a research question was selected, "What is the perceived scope, nature and impact of professional support for early career mathematics teachers, and how does this (a) change as teachers progress in their teaching career and (b) relate to how likely it is a teacher will remain teaching?" With this question in mind, researchers from thirteen institutions nationwide and secondary mathematics teachers from four school districts, all part of the MTE-P, designed a pilot survey called "Reflection on Professional Activities." This survey was created through an iterative design and vetting process that extended from the fall of 2014 throughout early 2016. The survey stemmed from a discussion centered on research based reasons that teachers leave the field. A brainstorming session followed the discussion, clustering those reasons into categories, and those categories eventually became the main components of the survey (professional activities, support, job satisfaction, etc.). This survey was edited numerous times during face to face discussions of the research group, virtual meetings, and finally feedback from early career teachers who will soon be

completing the survey. The current data collection tool is a 20-item survey asking participants – secondary mathematics teachers in their first, second, or third year of teaching – to reflect on the degree to which the professional learning activities and communities they participate in (e.g., working with a mentor, attending a professional conference, being a Noyce Scholar) increases their enthusiasm for teaching mathematics and influences their ability to facilitate student learning. Additionally, participants are asked to describe the role of administrators, universities, and school structures (e.g., teaching load) on these self-reports, and their satisfaction with teaching and likelihood to continue teaching. The survey was recently distributed nationwide in March of 2016 to begin the pilot study. Changes and refinements will continue to be made after the first round of preliminary data is collected to improve the quality and functionality of the survey.

In order to better understand the degree to which early-career mathematics teachers are being supported by: 1) professional development, 2) professional learning communities and 3) administrators, the survey allows participants to specify activities that have helped them grow professionally, and the degree to which these activities were worthwhile to them. Additionally, since the survey is longitudinal, responses can be measured over time, allowing the researchers to understand how these teachers are supported throughout their early service (preservice, 1st, 2nd, or 3rd) years. This measure will allow for correlations to be explored regarding the level of professional support these teachers receive based on years of teaching experience. Also, instructional context (i.e. public, private, etc.) data will be collected, as well as whether the early service teachers have students from special populations (i.e. special education, English Language Learner, gifted) in their classrooms. Surveyed early-career teachers will provide data regarding the level of support they receive from a range of professional learning communities (PLCs), including on- and off-site groups, professional organizations (e.g. NCTM), and on-line groups. Participant estimations regarding the degree that specific professional development activities changed these teachers' practices, as well as the level of "inspiration" these activities invoked, will be surveyed, allowing researchers to discern connections between these two measures. Qualitative responses are provided in the survey which allows survey participants to provide additional details regarding their most meaningful PLCs. Finally, the degree that the participants feel that their administrators support them professionally is measured, including specific areas (e.g. assessment, instruction, curriculum, classroom management, collegial collaboration and course assignments/loads). The survey ends with an estimation of: 1) their overall level of satisfaction in their teaching, 2) whether they would choose the profession again knowing what they have learned so far, and 3) how long they plan to remain in the teaching profession.

Opportunities for Engagement

In spring 2016, each, current member of the STRIDES RAC sent the pilot survey to a few, select early career teachers, with a solicitation to complete it twice: March and June. This pilot data will be analyzed by the STRIDES RAC working group in the summer annual meeting to (a) iterate the survey for longitudinal use, (b) make initial hypotheses about the kinds of professional learning activities early service teachers in our partnership are engaging in and and the impact of these activities on their practice, and (c) design initial interventions to launch in fall 2016. It is the goal of the STRIDES RAC to assure that, by July 1, 2022 at least 85% of the program's early-service teachers employed in partner school districts begin a third year of employment as mathematics educators. With this goal in mind, it is imperative that data from the STRIDES survey be used to design interventions that support the development of pathways for teachers to enter and thrive in the teaching profession. These pathways will be locally defined by MTE-P schools and their district offices which will support early career teachers in their professional growth. For example, one pathway may provide access to a variety of roles for teachers in the program to provide professional growth opportunities at their

schools, reducing the possibility of early departure. The intent is that all prescribed interventions follow a PDSA (i.e. Plan, Do, Study, Act) cycle, so that measures are recursively re-defined to better suit individual early-career teacher needs. Future ramifications of implementing STRIDES interventions to support the program's early-career teachers include: 1) establishment of a Network Improvement Community (NIC) model for collaboration-based support of mathematics teachers, 2) documentation of PDSA cycle effectiveness for specific support pathways, and 3) the development of a specific data-gathering instrument for researchers to use/modify for future studies.