Call for papers to be included in a Monograph on Mathematics Teacher Retention (MTRM)

The organizers of the PME-NA Working Group on Mathematics Teacher Retention are seeking papers for a Monograph on Mathematics Teacher Retention. The purpose of this monograph is to help inform and guide efforts that support Mathematics Teachers in their first five years of teaching and/or in hard-to-staff schools nation-wide.

The California Mathematics Project Supporting Teachers to Increase Retention (CMP STIR) was funded by the California Post-secondary Education Commission Improving Teacher Quality grant to the California Mathematics Project (CMP). In an effort to disseminate findings and network with researchers across the nation, the PME-NA Working Group on Mathematics Teacher Retention was launched in 2009. The work of this working group, as well as the Mathematics Teacher Retention Symposium, sponsored by CMP STIR, is guided by three documents: Mathematics Teacher Retention Problem Statement, Mathematics Teacher Retention Guiding Principles, and Mathematics Teacher Retention Guiding Questions.

Based upon research and CMP STIR experiences, seven strands were identified as critical areas of emphasis for mathematics teacher retention. Thus the Monograph will focus on the following major strands:

- *Mathematics Content & Pedagogy* as a foundation for mathematics teacher success.
- *Models of Support* for incoming mathematics teachers.
- *Communities of Practice* that continue to support mathematics teachers as professionals in their careers.
- *Teacher Leadership* opportunities that enable mathematics teachers to feel ownership over their roles.
- *Research* into the challenges of mathematics teacher retention.
- *Policy* and its impact on the ability to recruit and keep quality mathematics teachers
- *Teacher Identity* and how it may inform research on mathematics teacher retention

Papers need to address issues related to mathematics teacher retention, possibly responding to some of the questions posed in the Mathematics Teacher Retention Problem Statement. Submitted papers may include literature reviews, descriptions of current practice, and research in Mathematics Teacher Retention related to one or more of the seven strands. Theoretical papers that frame possible directions for additional research on mathematics teacher retention are encouraged. Descriptions of particular Professional Development models with evidence of linkage to retention will also be considered.

The Mathematics Teacher Retention Guiding Principles provide the frame for what we believe contributes to increased mathematics teacher retention. We anticipate papers to be supportive of these principles.

When submitting your paper, you will be asked to select one of the above as a primary strand.

Focus questions for the strands are listed in the Mathematics Teacher Retention Guiding Questions. Authors are asked to address some of these questions in their papers.

Mathematics Teacher Retention Problem Statement

A fundamental goal of CMP STIR is to increase the retention of teachers of mathematics in the profession and within the school. The monograph will include papers that highlight specific data defining the major issues relating to retention, some of which are addressed by the prompts below. This list is not necessarily complete.

- Is the familiar estimate that half the teachers leave the profession during their first five years of teaching accurate today?
- What are the corresponding attrition data for mathematics teachers?
- Is there significant correlation between teacher attrition and school demographics?
- What monetary costs to the public are associated with teacher attrition?
- What are the costs in terms of students' achievement and school performance?
- Has there been any success in identifying, independent of school district, which new teachers are most likely to leave the profession during their first five years of teaching? Has this been tracked down to the pre-service level?
- Teachers leave the profession for many different reasons; is there information available that statistically summarizes these reasons?
- Where do Mathematics teachers go when they leave the profession?
- For movers, what type of schools do they leave, and what type of schools do they move to?
- Are there specific characteristics of schools that help retain teachers?
- Has the recent economic contraction resulted in less teachers leaving the profession, and, if so, to what extent?
- Can more careful recruitment strategies at the pre-service level help with lowering the turnover rates?
- Can Professional Development help with lowering the turnover rates? And what type of Professional Development is more efficient? How do we quantify this? What other type of support is efficient?
- What role does Alternative Certification play in the issue of teacher turnover and retention? Has this been quantified too?

Mathematics Teacher Retention Guiding Principles

Introductory statement: ALL Students, regardless of skin color, low SES, gender, ethnic, religious, or cultural affiliation, must be provided equitable access to high quality and cognitively demanding mathematics.

- Teachers must have a deep knowledge of mathematics content and pedagogy in order to provide all students with equal opportunities to learn a balanced mathematics program that actively engages them in high level cognitively demanding tasks: i.e., a balance of procedural fluency, productive disposition, conceptual understanding, strategic competence, and adaptive reasoning-in ways that will prepare them for further study or work.
- Teachers need a variety of forms of support from exemplary mathematics teachers, administrators, and others to facilitate their growth and development.
- Teachers grow and thrive when they are able to participate in long-term, meaningful collaboration in a mathematics community of practice.
- Offering opportunities for teachers to develop as leaders of mathematics provides incentives for them to stay in the profession.
- Work with teachers should be informed by current and relevant research on teacher retention and on mathematics teaching and learning conducted using both quantitative and qualitative methods.
- National, state, and local policy should be based on current research on teaching and learning mathematics, and that structures need to be in place to keep teachers informed about these policies.

Mathematics Teacher Retention Guiding Questions

Mathematics Content and Pedagogy

- What aspects of mathematics content and pedagogical content knowledge contribute to teacher retention?
- What models of professional development contribute to the increase of mathematics content knowledge and/or pedagogical content knowledge of teachers?
- What models of professional development contribute to the increase the cognitive level of mathematics presented to students? In other words, how do we ensure transfer to classroom?
- What models of professional development increase teachers' ability to teach for understanding as articulated in the *Standards for Mathematical Practice* in the *Common Core State Standards*?

Models of Support
- What role does support play in the development of new teachers and how might support be linked to retention/career pathways.
- What models of support are particularly effective for new teachers? Why are they effective?
- Are there models of support that are more effective for teachers in urban schools? In rural schools? In schools with minority majority populations? What makes them more effective?
- How might forms of professional development work to deliberately develop strengthened professional mathematics teacher identities? What is the nature of practices and forms of participation made available to teachers that support the strengthening of these identities?
- How do we encourage school site and district administrators to support their new teachers?
- What role does support play in the development of new teachers?
- What challenges do teachers face when supported by internal vs. external programs?
- How might some existing models of support work to unwittingly undermine teacher professional identities and exacerbate teacher attrition?

Communities of Practice

- How do we build communities of practice both at the school level and at the local/regional level?
- Do communities of practice emerge as a by-product of professional development or are they purposefully created? Are the communities sustained regardless of how they are developed?

- How do we sustain communities of practice when project funding ends?
- What purpose and value do communities of practice bring to mathematics teachers?

Teacher Leadership

- What teacher leadership roles increase teachers' desires to stay in teaching?
- In what way does teacher leadership increase teachers' desire to stay in teaching?
- What challenges do teacher leaders face?
- How do you create teacher leaders that focus on eliminating the learning gap?
- How do we create teacher leaders that set high expectations of ALL students **and** ALL teachers?
- How do we increase the number of teachers of color in leadership positions?

Research
- How are motivations to teach linked to expectations of career pathways?
- What factors does research support that contribute to mathematics teacher retention?
- What has been the impact of professional development programs that target mathematics teacher retention?
- What research highlights the factors that contribute to the challenges of mathematics teacher retention?
- What changes do mathematics teachers make in the classroom over time as a result of professional development that targets teacher retention?

Policy

- What are the costs and benefits of teacher turnover?
- What school or district policies need to be in place to increase the retention of mathematics teachers?
- What are barriers to developing policies that support mathematics teacher retention?
- What effective school and/or district policies provide the type of support teachers need to stay in teaching?
- How might we develop policies that support and build understanding of the value of professional learning?

Teacher identity

- Is there a relationship between strengthened mathematical professional identities and teacher retention? If so what is the nature of this relationship?
- In many countries teacher status is low and teachers are regularly positioned as those responsible for poor learner performance. How does an absence of professional status for teachers affect teacher retention?

- How can professional development work towards strengthening professional identities?
- How might research into teacher development sometimes be complicit in reinforcing the low status of teachers and undermine teacher professionalism?
- Can research on Mathematics Teacher Identity provide a supporting lens to inform the relationship between professional development and mathematics teacher retention?

It is suggested that authors include applications and/or activities that allow readers to apply the information presented to their own environments. Editors for each section will address the papers' content and synthesize applications/activities for readers. Multiple authors, particularly collaborations with classroom teachers, are encouraged.

All papers must be submitted in English electronically in PDF form to Dr. Axelle Faughn at afaughn@email.wcu.edu by the deadline date of April 30th, 2012. Early submissions are encouraged. All submissions are subject to review. Authors of selected papers will be contacted by May 30th 2012. Papers must adhere to the following guidelines in order to be considered for review. There will be time for only minor revisions to accepted papers, thus it is essential to carefully format proposals according to these guidelines.

Submission Guidelines:

- Papers should be no longer than 8 pages or 3000 words, including abstract and bibliography.
- Follow the format of the American Psychological Association Publication
- Submit two electronic copies, one with author(s) on the title page and one without author(s) on the title page.
- Identify which strand(s) the paper addresses on the title page.
- Be sure that the paper is double spaced, has one inch margins, and uses 12 point Times New Roman font.
- Include an abstract (maximum 150 words), number all pages.

TITLE OF PAPER [Style: *Title of Paper*]

Author [Style: *Author*]
Affiliation [Style: *Author*]
Email address [Style: *Author*]

Abstract begins here [Style: *Abstract*]

Strands: List primary strand here [Style: *Normal*]

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Transcripts, as needed here. [Style: *Transcript*]
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References

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