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## Publishing MTE-Partnership Work in the *Mathematics Teacher Educator Journal*

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**Watch the presentation:** <https://youtu.be/2CeW0tRqlq8>

### Introduction and Mission

The Mathematics Teacher Education Partnership (MTE-Partnership) is a collaboration of institutions across the nation with the goal of improving secondary mathematics teacher preparation programs (Martin, Lawler, Lischka, & Smith, 2020). The *Mathematics Teacher Educator* is a professional journal for practitioners in mathematics teacher education with the following mission: The journal

- will contribute to building a professional knowledge base for mathematics teacher educators that stems from, develops, and strengthens practitioner knowledge.
- is a means for practitioner knowledge to be shared but also verified and improved over time.
- is a tool to build the personal knowledge that mathematics educators gain from their practice into a trustworthy knowledge base that can be shared with the profession (Association of Mathematics Teacher Educators & National Council of Teachers of Mathematics, n.d.a.).

Given both MTE-Partnership and *Mathematics Teacher Educator* are committed to learning and sharing knowledge about mathematics teacher education, it seems both would benefit from MTE-Partnership members sharing results from their work with the *Mathematics Teacher Educator* audience. The journal's audience is broadly defined as anyone who contributes to the preparation and professional development of pre-K–12 pre-service and in-service teachers of mathematics. Mathematics teacher educators include mathematics educators, mathematicians, teacher leaders, school district mathematics experts, and others. (Association of Mathematics Teacher Educators & National Council of Teachers of Mathematics, n.d.a.).

In this paper, the authors offer examples of articles from *Mathematics Teacher Educator* that may inform the work of MTE-Partnership Research Action Clusters (RAC) and conclude with some suggestions for showcasing MTE-Partnership work in the *Mathematics Teacher Educator*.

### Article Examples for Each Research Area Cluster

To help potential MTE-Partnership *Mathematics Teacher Educator* authors think about how their work may benefit the *Mathematics Teacher Educator* audience and how articles may contribute to the work of the MTE-Partnership, the authors reviewed all article abstracts that appear in the 16 issues of *Mathematics Teacher Educator* published prior to July 31, 2020. A total of 91 articles (including editorials and commentaries) are currently published in *Mathematics Teacher Educator*. Of those 91 articles, the authors found 59 articles (65%) that may inform the work of the MTE-Partnership, with 30 of those 59 articles (51%) applying to more than one RAC. This section is organized around the current five RACs and two working groups. Each section includes at most two articles that may inform the work of each RAC. Select additional articles, where available, are also included after the Reference list organized by RACs.

### **RAC 1: Developing Effective Clinical Experiences**

The Developing Effective Clinical Experiences RAC focuses on developing strong methods courses and clinical experiences for teacher candidates. As such, CERAC proved to have the most applicable *Mathematics Teacher Educator* articles. For example, Spangler and Hallman-Thrasher's (2014) *Using Task Dialogues to Enhance Preservice Teachers' Abilities to Orchestrate Discourse* shared an activity where elementary teacher candidates created imaginary conversations between a child and teacher around a problem-solving task to practice teacher responses. Next, teacher candidates implement the task twice in a field experience. Spangler and Hallman-Thrasher (2014) then share what they learned as mathematics teacher educators about teacher candidate knowledge from the activity. Although this activity occurs with elementary teacher candidates, the activity can be modified to work with secondary teacher candidates and hence, may inform the work of the CERAC. Another article that may inform the work of the CERAC is Roller's (2019) *Noticing and Wondering: A Language Structure to Support Mentoring Conversations*. In this article, Roller (2019) shares results from a study using Smith's (2009) noticing and wondering language as a framework for guiding mentoring conversations between teacher candidates and mentor teachers to encourage a reflective rather than an evaluative nature in those conversations. This article may inform the work of the CERAC in offering a tool to incorporate in both methods and clinical experiences when reflecting on teacher experiences.

### **RAC 2: MODULE(S<sup>2</sup>): Mathematics of Doing, Understanding, Learning, and Educating for Secondary Schools**

The MODULE(S<sup>2</sup>) RAC attends to "developing mathematics knowledge and habits of mind for teaching prospective secondary mathematics teachers" (Mathematics Teacher Education Partnership, n.d.). One *Mathematics Teacher Educator* article that may inform the work of the MODULE(S<sup>2</sup>) RAC is Steele and Hillen's (2012) *The Content-Focused Methods Course: A Model for Integrating Pedagogy and Mathematics*. This article speaks to challenge of secondary mathematics teacher programs in authentically integrating content and methods courses. Steele and Hillen (2012) offered a model for a content-focused methods course. This article may inform the work of the MODULE(S<sup>2</sup>) by offering an example of a course that helps teacher candidates develop both mathematical content as well as habits of mind as secondary mathematics teachers. A second article that may be beneficial to the MODULE(S<sup>2</sup>) RAC is Conner's (2013) *Authentic Argumentation with Prospective Secondary Teachers: The Case of 0.999...*. Conner (2013) shares an example of engaging secondary mathematics teacher candidates in creating and critiquing mathematical arguments such as  $0.999... = 1$  that allows them both to engage in mathematical arguments as a student as well as thinking about how they may engage their own students in such argumentation. This article may be of value to the MODULE(S<sup>2</sup>) RAC in suggesting additional mathematical activities with which to involve teacher candidates.

### **RAC 3: Active Learning Mathematics**

The Active Learning Mathematics (ALM) RAC centers its work on improving college-level freshman and sophomore-level mathematics courses. Given that *Mathematics Teacher Educator* focuses on teacher candidates, and the ALM work may also include strictly mathematics content coursework, this RAC had only one article that may inform the work of the RAC. As will be further discussed in the Conclusion section, however, this lack of *Mathematics Teacher Educator* articles related to the work of the ALM RAC also presents an opportunity for the need for more articles that may address freshman and sophomore level content courses designed to improve secondary mathematics teacher candidate preparation. The one *Mathematics Teacher Educator* article currently published that may benefit the ALM RAC work is Boyle et al. (2015) *Transforming Perceptions of Proof: A Four-Part Instructional Sequence*. In this article, Boyle et al. (2015) share a "four-part instructional sequence designed to

broaden and deepen teachers' perception of the nature of proof" (p. 1). Their work may inform the work of this RAC by perhaps proposing a similar activity for implementation in freshman- and sophomore-level mathematics courses to allow students to also broaden and deepen their own perceptions of the nature of proof.

#### **RAC 4: Program Recruitment and Retention**

The Program Recruitment and Retention (PR<sup>2</sup>) RAC, as indicated by its name, attends to the work of recruiting and retaining high-quality, diverse teacher candidates to program completion. This RAC was the one RAC or working group for which no *Mathematics Teacher Educator* articles seemed to fit. The lack of applicable articles may be explained by the nature of the work of this RAC being not as easily connected to the mission of the journal. However, much like the limited articles found for RAC 3, this lack of articles also offers an opportunity for an area of publication in the journal, which will be further discussed in the Conclusion section.

#### **RAC 5: STRIDES: Secondary Teacher Retention and Induction in Diverse Educational Settings**

The STRIDES RAC works to develop "strategies to support new teachers as they begin their careers as secondary mathematics teachers" (MTE-Partnership, n.d.). The STRIDES RAC name also indicates that its work attends to supporting novice teachers in diverse educational settings. The two articles included in this section pertain more to the secondary teacher retention and induction focus than the diverse educational setting focus of the RAC, but three additional articles appear following the Reference list that may also inform the work of this RAC in that area. The authors chose to include the two articles in this section given the articles report studies directly working with teachers or novice teachers, whereas the subsequent three articles reported work with teacher candidates. The additional three articles also all pertain to working in diverse educational settings, which also offer important contributions to the work of this RAC and the larger MTE-Partnership community.

The first article, Milewski and Strickland's (2016) *(Toward) Developing a Common Language for Describing Instructional Practices of Responding: A Teacher-Generated Framework*, studies an analytical framework created by secondary mathematics teachers to record changes in their own instructional practices over time. One suggestion from the findings is the importance of collaborative work with teachers for the purpose of developing a common language with which to discuss instructional practices. This work may pertain to the work of the STRIDES RAC by sharing a collaborative tool for supporting induction teachers as they develop in educative ways that encourages them to remain in a professional they see as collaborative and supportive of their development. The second article, Baldinger, Selling, and Virmani's (2016) *Supporting Novice Teachers in Leading Discussions that Reach a Mathematical Point: Defining and Clarifying Mathematical Ideas*, acknowledges the challenges of leading large-group discussions. Baldinger, Selling, and Virmani (2016) share a sorting-task instructional activity to help novice teachers navigate whole class discussions while also staying focused on the larger mathematical idea. This article may be of benefit to the STRIDES RAC in providing a research-based task appropriate for use by secondary mathematics novice teachers.

#### **Working Group 1: Equity and Social Justice**

The Equity and Social Justice Working Group (ESJWG) was created to offer "a foundation for better incorporating equity work into the MTE-Partnership" (MTE-Partnership, n.d.). With this focus in mind, some articles that related to the diverse educational settings focus on RAC 5 would also provide insight to the ESJWG. One sample *Mathematics Teacher Educator* article that may inform the ESJWG work is Gallivan's (2017) *Supporting Prospective Middle School Teachers' Learning to Revise a High-Level Mathematics Task to be Culturally Relevant*. This article reports work in a middle school mathematics methods course where teacher candidates are supported

to learn about students' funds of knowledge and use that information to rework high-level mathematics tasks to be more culturally relevant to students. This work may inform the work of the ESJWG by offering an example of work completed in a methods class, which may be replicated in other MTE-Partnership work. A second article, Aguirre et al.'s (2019) *Engaging Teachers in the Powerful Combination of Mathematical Modeling and Social Justice: The Flint Water Task*, offers an example of merging meaningful mathematical content with socially minded work. The abstract reads, "The evidence suggests that integrating these 2 foci—by using mathematical modeling to investigate and analyze important social justice issues—can be a high-leverage practice for mathematics teacher educators committed to equity-based mathematics education" (Aguirre et al., 2019, p. 1). Similar to the first article, this article may offer concrete examples of research-based work by mathematics teacher educators committed to preparing high quality socially minded secondary mathematics teachers. In 2021, *Mathematics Teacher Educator* will be publishing a special focus issue on equity that will include additional articles relevant to this working group.

### **Working Group 2: Transformations**

Finally, the Transformations working group provides "a foundation for the MTE-Partnership's strategic focus on overall transformation of secondary mathematics teacher preparation programs" (Mathematics Teacher Education Partnership, n.d.). Given the wide-reaching focus on this working group, articles that tended to address multiple stakeholders in secondary mathematics teacher preparation were selected. For example, Carlson, Heaton, and Williams' (2017) *Translating Professional Development for Teachers Into Professional Development for Instructional Leaders* shared an experience of engaging coaches, principals, and teachers in studying mathematics teaching and learning and in the process, modified the professional development to better "focus instructional leaders' attention on the work of learning teaching" (p. 1). This work sheds light on the importance of collaborative, multi-stakeholder involvement in transforming mathematics teacher education. Secondly, Felton-Koestler and Koestler's (2017) *Should Mathematics Teacher Education Be Politically Neutral?* offers a commentary as to why teaching cannot be a politically neutral endeavor. This piece may inform the work of the Transformations working group in providing additional context through which to view the complex work of revolutionizing secondary mathematics teacher education.

### **Conclusion**

The work of the MTE-Partnership and *Mathematics Teacher Educator* are closely related in their work to encourage innovating, learning, and sharing practices to improve secondary mathematics teacher education. Due to space limitations, only a limited number of *Mathematics Teacher Educator* articles could be highlighted here that may inform the MTE-P work. Based on more closely aligned goals, there were more articles related to the work of the CERAC, MODULE(S<sup>2</sup>) RAC, STRIDES RAC, and ESJWG. Fewer articles were found related to the work of the ALM RAC, PR<sup>2</sup> RAC, and Transformations working group. Though it may be a bit more challenging to craft articles related to the work of these groups, it does offer areas of opportunity with which potential *Mathematics Teacher Educator* authors can communicate their important work with the larger *Mathematics Teacher Educator* audience. Helping larger audiences learn about the transformative work of the MTE-P is imperative – *Mathematics Teacher Educator* provides one avenue to do so.

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## References by RAC

*in the order the articles appear in the text*

### **RAC 1: Developing Effective Clinical Experiences**

- Spangler, D. A., & Hallman-Thrasher, A. (2014). Using task dialogues to enhance pre-service teachers' abilities to orchestrate discourse. *Mathematics Teacher Educator*, 3(1), 58–75. Retrieved from: <https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2014/Vol3/Issue1/Using-Task-Dialogues-to-Enhance-Preservice-Teachers-Abilities-to-Orchestrate-Discourse/>
- Roller, S. A. (2019). Noticing and wondering: A language structure to support mentoring conversations. *Mathematics Teacher Educator*, 7(2), 44–56. Retrieved from: <https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2019/Vol-7/Issue2/Noticing-and-Wondering-A-Language-Structure-to-Support-Mentoring-Conversations/>

### **RAC 2: MODULE(S<sup>2</sup>): Mathematics of Doing, Understanding, Learning, and Educating for Secondary Schools**

- Steele, M. D., & Hillen, A. F. (2012). The content-focused methods course: A model for integrating pedagogy and mathematics content. *Mathematics Teacher Educator*, 1(1), 53–70. Retrieved from: <https://www.nctm.org/Publications/mathematics-teacher-educator/2012/Vol1/Issue1/The-Content-Focused-Methods-Course-A-Model-for-Integrating-Pedagogy-and-Mathematics-Content/>
- Conner, A. (2013). Authentic argumentation with prospective secondary teachers: The case of 0.999.... *Mathematics Teacher Educator*, 1(2), 172–180. Retrieved from: [https://www.nctm.org/Publications/mathematics-teacher-educator/2013/Vol1/Issue2/Authentic-Argumentation-With-Pro prospective-Secondary-Teachers-The-Case-of-0\\_999.../](https://www.nctm.org/Publications/mathematics-teacher-educator/2013/Vol1/Issue2/Authentic-Argumentation-With-Pro prospective-Secondary-Teachers-The-Case-of-0_999.../)

### **RAC 3: Active Learning Mathematics**

Boyle, J. D., Bleiler, S. K., Yee, S. P., & Ko, Y. Y. W. (2015). Transforming perceptions of proof: A four-part instructional sequence. *Mathematics Teacher Educator*, 4(1), 32–70. Retrieved from: <https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2015/Vol4/Issue1/Transforming-Perceptions-of-Proof-A-Four-Part-Instructional-Sequence/>

### **RAC 5: STRIDES: Secondary Teacher Retention and Induction in Diverse Educational Settings**

Milewski, A., & Strickland, S. (2016). (Toward) developing a common language for describing instructional practices of responding: A teacher-generated framework. *Mathematics Teacher Educator*, 4(2), 126–144. Retrieved from: [https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2016/Vol4/Issue2/\(Toward\)-Developing-a-Common-Language-for-Describing-Instructional-Practices-of-Responding-A-Teacher-Generated-Framework/](https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2016/Vol4/Issue2/(Toward)-Developing-a-Common-Language-for-Describing-Instructional-Practices-of-Responding-A-Teacher-Generated-Framework/)

Baldinger, E. E., Selling, S. K., & Virmani, R. (2016). Supporting novice teachers in leading discussions that reach a mathematical point: Defining and clarifying mathematical ideas. *Mathematics Teacher Educator*, 5(1), 8–28. Retrieved from: <https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2016/Vol5/Issue1/Supporting-Novice-Teachers-in-Leading-Discussions-That-Reach-a-Mathematical-Point-Defining-and-Clarifying-Mathematical-Ideas/>

### **Working Group 1: Equity and Social Justice**

Gallivan, H. R. (2017). Supporting prospective middle school teachers' learning to revise a high-level mathematics task to be culturally relevant. *Mathematics Teacher Educator*, 5(2), 94–121. Retrieved from: <https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2017/Vol5/Issue2/Supporting-Prospective-Middle-School-Teachers-Learning-to-Revise-a-High-Level-Mathematics-Task-to-Be-Culturally-Relevant/>

Aguirre, J. M., Anhalt, C. O., Cortez, R., Turner, E. E., & Simic-Muller, K. (2019). Engaging teachers in the powerful combination of mathematical modeling and social justice: The Flint water task. *Mathematics Teacher Educator*, 7(2), 7–26. Retrieved from: <https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2019/Vol-7/Issue2/Engaging-Teachers-in-the-Powerful-Combination-of-Mathematical-Modeling-and-Social-Justice-The-Flint-Water-Task/>

### **Working Group 2: Transformations**

Carlson, M. A., Heaton, R., & Williams, M. (2017). Translating professional development for teachers into professional development for instructional leaders. *Mathematics Teacher Educator*, 6(1), 27–39. Retrieved from: <https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2017/Vol6/Issue1/Translating-Professional-Development-for-Teachers-Into-Professional-Development-for-Instructional-Leaders/>

Felton-Koestler, M. D., & Koestler, C. (2017). Commentary: Should mathematics teacher education be politically neutral? *Mathematics Teacher Educator*, 6(1), 67–72. Retrieved from: <https://www.nctm.org/Publications/Mathematics-Teacher-Educator/2017/Vol6/Issue1/Commentary-Should-Mathematics-Teacher-Education-Be-Politically-Neutral>

### Additional Selected Article Examples for each RAC

#### RAC 1: Developing Effective Clinical Experiences

Sherman, M. F., Cayton, C., & Chandler, K. (2017). Supporting PSTs in using appropriate tools strategically: A learning sequence for developing technology tasks that support students' mathematical thinking.

*Mathematics Teacher Educator*, 5(2), 122–157. Retrieved from:

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#### RAC 2: MODULE(S<sup>2</sup>): Mathematics of Doing, Understanding, Learning, and Educating for Secondary Schools

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#### RAC 5: STRIDES: Secondary Teacher Retention and Induction in Diverse Educational Settings

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#### Working Group 1: Equity and Social Justice

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### **Working Group 2: Transformations**

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### **MTE Resources for Potential Authors**

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