
MTE-Partnership Conference Reactants^{1 2}

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Three friends of the Mathematics Teacher Education Partnership (MTE-P) were invited to participate then provide their reactions to the conference, Dr. Karen King, Ms. Diana Suddreth, and Dr. W. James Lewis. The three were petitioned in an effort to obtain a range of perspectives related to mathematics education. Dr. Karen King presently serves as Program Director at National Science Foundation (NSF). Her background is in mathematics education, with a strong focus on policy. Ms. Diana Suddreth is Director of Teaching & Learning at the Utah State Office of Education. She offered a broad, P-12 perspective, again particularly focusing on policy. And the third reactant, Dr. W. James Lewis, represents a mathematician's perspective. Dr. Lewis presently serves as Deputy Assistant Director, Education and Human Resources at the National Science Foundation on short-term appointment from his position as Professor of Mathematics at the University of Nebraska. Each reactant had fully participated in the conference, including contributing to the working groups. Further, each has been an advisor to or active participant since the MTE-P's inception.

Karen King

Dr. King began her comments by recognizing that in her plenary, Dr. Suzanne Wilson framed mathematics teacher education inside larger conversations around teacher education and educational reform. Dr. King indicated that her own comments would begin and then return to these broader issues, along the way bringing to the table her policy perspective. She first spoke broadly of measures in educational research, then turned to specifics of the MTE-P conference, including her thoughts about two specific events she attended, the Clinical

¹ King, Suddreth, and Lewis delivered this feedback as a reactant panel at the conclusion of the conference. Lawler wrote this paper to summarize their comments, drawing from their slides and notes, audio recording of the talks, and notes kept as they spoke.

² King and Lewis provided reactions while serving at the National Science Foundation, and Suddreth while serving at the Utah State Office of Education. The comments or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation or the Utah State Office of Education.

Experiences RAC work sessions, and the Equity and Social Justice Pre-Session. She concluded with the broader challenges of equity work in education.

Dr. King first addressed the challenges of measurement, appreciating the plenary panel on measurement in the context of working in Networked Improvement Communities (NICs). Dr. King noted that measuring the impacts of policy and teaching practices has not been a strength of mathematics education, or more broadly, of teacher education. The measurement challenge is exacerbated because of tensions, such as those between validity and reliability, or the need for measures to be both practical (timely, useful, accessible, do-able etc.) and consequential (meaningful, understandable, etc.). Such qualities for measures are difficult, particularly in school settings. Yet policy makers, school administrators, and other stakeholders call to measure what is easy, instead of focusing on measuring what is important.

Science improves when we find new ways to measure. For example, education has an exceptionally strong qualitative research tradition; however, quantitative measures for the complex constructs unearthed by these qualitative studies are few. Dr. King again echoed Dr. Wilson's opening plenary called for more thoughtful strategies to communicate what we learn by, for example, employing new ideas in data visualization. Finally, Dr. King reminded us to prepare doctoral students for this sort of measurement work by incorporating in our programs new ways to think about, conduct, and report data. She pointed out that understanding and using measurement and data are also critical for programs for master's students in mathematics and administration because these programs often yield the future formal and informal leaders in the field.

During the conference, Dr. King participated in the Clinical Experiences RAC (CERAC) activities and offered two summative thoughts regarding their work. First, she remarked that the big goals for the group seemed to be well-defined; however, Dr. King suggested that the group could benefit by identifying more specific, actionable learning goals for each strategy. Second, she encouraged the CERAC clarify the difference between structures for the Clinical Experience, and strategies used with pre-service teachers within the Clinical Experiences.

Dr. King also participated in the Equity and Social Justice Pre-session. She noted that the constructs equity, social justice, and diversity are not the same; however, these terms are often used interchangeably in education. Given this background, she inquired about how MTE-P approaches school integration as an equity issue, as noted by Secretary of Education John King. For example, she asked whether it is possible for schools be separate and equitable. Specifically, she noted that a setting in which all students in a classroom are minority, but the same minority, is not generally defined as ethnically or racially diverse. While the setting may provide cultural experiences useful for preservice teachers it does not provide experience with a diverse context. Furthermore, understanding diversity includes understanding that being black, for example, is not the singular dimension of one's identity. To fully address issues of

diversity, attention must be given to the full character of each child. Simple chunking of individuals into groups by singular characteristics is misdirected and counterproductive, and misses the fact that there is more variation within groups than between them. Equity is about everyone; a person may have a set of privileges associated with education and class; but also face historical disadvantages as a woman and an African-American. Broad strokes are insufficient in this work. Everyone needs some different kind of support. Dr. King reminds us that equity is complicated, and here she has pointed more strongly to questions and challenges posed by work, rather than intending to be prescriptive.

Dr. King applauds the MTE-P community for taking on these issues, but to take care about essentializing students based on their group. She encouraged us to investigate research outside of mathematics education, echoing the calls of Dr. Wilson's plenary, to discover what other fields have learned about the potential perils of well-intended efforts for diversity training. As a second example of how research outside our field can be informative, she noted that business has learned quite a bit about getting people to things they may not wish to do, especially with regards to attracting people to jobs.

Diana Suddreth

Ms. Suddreth highlighted the commonalities she observed across the RACs, including funding structures; high quality instruction; a focus on evidence, arguments, and warrants; working with students; community engagement and institutionalization. She noted these elements seemed to speak to the cycle of change driven by the need to respond to new ideas and concerns.

She next turned to the opportunities and challenges of the work such as: needs of a changing workforce; time constraints; partnerships with state agencies, and shortages of K-12 teachers. Ms. Suddreth reminded us that if we don't turn our great ideas into actionable innovations that address students, schools, and other constituents, all these ideas become nothing more than discussion at a meeting. She highlighted the NIC research design, especially the PDSA cycles that allow in-time innovation trials that foster a continuing cycle of evidence-driven learning and improvement.

Her final challenge was to broaden our engagement with our communities. People in positions like hers, that is, associated with state departments of education or similar agencies, need to know what projects are being implemented in their domains in order to be fully supportive. These individuals need to understand the roles and goals of both of MTE-P and the participating systems, institutions, teams, and teachers in order to function as an advocate and useful partner. She reminds us that the changes we seek are not solely about mathematics, there are many additional theoretical and practical issues involved in better preparing more secondary mathematics teachers. Although much other work is being carried out that we can

learn from, the mathematics community has been clearly important to and a leader in general teacher preparation. This history of the role of mathematics education can and ought to be leveraged, both in funding and in practice.

W. James Lewis

Dr. Lewis stressed that he was offering his own views as someone who has been involved in the MTE-Partnership from the beginning, and not as an employee of the National Science Foundation (NSF). He provided a historical perspective on the MTE-Partnership project, recalling the initial idea for this project emerged at a Science and Mathematics Teacher Imperative (SMTI) conference in 2011. Dr. Gary Martin pitched the idea, and soon afterwards with the support of an NSF planning grant, the first MTE-P meeting occurred in March 2012. A strength of the community that has since emerged is the long-term and stable membership that maintains a continuity, bolstered by new members that are the result of growth and transitions.

MTE-P has ambitious goals, to seek a national consensus on the preparation of secondary mathematics teachers, to promote partnerships, to develop a research and development agenda, and to set a national agenda for the issues related to mathematics teacher preparation. Specifically, this conference builds on these goals to begin to consider the challenges of transformational change.

Dr. Lewis noted the design of the conference as a working conference is somewhat unique, a working conference. He observed the participants were very engaged and quite impressive. Among the highlights he noted were the updates from RACs of work since the last conference, the equity and social justice work session, the evening mixer, the plenary session on data and measures in the NIC research paradigm, and the 15 research presentations. Because of the richness of the research presentations, he commented that it was unfortunate that each of us could only attend three.

Dr. Lewis asked, “At this stage in the growth of the MTE-Partnership, it may be a good time to take stock; to ask how are we doing?” He suggested that a challenge is to make equity and social justice issues more explicit, but commented that the community is off to a good start. A second challenge is to build joint purpose and identity. He offered the assessment that at the present time the MTE-P purpose and identity of the seems to be productive and appropriate but said that there is a small chance that the RACs contribute to a compartmentalization. His view is the community should intentionally create networks and structures that do not allow these divisions. Social events like the mixer and shared social and sharing communities like Trellis are good approaches to address this challenge.

Dr. Lewis suggested another challenge is that there seems to be a need to accelerate the work of the RACs. He admitted he may be impatient; but without noticeable change across many of the RACs, participants may experience fatigue. Another challenge is that we have

reached a developmental point in which it is time to give greater focus to building to program transformation. There is still much work to be done to move from tweaking to transforming.

Finally, while MTE-P is doing good work, some consideration should be given to how that work can be strengthened. Repeating Diana Suddreth, he argued there is a need to build more ties with K-12 partners. Additionally, the community needs more mathematicians (interested in education) at the table; MTE-P will not achieve its goals if its only members are in departments of teacher education. Similarly, the community needs more department chairs and other campus leaders to be active participants—especially to achieve program transformation.

Summary

Each of the reactants were very positive about the work being done by the MTE-Partnership and acknowledged the strength and commitment of the community. Common themes in the feedback focused on the challenges faced, encouraging focus for the next stages in the work. This includes continuing the robust structure of the NIC research design, but being more committed to developing robust measures and sharing results with the larger community involved in the preparation of secondary mathematics teachers.

The reactants also advised that there be increased partnerships with K-12 districts, state leadership, mathematicians, and university campus leadership—the charge of program transformation is complex and involves many constituents. Not only is program transformation complex, so is the preparation of secondary mathematics teachers; particularly the efforts to change current practices in mathematics education. The change efforts MTE-P strives for reach beyond merely the mathematics content or curriculum design, but involves teaching, school structures, and societal norms as well.

A final commonality among the reactants comments were commendations to MTE-P for its robust and productive history of work, and for establishing a community founded in a research-driven effort to transform the preparation of secondary mathematics teachers.