

**Session Title:**

Assessing Students' Perceptions of Teachers' Successful Implementation of Project Goals: The Development of the SPoTS

**MSP Project Name:**

West Texas Middle School Mathematics Partnership

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**Feedback Session****Strand 3****Summary:**

The WTMSMP's focus is on deepening West Texas teachers' knowledge of fundamental mathematics. Because the region includes 84,000 square miles, evaluating participants' classroom integration of WTMSMP content is challenging. Classroom observations of purposely selected participants in the project's first two years led to concerns, including achieving adequate interrater reliability and determining the generalizability of results to participants' everyday practice. Due to the expansive region, conducting multiple observations was not possible, and a new strategy using student ratings of their teachers' practices was piloted in the third year. In this presentation, we present the pilot results and seek suggestions for observable teacher practices related to teaching mathematics conceptually that could be the basis for additional items for the recently developed measure.

**Section 1: Description of product, tool, process, curriculum, or instrument:**

The instrument, Student Perceptions of Teacher Successes (SPoTS), was developed to assist in understanding teacher participants' integration of project knowledge into their teaching. Teacher practices and behaviors were identified that would indicate teachers were invested in promoting students' conceptual knowledge and self-efficacy, the theoretical framework of the WTMSMP. From this list, eight items were written that could be easily rated by middle level students. Using a scale of never (1), sometimes (2), often (3), and always (4), students were asked to rate how their teacher taught the day's lesson, including "My teacher gives me opportunities to explain my answers aloud" and "My teacher always makes it clear what we will be learning at the start of each class." Students were asked to answer honestly, as the information would be used to help the teacher improve, and all forms were anonymous.

Two groups of teachers, one that completed the WTMSMP and a second that had completed one year, were evaluated with the SPoTS, for an initial pilot. Confirmatory factor analysis and factorial invariance modeling results revealed that middle school students could meaningfully report on their teachers' practices. Although the students of both groups of teachers could successfully recognize their teachers' WTMSMP practices, the better model fit and stronger association between items and the latent factor for teachers who had completed the project suggest that these teachers used WTMSMP strategies more collectively. Results suggest student assessment of teachers' behavior is an important informational source when assessing teachers' integration of project knowledge into their teaching.

**Section 2: Question, issue, or challenge that is the primary focus of the session:**

Classroom observation, instructional interviews, and even teacher reports can be time consuming yet yield data that are limited in scope. Despite the advantages associated with the use of student reports of teacher practices, they are typically not used in the evaluation of teacher development programs. Additionally, teacher reports of their practice are often heavily relied upon even though they may not closely represent students' experiences. Our pilot data indicate that middle level students can meaningfully report on their teachers' practices; however, the pilot included only 8 items that related to very general goals of the WTMSMP (e.g., self-efficacy, conceptual understanding). We would like to extend the SPoTS to include more fine-grained teacher practices that focus on students' conceptual understanding of mathematics. What actions, practices, and behaviors do teachers use that demonstrate their focus on conceptual mathematics? Which of these actions, practices, and behaviors are observable by middle level students?

**Section 3: Types of people who you think might be most interested in discussing this and offering feedback:**

PIs, K-12 administrators, K-12 teachers, higher education STEM faculty, higher education ED faculty, evaluators, researchers. The practice of using student reports of teacher behavior can be used in research but also as daily classroom practice to assist teachers and administrators in making regular adjustments to teaching.

**Section 4: How will you structure this session? What is your plan for participant interaction?**

Presentation —Briefly present the SPoTS and results of pilot.

1. Discussion –
  - a. Identify teacher goals that attendees are targeting for improvement in their respective projects and record using computer and projector/large sheets of paper/dry erase board.
  - b. Working in dyads/small groups generate lists of how these goals translate into actions, practices, and behaviors in the classroom (i.e., what can be observed). Record using distributed paper and collect for whole group discussion.

- c. Use whole group discussion to determine who can observe these actions, practices, and behaviors as well as the benefits associated with each type of observer (e.g., self-report, peer observer, researcher/observer, student observer).
2. Conclusion –
- a. Collect the names and email addresses of attendees who might be interested in pursuing student level ratings of their participating teachers and sharing data for comparison.
  - b. Actions/behaviors/practices deemed observable by students will be translated into SPoTS items in the coming months and piloted in the fall semester.