

Session Number: 35

Abstract Name: **What do Teacher Leaders Need from Professional Teacher Leader Programs?**

MSP Project: Partnership for Reform in Science and Mathematics

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1. Questions(s) or issue(s) for dialogue at Learning Network Conference session:

1. What types of pre-assessment data help implementers plan for targeted professional learning for Teacher Leaders?
2. How do PRISM partnerships provide support for teacher leaders so that they can be sustainable after PRISM?
3. How has participation in the PRISM Teacher Leader program influenced the conversation around teaching and learning?
4. What have we learned about preparing teacher leaders that can help other MSP projects help develop teacher leaders?

2. Context of the work within the STEM education literature and within your MSP project:

In their comprehensive review of literature on teacher leadership, York-Barr and Duke (2004) propose a conceptual framework for how teacher leadership may influence student learning. They theorize that the teacher leaders characteristics and work (inputs) influence the means of leadership influence (e.g., maintain a focus on teaching and learning) which influences the individuals and groups that lead to improvement in teaching practices, which in turn leads to improved student learning. They identified three characteristics of teacher leaders as critical; the teacher leaders must be 1) respected as teachers, 2) learning oriented, and have 3) certain leadership capacities (Acker-Hocevar & Touchton, 1999; Katzenmeyer & Moller, 2001; Lieberman, Saxl & Miles, 1988).

Katzenmeyer & Moller (2001) identify factors that influence a teacher's readiness to assume the roles and responsibilities of a teacher leader:

These factors include excellent professional teaching skills, a clear and well developed personal philosophy of education, being in a career state that enables one to give to others, having an interest in adult development, and being in a personal life state that allows one time and energy to assume a position of leadership (York-Barr & Duke, 2004, p. 267).

The literature on teacher leadership preparation suggests that both formal training and job-embedded support are important for the development of teacher leaders (York-Barr & Duke, 2004) and in contexts where protective factors are maximized and risk factors are minimized (Lewthwaite, 2006) so teacher leaders can develop and hone their skills. It appears that a combination of the characteristics of the teacher leaders and the components of the preparation

program, as well as the school context in which the teachers work (including administrator support), are necessary for the development of teacher leaders.

The Partnership for Reform in Science and Mathematics (PRISM) is a comprehensive NSF-funded MSP project with state and regional K-12 and higher education partners. A major goal of PRISM is to increase the quality of science and mathematics teaching and learning in Georgia. During Years 1-5, PRISM developed a teacher leader program that was critical in the implementation of the various PRISM strategies. Rubrics and definition documents were created to help the PRISM implementers define the roles and responsibilities of teacher leaders. Qualitative studies, conducted by the evaluators, found that Teacher Leaders were important factors in the successful implementation of K-16 Professional Learning Communities in science and mathematics and in ensuring that K-12 teachers received professional learning targeted to their specific needs.

During Year 5 of the project, PRISM received additional funding through the MSP program via the Robert Noyce Teacher Scholarship Program to support 25 teachers to become PRISM Teacher Leaders in high-need school districts (20% or more of the families are at or below the poverty line) that have collaborated in PRISM. Each participant completed three courses needed to earn the Georgia Professional Standard Commission's Teacher Leader Endorsement;

- *The Democracy-Centered School Leader (Distributed leadership, as well as democracy-centered school leadership, are studied as a means of leading schools in the 21st century. A wide variety of topics, such as school reform, district organization, organizational culture, school level processes, diversity and ethics, and pupil personnel services are introduced from the perspective of democracy-centeredness. A major focus is on dispositions of educational leaders);*
- *Legal and Ethical Issues(The goal for this course is to provide school leaders awareness and understanding of their ethical and legal obligations in leading schools with a commitment to serving and providing access to schooling for all, including students, teachers, and parents from all walks of life.); and*
- *Empowering Human Resources (This course provides an overview of the system of human resources, including recruiting, selecting, maintaining, and developing school personnel in the democracy-centered school. Candidates explore, demonstrate, and evaluate the relationships between administrators and other school personnel with an emphasis on empowering human resources in educational settings.).*

The courses were offered on-line through one of the PRISM institutes of higher education.

Teachers of science and mathematics who had at least three years experience, a master's degree, and were teaching in one of the high-need PRISM districts could apply to the program. The PRISM Teacher Leader Program gave priority to applicants who were:

- Recognized as leaders among fellow teachers and school administrators;
- Participants in K-12 PRISM science and mathematics education reform efforts;
- Lead Teachers in PRISM K-12 schools;
- Elementary teachers who earned a science and/or mathematics P-5 Endorsement.

A further requirement for participation was a signed commitment form from the school district pledging to utilize the Teacher Leader in a STEM leadership/academic coach capacity for two

years beginning in fall 2009. Each participant will earn a stipend of \$10,000 for two years; tuition, fees, and books were provided for the teacher leader endorsement courses.

In order for the Teacher Leader to receive the supplement, the district is required to allow the Teacher Leader the opportunity to utilize the skills learned through the program for a minimum of two years. At a minimum the PRISM Teacher Leader is expected to:

- Organize and facilitate a professional learning community for science and/or mathematics teachers.
- Design and guide job-embedded professional learning in science and/or mathematics that is standards-based and results-driven.
- Serve as a coach and/or mentor for teachers of science and/or mathematics by providing support on specific problems of practice by identifying and implementing appropriate professional learning strategies.
- Assist in the development of the school improvement plan in the content areas of science and mathematics.

In addition to the Teacher Leader Endorsement courses, teachers participate in the PRISM Teacher Leader Program Professional Learning Community designed to provide the teachers leaders the opportunity to interact with one another and connect new leadership understandings with teaching and learning of science and mathematics. Each teacher leader designed an implementation plan with objectives, activities, timeline and deliverables to meet the goals of the Teacher Leader Program. All teacher leaders are creating a portfolio to include a job description, the implementation plan, implementation plan results, and a self-analysis. The portfolios will be presented at a summer learning community meeting. The Professional Learning Community was facilitated by former mathematics and science teachers who are currently affiliated with PRISM IHEs.

Prior to the start of the program, teachers were asked to complete the *Teacher Leader Roles and Expectations Survey*. The results from that survey are helping us to understand what prospective Teacher Leaders needed in order to be effective. Professional learning was provided through a PRISM teacher leader learning community. The survey has been re-administered midway through the program and results from both surveys will be reported. At the end of the program, student achievement will be compared between the schools with PRISM teacher leader participants and a comparable set of schools that are matched using propensity scores methodology. Student achievement results will not be available for one more year.

3. Claim(s) or hypothesis(es) examined in the work (anticipating that veteran projects will have claims, newer projects will have hypotheses):

1. A targeted program to prepare teacher leaders can lead to greater levels of comfort and expertise in the critical roles and responsibilities of teacher leaders.
2. There are identifiable roles and responsibilities that Teacher Leaders need to develop in a Teacher Leader program. These roles derive from the literature on teacher leaders and from teacher leaders themselves.

3. An effective program can help Teacher Leaders work with colleagues in Professional Learning Communities and provide professional learning and support to fellow teachers.
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4. Evaluation and/or research design, data collection and analysis:

Survey methods are used in this investigation. This paper reports the results of a survey that was administered to all PRISM Teacher Leaders in February 2009 and again in September 2009 as a needs assessment to assist program planners and as a midpoint check on progress.

The Participants

Forty-one teachers applied to participate in the program and 25 were accepted. The 25 teachers represent seven school districts and the following school levels: eight elementary, 12 middle school, and five high school. Thirteen of the teachers teach mathematics, eight teach science and four teach both math and science. Twenty of the teachers had been PRISM Lead Teachers.

The Instrument

The development process of *Teacher Leader Roles and Expectations Survey* was:

1. Writing items that identified the Teacher Leader roles and expectations. They were derived from the following sources:
 - a. The PRISM Lead Teacher definition document and rubric which were derived from the literature on Teacher Leaders.
 - b. The definitions included in the PRISM Teacher Leader application materials.
 - c. The knowledge and skills that the teachers who were accepted into the PRISM Teacher Leader program hoped to enhance. These were identified from the applications that the teachers submitted.
2. The items were modified to avoid redundancy and coded to identify the source of the item.
3. The first draft of the instrument was reviewed by the PRISM evaluation team.
4. The next draft was reviewed by the PRISM PI/Project Director and the Regional K-12 Coordinators.
5. A final draft was completed.

The survey was administered to the 25 PRISM Teacher Leaders in February and September 2009. The survey was sent out to the teacher leaders as an email attachment and was completed and returned as an attachment. Each survey was given a code before it was opened and it was saved by the code number. In this way we will be able to track individual teachers over time anonymously. Twenty-four of the 25 PRISM Teacher Leaders completed the survey in February and all 25 completed it in September.

Quantitative Results

Teachers were asked 12 questions about their roles and responsibilities prior to entering the PRISM Teacher Leader Program. They were also asked about their comfort level with the roles. The level of responsibility was rated on a 6-point scale with 1 being “None” and 6 being “A great deal” on the responsibility scale. The level of comfort was also rated on a 6-point scale with 1 being “Very uncomfortable” and 6 being “Very comfortable.” The items were rank ordered on the comfort scale from the highest mean (“Being an advocate for science and/or math

activities and strategies in my school,” Mean = 5.08) to the lowest mean (“Assessing the effectiveness of professional learning programs and processes,” Mean = 3.83). Note that the midpoint of the scale is 3.5, so the mean of 3.83 is slightly over the midpoint. Preliminary analyses of the September survey shows that responses in terms of responsibility and comfort increased on all but one of the items.

Twenty-one additional questions asked the participants the extent to which they felt that they had expertise in specific areas. These questions were also rated on a 6-point scale with 1 being “None” and 6 being “A great deal” of expertise. Teachers rated their level of expertise highest in mathematics content knowledge (Mean = 5.39) and instructional practices (Mean = 5.17).

Teachers rated themselves as having the lowest level of expertise prior to the program in the following areas: “Legal principles in operating schools.” (Mean = 2.25); “Action research.” (Mean = 2.91); “Distributive leadership.” (Mean = 3.29); and, “Democracy-centered leadership.” (Mean = 3.46). All of those means are below the mid-point of 3.5. Interestingly, *Legal Principles in Operating Schools* and *Democracy-centered Leadership* are the titles of two of the three classes that the Teacher Leaders are taking as part of the program. The third course is *Ethical principles in operating schools* (Mean = 3.54). This suggests that the PRISM Teacher Leaders entered the program feeling that they had less expertise in the three courses that are offered than in the many other areas of expertise that are expected of a Teacher Leader. Teachers reported higher levels of expertise in September in all but two of the areas covered on the survey. More detailed results from the February and September surveys will be presented at the conference.

Qualitative Results

Four open-ended questions were included in the survey. The comments were coded by topic. The qualitative results confirm and expand upon the findings from the quantitative work. Teachers reported that they work well with other teachers and have passion for teaching. The biggest challenge that teachers identified is obtaining teacher buy in for the work of improving science and mathematics teaching and learning. The results from the questions answered by those who had been PRISM Lead Teachers suggest that they already have many of the skills that they will be using as PRISM Teacher Leaders.

5. Key insights (retrospective for veteran projects, prospective for newer projects) that have value for the Learning Network:

The preliminary results suggest that all three components identified in the literature are important for the success of a Teacher Leader program.

1. *The teacher leader characteristics* (York-Barr & Duke, 2004). PRISM teacher leaders were selected based on if they were viewed as leaders within their schools, if they had participated in the PRISM reform effort, if they had been Lead Teachers already, and if they had a science and or mathematics endorsement, i.e., had content expertise.
2. *The program components* (York-Barr & Duke, 2004). Both formal training and job-embedded training were included in the program. These aspects of the program will be described in more detail in the presentation.

3. *The school context* (Lewthwaite, 2006). A signed commitment form from the school district was required to ensure that the Teacher Leaders would serve in a teacher leader capacity for two years.

A preliminary survey or needs assessment helped the program planners to identify areas that needed additional focus and these issues were addressed within the PRISM Teacher Leader Professional Learning Community. An issue that came out in both the quantitative and qualitative sections of the survey was the teachers concern that they would have difficulty getting buy in and dealing with teacher resistance. This was also found in the studies reviewed. Participating in a Professional Learning Community with other teacher leaders and providing targeted professional development on overcoming resistance has increased teacher leaders comfort level with this challenge.

References

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