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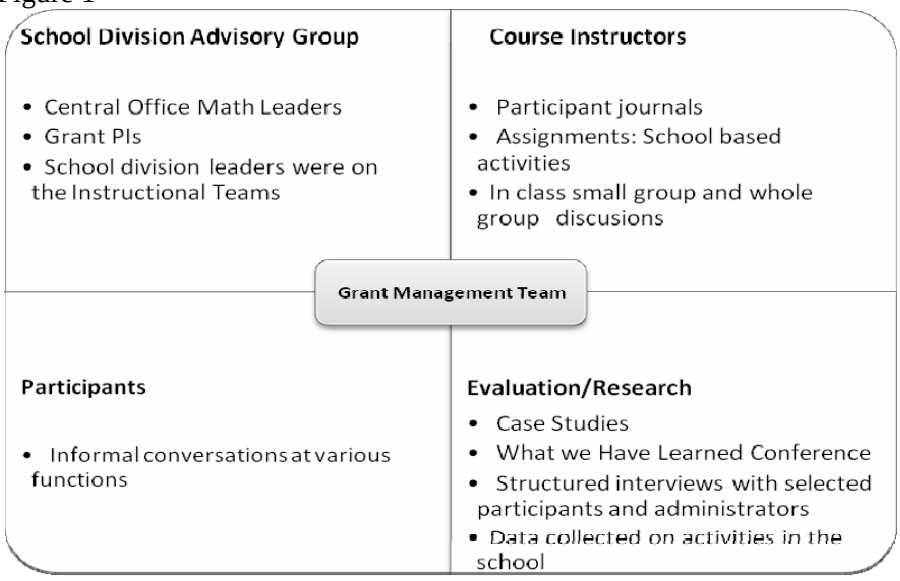
Break Out 2: Continuous Improvement

Virginia's MSP Institute: Preparing Mathematics Specialists And The Importance of Preparing the Building Level Administrator

Background Information

Participants in the MSP grant project assumed their roles at various times throughout their course work with several of the participants already serving as mathematics specialists before the project began. The design of this MSP project as well as a concurrent NSF TPC project included a structure for the Grant Management Team to regularly collect information from various groups involved directly with mathematics specialists. Figure 1 illustrates the components within the structure and how information such as that about mathematics specialists' work in their schools was gained within each component.

Figure 1



Being aware of the important role the building administrator plays as the leader of the schools instructional program, the Management Team provided a one-day workshop where mathematics specialists and their administrators came together prior to the specialists being placed in the school. At this time panels made up of mathematics specialists, administrators, and the grant PIs as well as using researchers' latest information shared their experiences with principals and their new specialists. The information included the preparation of the specialists, the roles and responsibilities the specialist could assume based on the guidelines of the project, and the expectation that the administrator and specialist would function as a team leading the mathematics program. Information was also shared about the research design and the research responsibilities of the school and the specialist.

During the course of the project as the Management Team gained information about the mathematics specialists' feelings of efficacy it was evident that an important defining factor, from the specialist's perspective, was the strength of the relationship between the specialist and the administrator. Mathematics specialists felt supported and believed that they were better able to carry out their work in

situations where there was a trusting and collaborative relationship with clearly defined communication channels with the administrator, in other words when they worked as a high functioning team. In addition, specialists reported more positive engagements in their work when the administrator articulated to the staff and to the parents a clear vision for the schools mathematics program, when there were structures and processes in place with clear expectations of how and when teachers would work with the mathematics specialists, and when the administrator honored the non-evaluative role of the specialists as they worked with teachers. The specialist reported more positive experiences in situations when the administrator valued specialists for the special set of skills and special knowledge that teachers can call upon to understand better how mathematical concepts develop, to understand how children learn mathematics, to develop skills in designing tasks and using particular strategies to enhance mathematical learning.

Applying Lessons Learned About Working with Administrators

With the knowledge in place the project design team decided to take a more strategic approach in a subsequent project to build the awareness of administrators about the role and responsibilities as well as the needs of mathematics specialists. Recognizing that early on in the project the administrators need to begin thinking about how they are going to use mathematics specialists in their buildings and how they are going to integrate the specialists into the existing organizational structure the project lead to a decision to conduct five days of workshops for administrators over the year that specialists are taking classes prior to assuming the role in the schools. A draft plan for working with the administrators was presented at the first meeting of the School Division Advisory Group and this group helped the Management Team to refine the plan.

Based on feedback from the two NSF projects it has become increasing apparent that the following are ideas about implementing and supporting mathematics specialists which need to be brought to the attention of administrators.

- A well defined job description made known to teachers and other school staff—how the specialist will fit and work within the organization, how the specialist will interact with teachers, other specialists, parents, etc.
- A plan is put in place for how the specialist will be evaluated and by whom.
- A clearly defined collaborative working relationship and communication structures between the specialist and the administrator are put in place.
- A vision of the school division and the schools mathematics program is aligned and publically acknowledged. The vision should reflect the school and school division's belief about what it means for children to achieve at higher levels in mathematics and how this will happen in relationship to Curriculum-Instruction-Equity-Organizational Structure-Assessment.
- Recognition that the mathematics specialist's first year is an adjustment and learning period—administrators will gain enlightenment as they think about their first job in education outside of class room teaching.
- A plan for supporting mathematics specialists in their own continued learning.
- Being keenly aware that the Principal is a key determining factor in the success of the mathematics specialist in facilitating improvement in the schools mathematics program.

Using these ideas the administrator's workshops will be designed around the *Lenses on Learning* curriculum developed at EDC along with other work by Barbara Scott Nelson. The workshop design will pull from materials developed by the National Supervisors of Mathematics such as PRIME

Leadership and resources from the National Staff Development Council as well as best practices identified from school divisions across Virginia. The goal of the workshops is as follows.

- Develop administrators' capacity to recognize and lead school-wide standards based and student centered mathematics programs that foster teaching mathematics to increase student understanding and proficiency.
- Develop administrators' understanding regarding mathematics specialists' preparation for facilitating continuous improvement in the school wide mathematics program and support administrators in planning for the implementation of the school-based mathematics specialist program.
- Develop the knowledge and skills to enable building administrators to effectively support mathematics specialists in fulfilling their responsibilities in ways that will more likely improve student learning in mathematics.
- Develop awareness and strategies to enable building administrators to cultivate and support a collaborative working relationship with the mathematics specialist.
- Enable the administrators with support from the school division to create a job description and a plan for implementing the mathematics specialist role in the school.

Growing the Relationship between Administrators and Specialists

One of the instructors in each Leadership classes will participate in the workshop with administrators to communicate this expectation and provide support for the administrators. Four facilitators for the administrators' workshops were identified for the skills and knowledge they can bring to the administrator's group. They have all been actively involved in mathematics specialist programs and providing professional development for administrators and mathematics specialists. This group is made up of a retired principal, a retired mathematics supervisor, a retired mathematics specialist, and an in service coordinator of mathematics specialists. These facilitators will develop relationships with the administrators during the workshops and they will then continue strengthening the relationships by visiting the schools of the administrators and the mathematics specialists at least twice during the first year the mathematics specialist is in place. In addition, there will a technology supported environment for communication and sharing within and between the groups that will be in place throughout the entire project. One member of the Grant Management Team will lead this project and help to facilitate the logistics and the planning.

In addition to the five days of workshop the administrators will work collaboratively with their mathematics specialists in training on at least one assignment in each of the three leadership courses. The Management Team and the Course Design Team for the three leadership courses believe that along with providing sustained experiences for the administrators the specialist will benefit from developing their knowledge and skills to help them advocate for themselves. Activities and readings about negotiating relationships with administrators and case students about working with administrators have been added across the three courses. In addition during the three courses, participants will interview an administrator regarding their vision for the schools mathematics program, be asked to partner with an administrator in a book study, and include the administrator in a lesson study cycle.

Virginia's Mathematics Specialists Administrator's Advisory Council and Taskforce

As shown in Figure 1 the Grant Project has identified ways to gather feedback and advice from various stakeholders. Realizing that administrator's were not represented in this structure several members of the Grant Management team who are also on the Board of the Virginia Mathematics and

Science Coalition (VMSC) brought this to the attention of the Board. As a result, the VMSC recommended in early 2010 that a Task Force be established that would gather information at the state level and that the Task Force be co-chaired by a member of the Grant Project and a mathematics educator from a university not in the grant project. The membership of the Taskforce is made up of school division elementary and middle school building level and central office administrators with representation from the mathematics and the mathematics education community. The Taskforce is charged to examine Virginia's Mathematics Specialist Program from an administrator's perspective and to examine available current information and research about mathematics specialists in Virginia and nationally and their impact on instruction, learning, and policy. The following questions will guide the work of this Task Force.

1. What roles and responsibilities define the various models for mathematics specialists that have been implemented in Virginia's schools and how do these models align with models at the national level?
2. How do administrators facilitate and support the coordination of the various instructional roles in a school to enable the greatest impact on learning?
3. What roles do the Institutes of Higher Education and the school division central office assume to develop the knowledge and skills to enable administrators to implement and support a mathematics specialist in a collaborative relationship for continuous improvement of the schools mathematics program?
4. What steps can be taken to grow and expand Virginia's mathematics specialist program?

Applying Lessons Learned to Enhance Participants Leadership Courses

Resources for Work with Administrators:

Balka, D.S., Hull, T.H. & Miles, R.H. (2010). *A guide to mathematics leadership: sequencing for instructional change.* Thousand Oaks, CA: Corwin Publishers.

Grant, C.M., Nelson, B.S., Davidson, E., Sassi, A., Weinberg, A., & Bleiman, J. (2003a). *Lenses on Learning, module 1: Instructional leadership in mathematics.* Parsippany, NJ: Dale Seymour Publications.

Grant, C.M., Nelson, B.S., Davidson, E., Sassi, A., Weinberg, A., & Bleiman, J. (2003b). *Lenses on Learning, module 2: Teacher learning for mathematics instruction*. Parsippany, NJ: Dale Seymour Publications

Grant, C.M., Nelson, B.S., Davidson, E., Sassi, A., Weinberg, A., & Bleiman, J. (2003c). *Lenses on Learning, module 3: Observing today's mathematics classroom*. Parsippany, NJ: Dale Seymour Publications.

Grant, C.M., Nelson, B.S., Davidson, E., Sassi, A., Weinberg, A., & Holland, S.G.B. (2006). *Lenses on learning, Supervision: Focusing on Mathematical Thinking.* Parsippany, NJ: Dale Seymour Publications

Hall, G. & Hord, S. (2001). *Implementing change: patterns, principles, and potholes.* Needham Heights, MA: Allyn & Bacon.

Love, N., Stiles, K., Mundrey, S, & DiRanna, K. (2009). *The Data Coach's Guide to Improving Learning for All Students: Unleashing the Power of Collaborative Inquiry* . Norwood, MA: Christopher-Gordon.

Morse, A. (2009). *Cultivating a coaching practice: A guide for K-8 math educators.* Thousand Oaks, CA: Corwin Publishers.

National Council of Supervisors of Mathematics (2008). *PRIME leadership framework: Principles and indicators for mathematics leaders.* Bloomington, IN: Solution Tree.

NCTM and ASCD. (2003). *Administrator's guide :How to support and improve mathematics education in your school.* Reston, VA: NCTM.
Nelson, B.S. & Sassi, A. (2000). Shifting approaches to supervision; The case of mathematics supervision. *Educational Administration Quarterly,* 3(4), 553-583.
Nelson, B. S. & Sassi, Annette. (2005). *The effective principal: Instructional leadership for high-quality learning*. New York, NY: Teachers College Press.
Spillane, J.P., Halverson, R. & Diamond, J.B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher,* 30(3), 23-28.

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